

THE SYSTEMATICS AND BIOLOGY
OF THE NEW WORLD THIEF ANTS OF
THE GENUS *SOLENOPSIS*
(HYMENOPTERA: FORMICIDAE)

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José A. Pacheco
and
William P. Mackay

With a Foreword by John Lattke
Universidad Central de Venezuela

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FOREWARD

Exploring and documenting the living world that surrounds us is a never ending and monumental task that has been undertaken by legions of persons throughout history. Yet for all such endeavor, our knowledge of things biological remains scant and uneven, with some areas much better known than others. If we compare the body of knowledge about vertebrates with invertebrates, such as insects, this imbalance becomes starkly apparent. Within the insects ants have been the subject of such attention that they are considered a relatively better known group than many others, but despite such efforts there still remain significant areas shrouded in mystery.

One such abyss are the thief ants, minute denizens of the soil and leaf litter, which abound in many surveys of ground dwelling ants, especially in the New World tropics. Their small size and somewhat scant morphological differences between the species have been a strong disincentive for revisionary work by myrmecologists, with most treatises being geographically restricted in scope. Sadly none of these are from the Neotropics, where more than half of the known species are known, and where some surveys have recorded a diversity of *Solenopsis* that exceed 10% of all species sampled.

Such abundance hints not only of the presence of many undescribed species, but also suggest significant roles in ecosystems processes for these ants in at least some localities. Unfortunately our knowledge of thief ants mostly consists of scattered descriptions, and many morphospecies lists from diverse surveys and fieldwork, either of which may be of little use anyways given the onerous demands in recognizing their species. Such is the dread thief ants inflict that some surveys have even excluded them from consideration, rendering them an ostracized caste of untouchables, shunned by ecologists and taxonomists alike.

Imposing some semblance of order within such such chaos is not for the lighthearted, nor for those who will not budge until all is perfect, for such a moment rarely comes, if ever. Given the difficulties, the chosen path has been one of patiently chipping away at various odds and ends throughout several decades, accumulating information and opportunistically solving problems until a more compact target loaned itself for a final assault. The siege in itself was to last several more years but bolstered by the youthful energy of Isidra Moreno and Jose Pacheco. Their iron-willed determination, gluttony for work, and team – effort, persevered over the difficulties and risks, finally permitting a preliminary vision

of the New World species of *Solenopsis*.

They offer us the recognition of slightly over 80 species, all diagnosed, described, and illustrated, including gynes and males when possible. Well-illustrated keys, in Spanish as well as English, will help users determine their ants. Every species account includes a discussion of the and strengths upon which each species is defined, thus further aiding identifications. Major taxonomic changes are proposed, including the reasoned synonymy of many taxa. A new scheme of well-defined species complexes is outlined, doing away with the ambiguities of previous schemes and facilitating determinations. Notwithstanding their gargantuan effort, the authors candidly explain the limits and shortcomings of their work.

With this product a gate is unlocked and cast aside, and permitting light to shine upon a vast chamber, hitherto unknown and even avoided. Like the initial steps of speleologists within a grand cave system the first light reveals numerous shadows, abysses, and galleries waiting to be explored. The first survey then takes a life of its own as it is corroborated, corrected and complemented by subsequent teams of spelunkers. Let this opus be the key and light to encourage and guide further exploration of this group of ants.

J. Lattke
Jan 2013

PREFACE

Thief ants are among the most common ants in nearly all terrestrial habitats, ranging from the driest deserts to the wettest tropical forests. They are rarely collected by the non-specialist due to their small size and cryptic habits. Most species are primarily or strictly subterranean. Most of our material has been collected from litter extractions and subterranean bait traps. We have collected the majority of the specimens found in all of the museums using these techniques. Additional specimens have been collected by outstanding myrmecologists and entomologists including Robert Anderson, Marta Baena, Stefan Cover, Mark Deyrup, Robert Johnson, James Trager, Jim Wetterer, Alex Wild and Thibaut Delsinne and we are grateful for being allowed to include the data in this manuscript. Unfortunately little work has been done on these ants as they have been nearly impossible to identify.

We are providing identification keys along with descriptions, diagnoses and comparisons within species of all of the taxa that are known to occur in the New World. This work includes all of the non “fire ants” that occur in this area. We are doubtful this is a monophyletic group, although they have morphological similarities that allow them to be grouped. We have examined types of all the species we could locate. We have taken a very conservative approach, describing new species only when they are clearly different and synonymizing taxa only when they are completely identical. Sometimes we used synonyms for illustrations, when reproductives were not available or the types were in poor condition.

Unfortunately identification of these ants is difficult, and you will have to have considerable experience with larger ants with obvious morphological differences before attempting to work with these monotonous ants. You will also need an accurately calibrated micrometer and a high quality stereoscope. A reference collection will be helpful, and we have distributed specimens to a number of North and South American museums as well as European museums to aid your efforts in identifying the species.

This book has been edited by Dr. Fernando Fernández and Dr. James Trager. We greatly appreciate these outstanding myrmecologists for improving this work. We also appreciate all of the efforts curators of various museums have made in locating the types. These individuals and the institutions are listed at the end of the manuscript.

We dedicate this monograph to José’s parents Rafael and Elba Pacheco and his brothers Rafael and Walter who were always there for him, supporting, having a positive attitude and encouraging him to work hard but still have fun. Thank you Mom, Dad and Rafael for all of your support. Thanks Dad and Rafael for bringing me dinner on those long nights in the lab and for giving me company on those many extended weekends. I love you all.

ABSTRACT

The New World thief ant group of *Solenopsis* is revised. Although it may not be a monophyletic taxon, the species can be defined as tiny (~1.5 mm total length, some species have larger majors) predominately yellow ants (some species are brown) with a 10-segmented antenna and a 2-segmented club. The second and third segments of the funiculus are about as long as wide. The clypeus nearly always has two carinae which diverge anteriorly and usually terminate in small teeth. There is a single seta at the midpoint of the anterior margin of the clypeus.

Seventy-four taxa are recognized and 12 new species are described, totaling 86 species. Species limits were based on distinct disparities in overall morphology among specimens. All available subspecies, stirps, races and varieties were examined. Decisions for synonymy or revised species status were also based on geographic and ecological grouping when such information was available. Major taxonomic changes are proposed, including the synonymy of many taxa. Diagnoses of the worker, female and male castes are included. All castes are described when available, accompanied by illustrations, measurements, discussion, locality maps, with keys provided for identification of the workers.

As the former subgeneric designations are not useful and the previous species complexes did not encompass all the taxa in the New World, eight informal complexes have been proposed. The following complexes and species are included: ***brevicornis* complex**: *azteca*, *brevicornis*, *terricola*; ***fugax* complex**: *germaini*, *johnsoni* n. sp., *krockowi*, *melina* n. sp. *orestes*, *patagonica*, *pergandei*, *piilosula*, *rugiceps*, *tetracantha*, *thoracica*, *vinsoni* n. sp., *westwoodi*; ***globularia* complex**: *bucki*, *desecheoensis*, *globularia*, *lucayensis*; ***molesta* complex**: *abdita*, *abjectior*, *basalis*, *carolinensis*, *castor*, *clytemnestra*, *conjurata*, *corticalis*, *decipiens*, *franki*, *gnoma*, *helena*, *joergenseni*, *laeviceps*, *latastei*, *loretana*, *maboya*, *major*, *molesta*, *nickersoni*, *parva*, *patriciae* n. sp., *picea*, *picta*, *pollux*, *quadridentata* n. sp., *rosella*, *salina*, *striata* n. sp., *subtilis*, *sulfurea*, *tenuis*, *texana*, *validiuscula*, *zeteki*; ***nigella* complex**: *andina*, *emiliae*, *gensterblumi*, *macrops*, *metanotalis*, *nigella*, *oculata*, *photophila*, *schilleri*, *shiptoni*; ***pygmaea* complex**: *dysderces*, *goeldii*, *impolita* n. sp., *isopilis* n. sp., *leptanilloides*, *minutissima*, *ocellata* n. sp., *pulleni* n. sp., *pygmaea*, *subterranea*, *tennesseensis*, *tonsa*, *whitfordi* n. sp.; ***stricta* complex**: *hayemi*, *longinoi* n. sp., *stricta*; and ***wasmannii* complex**: *altinodis*, *bicolor*, *iheringi*, *succinea* and *wasmannii*.

Key words: *Solenopsis*, Thief ants, Revision, Formicidae

RESUMEN

Se revisan las especies de las hormigas ladronas del género *Solenopsis* del Nuevo Mundo. Posiblemente no es un grupo monofilético, pero las obreras de las especies pueden reconocerse por su pequeño tamaño (~ 1,5 mm de longitud total, algunas especies tienen obreras mayores mas grandes), predominante color amarillo (algunas especies son de color marrón), con una antena de diez segmentos con masa de dos segmentos. Los segmentos dos y tres del funículo son tan ancha que larga. El clípeo casi siempre tiene dos carinas que se divergen anteriormente y muchas veces se terminan en dienteillos. Tienen un solo pelo en la mitad del margen anterior del clípeo.

Sesenta y cuatro especies son reconocidas, más 12 especies nuevas con un total de 86 especies. Los límites de las especies fueron basados en diferencias distintas en la morfología dentro de las especies. Todos los subespecies, estirpes, rasas y variedades fueron examinados. Decisiones sobre los sinónimos o revisiones en el estatus de especies fueron basados en grupos geográficos y ecológicos cuando la información era disponible. Cambios mayores de taxonomía son propósitos, incluyendo la sinonimia de varias taxas. Diagnoses de obreras, hembras y machos están incluidas. Todas las castas están descritas cuando disponibles, acompañado por figuras, medidas, discusiones, mapas de localidades, con claves para la identificación de las obreras.

Los subgéneros no son útiles y no son reconocidos, los complejos previamente reconocida no incluyeron todas las especies del Nuevo Mundo, ocho complejos informales están propuestos. Presentamos una lista de los complejos con sus especies, **complejo de brevicornis**: *azteca*, *brevicornis*, *terricola*; **complejo de fugax**: *germaini*, *johnsoni* n. sp., *krockowi*, *melina* n. sp., *orestes*, *patagonica*, *pergandei*, *pilosula*, *rugiceps*, *tetracantha*, *thoracica*, *vinsoni* n. sp., *westwoodi*; **complejo de globularia**: *bucki*, *desecheoensis*, *globularia*, *lucayensis*; **complejo de molesta**: *abdita*, *abjectior*, *basalis*, *carolinensis*, *castor*, *clytemnestra*, *conjurata*, *corticalis*, *decipiens*, *franki*, *gnoma*, *helena*, *joergenseni*, *laeviceps*, *latastei*, *loretana*, *maboya*, *major*, *molesta*, *nickersoni*, *parva*, *patriciae* n. sp., *picea*, *picta*, *pollux*, *quadridentata* n. sp., *rosella*, *salina*, *striata* n. sp., *subtilis*, *sulfurea*, *tenuis*, *texana*, *validiuscula*, *zeteki*; **complejo de nigella**: *andina*, *emiliae*, *gens-terblumi*, *macrops*, *metanotalis*, *nigella*, *oculata*, *photophila*, *schilleri*, *shiptoni*; **complejo de pygmaea**: *dysderces*, *goeldii*, *impolita* n. sp., *isopilis* n. sp., *leptanilloides*, *minutissima*, *ocellata* n. sp., *pulleni* n. sp., *pygmaea*, *subterranea*, *tennesseensis*, *tonsa*, *whitfordi* n. sp.; **complejo de stricta**: *hayemi*, *longinoi* n. sp., *stricta*; y **complejo de wasmannii**: *altinodis*, *bicolor*, *iheringi*, *succinea* y *wasmannii*.

Palabras claves: *Solenopsis*, Hormigas ladronas, Revisión, Formicidae

Introduction

Ants can be found in nearly every terrestrial ecosystem, but are often only detected by humans when they become “pests.” Ants are often the dominant arthropod in ecosystems and their presence is crucial in turning soil, dispersing seeds and channeling nutrients and energy (Hölldobler and Wilson, 1990). They are important ecologically because they are found at several levels in an ecosystem, where they can be both predator and prey and can function as detritivores as well. Thus, systematic work on these small arthropods is extremely important, as such study may reveal how ants can be used in conservation and environmental ecology.

The genus *Solenopsis* is known primarily for “fire ants,” but also includes smaller lestoprocting (situation in which a smaller ant species nests in the walls of a larger species of ants and steals brood or food) species known as “thief ants.” These thief ants are inconspicuous, smaller species that are often strictly subterranean and rarely collected, while the larger fire ant species are ground dwelling and commonly collected. In general, *Solenopsis* are ants in which the mandibles have four teeth (except for *S. bucki*). The clypeus is bicarinate with 0-5 teeth on the anterior margin, with a single hair present between the carinae on the anterior margin. The frontal lobes are present and can be vertically striated, but are most commonly without sculpturing. The antennae of the workers have 10 segments, with a 2-segmented club, with the scapes rarely reaching the posterior lateral corners of the head. The pronotum lacks protrusions such as spikes or bumps. The notopropodeal suture is most often deeply impressed. The propodeum is mostly rounded between the faces and is without teeth. The metapleuron is most often horizontally striated (at least partially). The petiole and postpetiole are well developed, with the petiole often wider than the postpetiole when viewed laterally but thinner than the postpetiole when viewed dorsally. Most species are moderately to very pilose, with most surfaces covered in erect and suberect hairs. Additionally, most species lack sculpturing on all body surfaces and are smooth and shiny and with few exceptions that have rugulae or striae on the head, mesosoma, petiole and postpetiole. Species vary from pale yellow to black (rare); most are concolorous, with a few exceptions that are bicolored.

The workers of the thief ant group have the above characteristics, but are very small (majority rarely exceeding 2 mm in total length), with minute eyes (usually 1-5 ommatidia, rarely more than 18, except for the *globularia* and *nigella* complexes that can have up to 60 ommatidia) and are most often concolorous yellow. The minor funicular segments 2-3 are most often slightly wider than long. Most species of thief ant are monomorphic or weakly polymorphic; a few of the Latin American species are strongly dimorphic to polymorphic.

The taxonomy of *Solenopsis* was largely carried out over 50-120 years ago. Descriptions of species and delineation of species complexes were based on few characters and few specimens. Moreover, the typological species concept was used in which a species was represented by one to several “types” or standards and specimens were compared to this standard for valid identification. In essence, the researchers of the day were liberal in naming and describing new species and any difference, whether it be a minute variation in coloration or phenotypic structure from the “type,” was thusly named a subspecies, race, stirp or variety. That system, practiced by specialists who seldom communicated and exchanged specimens, produced a confused jumble of names with many trinomials and quadrimomials (Agosti *et al.*, 2000). Consequently, efforts at correct identification of members of the genus *Solenopsis* were, and are, extremely difficult.

Significance

The genus *Solenopsis* is one of most taxonomically difficult of the ant taxa. Creighton (1950) states “The student of North American ants may count himself fortunate that so few species of this difficult genus occur in our latitudes. He/She is thus saved from the task of trying to distinguish the many tropical species whose worker caste shows an astonishing and baffling convergence.”

It is well known that the thief ant group of the genus needs taxonomic work, but few have attempted and none have executed a complete revision. There have only been three notable works in the past 80 years that have attempted a synthesis of parts of the genus *Solenopsis*, Creighton (1930) and Trager (1991) of the New World species of the “fire ants” of the genus *Solenopsis*, and Moreno-Gonzalez (2001) in her master’s thesis “A Revision of the North American Thief Ants” (unpublished). These works focused on only a portion of the genus or a portion of the North American fauna and all three works had keys.

The systematics of *Solenopsis* is of particular importance because fire ants (Trager, 1991) have been introduced into the United States and have emerged as significant pests (Taber, 2000; Tschinkel, 2006). Specifically, the red imported fire ant, *Solenopsis invicta*, was introduced into the United States over 70 years ago and has since spread quickly. It infests more than 310 million acres in thirteen states and Puerto Rico (Crocker, 2000). In its spread, it has replaced native species and displaced the black imported fire ant (Lockley, 2001). This pest impacts humans, agriculture, wildlife and other organisms in the environment and has caused damage to roads, electrical equipment and telephone junction boxes (Lockley, 2001). There are several control measures for the red imported fire ant, from individual mound treatments to broadcast treatments. However, these measures have failed to eradicate them or prevent their spread through the United States (Crocker, 2000). An effective treatment is needed and biological control may be the appropriate path to take. Thief ants kill founding queens of *Solenopsis*

invicta, but the identification of these potential biological control species is confounded by lack of knowledge. Other species of thief ants may be of potential importance in the control of other invasive ant taxa. For example, the thief ant *Solenopsis decipiens* has been purported to prey on a coffee pest hemipteran (Inge Ambrecht, Universidad del Valle, Pers. com.).

The present work is the first complete taxonomic revision of the thief ant group of *Solenopsis* in the New World. The result of this revision should be viewed as a foundation providing information for continued research. Questions concerning phylogeny, ecosystem structure and function, as well as systematic analyses can now be addressed for this fascinating, potentially ecological and economical important group of ants.

Taxonomic History of the Genus

The genus *Solenopsis* has had a long, complex history. We will discuss changes that have occurred to the group in the New World (Fig. 1).

Ettershank (1966) recognized three groups within *Solenopsis*, the “fire ants,” the “thief ants,” and the “parasitic species.” The “fire ants” include the former subgenus *Solenopsis* and are currently placed in the *saevissima* and *geminata* species complexes, which may be paraphyletic or even polyphyletic (Trager, 1991). The thief ants are for the most part members of the former subgenus *Diplorhoptrum*. We do not address the monophyly of *Solenopsis* nor the monophyly of thief ant group within the genus. However, it is unlikely that this group is monophyletic. Convergence in morphological characters among the large array of species suggests that molecular analyses will be necessary to eventually reveal the phylogeny of this difficult group.

The subgenus *Diagyne* contained a single species, *S. succinea* and the subgenus was synonymized by Ettershank (1966). *Solenopsis succinea* lacks clypeal carinae and teeth; a trait seen with other species in *Solenopsis* (i.e. *wasmannii* complex and other species that have very reduced teeth). The female has a 10-segmented antenna, an unusual trait within *Solenopsis* in which other females have an 11-segmented antenna. Trager (1991) suggests that the workers of *S. succinea* are not distinguishable from the workers of the former subgenus *Euophthalma*, currently the *globularia* species complex. We disagree, *S. succinea* workers actually resemble the minor workers of the members of the *wasmannii* complex. We therefore concur with Ettershank on the synonymy of *Diagyne*. The former subgenus *Euophthalma* includes two groups, two apparently related (*nigella* and *metanotalis* placed together into a *nigella* complex) and one possibly unrelated (*globularia* species complex). This subgenus was also synonymized by Ettershank (1966). Workers of these complexes have large eyes (usually 20-50 ommatidia), a well-developed clypeal carinae, an angulate posterior propodeal margin and a sharp pointed petiolar node. In addition, they are monomorphic or

weakly polymorphic. The *metanotalis* group is easily recognized, as the workers are bicolored (red and black) and have horizontal striae that cover both the mesopleuron and metapleuron entirely (and in some species the pronotum as well). At first glance, the workers of the *nigella* group may be difficult to separate from members of the former subgenus *Solenopsis*, as the eyes are large and contain many ommatidia, the posterior propodeal margin is angulate and the dimensions of the minor funicular segments 2-3 are similar. However, all of these characters are variable and would be weak criteria for considering the members of the *nigella* complex a separate subgenus. Moreover, *S. huachucana* is a synonym of *S. aurea* (Trager, 1991), a “fire ant.” Trager (1991) states that the *nigella* complex is apparently not differentiable from *Bisolenopsis* and *Synsolenopsis*, which he confirms are synonyms of *Solenopsis* (following Ettershank, 1966). The *nigella* group however is more similar to the *metanotalis* group and shares the above characteristics, including large eyes, well developed clypeal carinae, an angulate propodeal margin and a sharp petiolar node. The *nigella* group differs only in being concolorous dark brown to black species. The *globularia* species complex is easily recognized as the postpetiole is globose and enlarged, dwarfing the petiole in size. Trager (1991) suggests that the *globularia* species complex is related to the *tenuis* group of the thief ants, as they share several synapomorphic features (unspecified by Trager). We suspect that the *globularia* species complex is related to the thief ants and with analysis of molecular markers this relationship may be eventually understood. Therefore, the *globularia*, *nigella* and *metanotalis* species complexes appear to be monophyletic groupings; a thorough phylogenetic analysis is still needed to verify this.

We agree with Ettershank (1966), Bolton (1987) and Trager (1991) that the genus-level taxa linked with *Solenopsis* are unclear, overlap and therefore we do not formally recognize any of the former subgenera. Thus we concur with Trager’s reaffirmation of Ettershank’s synonymy of *Bisolenopsis*, *Synsolenopsis* and *Oedaleocerus*. We have not examined the types of *Lilidris metatarsalis* Kusnezov, *Labauchena daguerrei* Santschi, *Paranamyрма solenopsidis* Kusnezov and *Granisolenopsis granivora* Kusnezov and therefore do not address the validity of *Lilidris*, *Labauchena*, *Paranamyрма* and *Granisolenopsis* in this work (see Ettershank, 1966 and Trager, 1991, Bolton, 2003).

Taxonomic History of the Thief ants within *Solenopsis*

The thief ants have a complex history within *Solenopsis*. *Solenopsis* is notoriously known for inclusion of these “smaller species,” all morphologically similar with overlapping variation, inconspicuous habits and the workers that rarely exceed 2 mm in total length. Mayr (1855) proposed the subgenus *Diplorhoptrum* of *Solenopsis* to address the thief ants and later synonymized *Diplorhoptrum* with *Solenopsis* in 1862. Creighton (1930) revived it from synonymy where it re-

mained as a subgenus until 1966, when Ettershank synonymized it with *Solenopsis* once again. Baroni-Urbani (1968) then raised *Diplorhoptrum* to the status of genus. *Diplorhoptrum* was once more synonymized with *Solenopsis* by Kempf in 1972, where it has remained to date (Bolton, 1987) (Fig.1). We can conclude that thief ants are morphologically similar to the fire ants of the former subgenus *Solenopsis*. However, ecologically they are very different as thief ants are nearly strictly subterranean and lestopibiotic whereas fire ants make surface nests and are predaceous.

The three attempts at a synthetic work include Creighton (1930), where he provided keys to the workers of the former subgenus *Euopthalma* that occur in the New World and described and provided keys to 10 of the 40 North American species (Creighton 1950) and Moreno-Gonzalez (2001) that provided keys to three of the five species complexes that occur in North America. Unfortunately, these works consisted of isolated descriptions of few species or new castes with Creighton addressing only 20 species (10 from North America and 10 from South America) and Moreno-Gonzalez included 30 species restricted to North America. We regard Moreno-Gonzalez's work as a starting point and the changes to her classification will be included in this work. These changes are the result of examining additional type material not included in her thesis as well as all of the New World species. We refer to the 130 taxa ranging from North America to the Caribbean and South America, completing the New World. Additionally, we re-examined her material and redescribed the species located in North America, adding missing species when it was necessary.

Materials and Methods

Sources of Material

Specimens were borrowed from and deposited in the following museum collections, courtesy of the listed curators. Codes mainly follow Brandão (2000) and are used throughout the remainder of the text.

AMNH American Museum of Natural History, New York, USA

BMNH The Natural History Museum, London, U.K.

CASC California Academy of Sciences, San Francisco, California, USA

CWEM Collection of William & Emma Mackay, University of Texas, El Paso, Texas, USA

CDRS Charles Darwin Research Station, Galápagos Islands, Ecuador,

FSCA Florida State Collection of Arthropods, Gainesville, Florida, USA

FMNH Field Museum of Natural History, Chicago, Illinois, USA

IEGG Università Degli Studi di Bologna, Bologna, Italy.

IEMJ Instituto de Ecología, Jalapa, Veracruz, México

INBC Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica.

JTLC J.T. Longino Collection, Evergreen State College, Olympia, Washington, USA

LACM Los Angeles County Museum of Natural History, Los Angeles, California, USA

MACN Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina.

MCSN Museo Civico Di Storia Naturale "Giacomo Doria," Genoa, Italy.

MCZC Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA

MZSP Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil.

MHNG Muséum d'Histoire Naturelle, Genève, Switzerland.

NHMB Naturhistorisches Museum, Basel, Switzerland.

NHMW Naturhistorisches Museum, Wien, Switzerland.

QCAZ Museo de Zoología de la Pontificia Universidad Católica del Ecuador, Quito, Ecuador.

RAJC Robert Johnson, Collection

TAMU Texas A&M University, College Station, Texas, USA

UNAM Universidad Nacional Autónoma de México, México.

USNM United States National Museum of Natural History, Washington, D.C., USA

Personal Loans of Specimens

Ambrecht, Inge, E. Jimenez & L. Franco, Colombia.
Deyrup, Mark, Archbold Research Station.
Helms, Ken, Texas A & M University College Station, Texas.
Johnson, Robert, Arizona State University.
Wild, Alex, The University of California at Davis.

Designation of Lectotypes

The majority of New World thief ant species were based on descriptions without the author selecting a specific specimen to serve as the holotype. These species were most often deposited in museum collections as a series of syntypes. Throughout this work, we have designated and labeled lectotypes in such syntype series to uphold nomenclatural stability. The lectotypes designated in this work can be found under the types examined section for each species account. The information of each lectotype designation can be found on red labels and paralectotype designations on yellow labels which are attached to the pins of the specimens. In the case of a mixed series, priority was given to females in most cases unless evidence from the original descriptions revealed the actual specimen described.

Additionally, new species have been clearly identified with red holotype and yellow paratype labels. In the case of large series, paratypes have been distributed to museums across the United States, Central America, South America and Europe.

Geography

Distributional data were taken from specimens examined during the course of this study to facilitate the construction of distribution maps. Additionally, literature records were included from the original descriptions and from Creighton (1930, 1950), Kempf (1973), Moreno-Gonzalez (2001) and Pacheco (2007). Maps were created using MapViewer 6.0 on a Windows PC computer platform using coordinates provided on specimen labels or obtained from maps or gazetteers. Geographical information can be found under the Locality section of each species account. The maps reflect geographic points of examined material and the term locality does not imply the true ranges of species. The term is retained only for organizational purposes as distributional ranges for most species are not well known and the geographical points are often solely reflective of type material.

In the material examined sections, locality data are presented as they appear on the specimen labels and may include some older or out of date names for administrative or political divisions. Latitude and longitude coordinates are included when such data appeared on the original specimen label. Some locality in-

formation was uninformative (*i.e.*, Type locality, South America) and not included in the locality maps.

This study is based primarily on several thousand specimens we have collected over the past 40 years, supplemented with extensive collections of leaf litter ants by Bob Anderson. We have also collected additional specimens using subterranean traps and other methods from Argentina, Costa Rica, Ecuador and Guatemala, as additional sampling in the United States was not necessary due to the abundant specimens we collected and the many borrowed from museum and personal collections. We used types from various collections to check identifications for approximately 97% (species in Brazilian museums were unavailable) of the species.

Morphological Characters

This study is based mainly on morphological characters, which have been observed using a dissection microscope. Illustrations were completed with the aid of a grid and micrometer in the ocular lenses. The following characters were used including the shape and length of parts of the worker, female and male.

(Definitions modified for *Solenopsis* from Bolton 1994),

Antennal segments—Antennal components consist of an elongate basal segment, the *scape*, followed distally by nine smaller segments which together constitute the *funiculus* (= flagellum), with the last two segments swollen to form a *club* (2-segmented club in *Solenopsis* workers and gynes). The total antennal count (= antennomere count) is therefore 10. Segments 3-8 (the minor funicular segments) are important characters in this study.

Clypeus and expression of the teeth—the clypeus is the anterior sclerite of the dorsum of the head, bounded posteriorly by the fronto-clypeal suture, also known as the posterior clypeal margin or border. The anterior clypeal margin usually forms the anterior margin of the head in full-face view. Protrusions referred to as “teeth” extend anteriorly from the clypeal margin and vary from 0-5 in number in *Solenopsis*.

Clypeal carinae—the median portion of the clypeus is equipped with two longitudinal carinae (ridges or low, keel-like crests), usually well defined, but in few species weakly so.

Size of eyes—the eyes are compound, consisting of ommatidia or optical components. The number of ommatidia ranges from 1-60 in the workers of the thief ant group of *Solenopsis* and is an important taxonomic character. The number of ommatidia in the female and males castes is insufficiently known to be focused on in this work. However, they are known to range from 100 to over 150 in the females (pers. observation) and 200 to over 300 in the males (pers. observation).

Mesosoma—the second tagma (alitrunk) of an ant's body, following the head is the mesosoma. Morphologically, the alitrunk consists of the three segments of the true thorax (pro-, meso- and metathorax) to which is fused the propodeum, the tergite of the first abdominal segment forming a single unit. We have used the following terminology to describe the mesosoma in this work, pronotum, mesonotum, mesopleuron, metanotum, metanotal groove, propodeum and metapleuron.

Petiole—the second abdominal segment, the petiole, is the segment immediately following the mesosoma; it is usually reduced and always isolated. Generally the petiole takes the form of a node (nodiform), varying in shape and size.

Postpetiole—the third abdominal segment, the postpetiole, is the segment immediately following the petiole. It is also usually reduced and isolated, varying in size and generally, taking the form of a node (nodiform).

Pattern and length of the hairs—Hair characters involve any stout hair that is socketed basally. Generally, the terms seta and hair are interchangeable. These are often used under the term pilosity, which additionally small to minute, hair-like cuticular projections that are not socketed basally (also called “pubescence”).

Diameter of the cephalic punctures—Cephalic punctures are pin-prick pores present dorsally on the head. These punctures can be *fine*, not much larger than the diameter of the hairs that may project from them or *coarse*, in which they are often circular, pit-like and much larger in diameter than the hairs that may project from them.

Measurements and Indices

Measurements were made using a micrometer in a Wild stereoscope at 80X. All measurements are in millimeters. Acronyms of the morphometric characteristics are listed below and illustrated in the figures listed. The measurements for medial ocellus length (MOL) and width (MOW) are solely for the gyne and male.

TL Total length from the vertical oriented head to gaster measured in lateral view. This measurement should be viewed as imperfect due to specimen shrinkage and variation in the orientation of the head and gaster; an occurrence especially seen in the gaster. It is merely included in this study for general comparison of overall size. Head length, head width and Weber's length are better measures for overall size comparison.

HL Head length, measured in full frontal view, from anterior margin of medial lobe of clypeus to posterior border of head (Fig. 6).

HW Head width, measured in full frontal view, maximum width excluding eyes (Measured immediately posterior to eyes) (Fig. 3).

- EL** length, maximum diameter of eye (Fig. 26).
ED Eye diameter, minimum diameter of eye (Fig. 26).
MOL Median ocellus length, maximum diameter of ocellus.
MOW Median ocellus width, minimum diameter of ocellus.
SL Scape length, excluding basal condyle (Fig. 5).
FSL Funicular segment length, referring to the total length of the minor segments 3-8 (Fig. 5).
CI Cephalic index, $HW/HL \times 100$.
SI Scape index, $SL/HL \times 100$.
PSL Propodeal spiracle length, maximum diameter of spiracle (Fig. 17).
PSW Propodeal spiracle width, minimum diameter of spiracle (Fig. 17).
PL Petiole length, maximum length of node measured in dorsal view, starting at posterior edge of peduncle and ending at anterior edge of helcium (Fig. 8).
PW Petiole width, maximum width of node measured in dorsal view (Fig. 8).
PI Petiolar index, $PL/PW \times 100$.
PPL Postpetiole length, maximum length of node measured in dorsal view, starting posterior to helcium and ending anterior to gaster (Fig. 8).
PPW Postpetiole width, maximum width of node measured across node in dorsal view (Fig. 8).
PPI Postpetiolar index, $PPL/PPW \times 100$.
WL Weber's length, a diagonal line from the top of the anterior edge of the pronotum to the posterior edge of the metapleural lobes (Fig. 17).

Definitions

Castes

Gyne—the terms female, queen and gyne are interchangeable in this revision and will be commonly referred to as dealate (wingless) or alate (winged).

Worker—the majority of the smaller species are monomorphic. Several species are dimorphic (*S. iheringi*, *S. johnsoni*, *S. tetracantha*, *S. thoracica* and *S. vinsoni*) and have a morphological different worker caste referred to as a “major” in this revision. Several of the larger species are polymorphic (*S. wasmannii* and *S. globularia*) and you will see the largest individuals referred to as the “larger workers of this species or the largest majors” for example.

Male—Due to the nature of most field collections and the inconspicuous nature of most species of *Solenopsis*, fewer than ¼ of the species are represented by available specimens.

Morphology

Lateral clypeal teeth (Fig. 1)—Extensions of the longitudinal carinae, commonly denoted as the lateral teeth, referring to the bicarinate projections extending past the anterior clypeal margin. These projections can be well defined

“teeth” as seen with *S. metanotalis*, angular “teeth” as seen with *S. decipiens* or lacking entirely as seen with *S. spei*.

Extralateral clypeal teeth (Fig. 1)—Referring to the additional projections extending laterally on the anterior clypeal margin adjacent to the lateral clypeal teeth. The projections can be well-defined teeth as seen in *S. krockowi*, angular projections or swollen bumps as seen with members of the *fugax* species complex or otherwise absent as seen with the majority of the members of the *molesta* species complex.

Additionally, clypeal teeth can range from 0 (*S. spei*, *S. succinea* and the minor of *S. iheringi*) to 2, 3, 4 or 5. In the cases where 3 or 5 clypeal teeth are present, a medial tooth is found between the lateral teeth. Five teeth can be found in *S. globularia* or the larger workers of *S. wasmannii*.

Notopropodeal suture (Fig. 2)—Referring to the depressed area of the mesosoma between the mesonotum and propodeum, in the region of the metanotum. This suture is well depressed in most species, with a groove that often breaks the sculpture of the mesosoma when viewed laterally.

Sculpture modified from (Harris, 1979 and Dubois, 1998),

Smooth and shiny—highly polished surface that strongly reflects light, referring to the glossy appearance of the cuticle without sculpturing. Most *Solenopsis* are smooth and shiny on most body surfaces. Exceptions are sculpturing present on the meso- and metapleuron, occasionally on the side of the petiole and postpetiolar nodes and in rare instances on the pronotum and surface of the head. The latter condition can be seen with *S. vinsoni* or *S. rugiceps*.

Punctate—referring to fine, impressed points appearing as pin-pricks. This term is most commonly expressed to describe cephalic punctures, that can be coarsely present as seen in *S. pygmaea* where the puncture is much wider than the hair projecting from it or finely punctate as seen in *S. molesta*. Occasionally, this term is used to express pronotal punctures.

Striate—referring to having narrow, either raised or impressed transverse lines or streaks. The majority of the species have transverse striae present on the metapleuron, but few species have striae present on the mesopleuron.

Rugulose—more commonly seen as rugulae or roughened sculpturing in the remainder of the text (*i.e.* Species Accounts), referring to irregular, nonparallel wrinkles set closely together. Rugulose sculpturing is most often seen on the propodeum in the gyne and or on the side of the petiole and postpetiolar nodes in the workers, but is present on the dorsum of the head in two species (*S. rugiceps* and *S. vinsoni*).

Pilosity

Appressed—referring to hairs parallel or nearly parallel to the cuticular surface.

Suberect—often denoted as suberect in the text, referring to hairs 10 to 75 degrees from the cuticular surface.

Erect—referring to hairs that are vertical or nearly vertical (perpendicular) to the cuticular surface.

Color

Cuticular color is a variable character trait in *Solenopsis*. The smaller members of the genus are generally known to be uniformly yellow, which is also a color seen in most other species. However, cuticular color may be variable within a species often as geographical variants within a species range. For example, *S. parva* is uniformly pale yellow in the northern part of Argentina but brown in coloration at the southern tip of Brazil. Although the majority of the species are pale yellow to a golden yellow, many species can additionally vary from a golden brown to dark brown. Additionally, several species are uniform black. A few species are bicolored, with a darker gaster compared to the remainder of the body. Notable of these are *S. basalis* (yellow anteriorly, dark brown gaster) and *S. metanotalis* (reddish orange, black gaster). Coloration of the workers is expressed similarly in the gyne, but in most cases the males of a species are dark brown to black and only rarely yellow.

Delineation of Species Limits

We have taken a conservative approach to delineating species limits in this revision. Of the 151 available named taxa, we only recognize 74 valid species. We have recognized an additional 12 new species, giving a total of 86 thief ant species in the New World. Species limits were contingent on the differences or distinct disparities in overall morphological appearance among specimens. These differences may be due to environmental pressures on different lineages, mutations, etc. Due to the limited material available, we are utilizing overall phenotypic similarity mainly in the worker caste and female and male caste when available as the criteria for defining species. Thus, we are employing the morphological species concept in this revision, in that a species comprises specimens that are morphologically similar to each other and share certain phenotypic traits that are unique and different from members of another species. In addition, all subspecies, stirps, races and varieties were compared to each other and the nominal when accessible. Decisions for synonymy or revised species status were adapted from Doyen and Slobodchikoff (1974) and were based not only on phenetic, but also geographic and ecological grouping when that information was available, thus incorporating criteria from the biological species concept as well (although in-

ferred). Grouping based on reproductives (or direct investigation of reproductive isolation) was not taken into account in this revision due to so few specimens of males on hand for genitalic dissection and comparison. Several species exhibit high variability in phenotypic traits, but without evidence that there are different species represented, (*i.e.* distinct differences exhibited in the other castes and geographic or ecological disparities), we have grouped together individuals exhibiting this variation under a single species (for example, *S. helena*), often proposing many synonymies, as seen in LaPolla, 2004. Throughout this work, proposed synonymy of subspecies, varieties or stirps are thusly not recognized as valid but as specimens that represent variation within the same species-level taxon. These species should be looked upon as hypotheses (Ward, 2001 and LaPolla, 2004) that can be and should be tested with further morphological data such as male genitalia or wing venation, as well as with molecular, behavioral, ecological and other additional forms of data now mostly unavailable. A morphological taxonomic work, such as this one, must necessarily come before any meaningful applications of comparative studies.

Description of the Genus *Solenopsis*

Genus *Solenopsis* Westwood (Myrmicinae, Solenopsidini)

Solenopsis Westwood, 1841, 87. Type *Solenopsis mandibularis* Westwood (= *Atta geminata* Fabricius), monobasic

= *Diplorhoptrum* Mayr, 1855, 449. Type *Formica fugax* Latreille, monobasic (Ettershank 1966)

= *Solenopsis* subgenus *Synsolenopsis* Forel, 1918, 155. Type *Solenopsis bruchiel-la* Emery, nom. substit. pro *Solenopsis bruchi* Forel, monobasic (Ettershank 1966)

= *Solenopsis* subgenus *Diagyne* Santschi, 1923, 267. Type *Solenopsis succinea* Emery, monobasic (Ettershank 1966)

= *Labauchena* Santschi, 1930b, p. 81. Type *Labauchena daguerrei* Santschi, monobasic (Ettershank 1966)

= *Solenopsis* subgenus *Euophthalma* Creighton, 1930, 43. Type *Myrmica globularia* Fr. Smith, by original designation (Ettershank 1966)

= *Solenopsis* subgenus *Oedaleocerus* Creighton, 1930, 43. Type *Solenopsis angulata* Emery, by original designation (Ettershank 1966)

= *Bisolenopsis* Kusnezov, 1953, 1. Type *Bisolenopsis sea* Kusnezov, monobasic (Ettershank 1966)

= *Paranamyrra* Kusnezov, 1954a, 9. Type *Paranamyrra solenopsidis* Kusnezov, monobasic (Ettershank 1966)

= *Lilidris* Kusnezov, 1957, 268, 274. Type *Lilidris metatarsalis* Kusnezov, monobasic (Ettershank 1966)

= *Solenopsis* subgenus *Granisolenopsis* Kusnezov, 1957, 270, 277. Type *Solenopsis (Granisolenopsis) granivora* Kusnezov, monobasic (Ettershank 1966)

The following are descriptions modified from Ettershank (1966) with focus on the "thief ants," excluding the larger "fire and parasitic" ant groups.

Worker. Total length about 1-5 mm (small to medium sized); monomorphic, dimorphic to polymorphic; allometry appears monophasic, marked polymorphism occurs where size range is large, where head increases allometrically, with changes in size and form of mandibles and with variation in the number of ommatidia; eyes ranging from 1 to over 60 ommatidia; antennae 10 segmented with 2-segmented club, ring segments variable in length, segments generally longer than broad in larger species and broader than long in smaller species (inconsistent); palpal formula usually 1,2; clypeus with median area sharply elevated above lateral areas and bounded by pair of slightly to strongly diverging clypeal carinae, usually well defined but weakly present in some species; carinae usually terminating in pair of weak to well-developed lateral teeth, often flanked by pair of extralateral teeth; a weak to well-developed median clypeal tooth present between lateral teeth; median area of clypeus with medial seta (always present and on medial tooth when present); promesonotal suture on pleurae entire only to height of spiracle in smaller species and minor workers of larger species, but may be complete in major workers of larger species; metanotal groove deeply impressed on dorsum; propodeum generally rounded, less commonly sharply angulate; declivity flat to slightly concave; spiracle generally round, ovoid or D-shaped in major workers of few large species, directed posteriorly; metapleural glands well developed; petiole always distinctly pedunculate, node high and rounded in small species and smaller workers of larger species; petiole and postpetiole nearly equal in size when viewed in profile in most cases; ventral surface of petiole below node distinctly to greatly swollen viewed in profile; subpeduncular process variable, with flange or tooth in many species; postpetiole not usually broadly attached to gaster; subpostpetiolar processes negligible to moderately well developed, with tooth present on few species; mostly pale yellow to reddish brown ants, few species dark brown to black, occasionally bicolored; exoskeleton not markedly sculptured, most species predominately smooth and shiny, with few species striated or with punctate or roughened sculpturing on head, propodeum, petiole or postpetiole; usually bearing sparse, long setae, often with appressed hair on scape and tibiae.

Female or gyne. Larger to much larger than worker, but with same general features; antennae 10 to 11 segmented, sometimes with both counts on same individual, with distinct 2-segmented club; palpi as in worker; clypeal carinae diverging anteriorly; propodeum generally rounded, occasionally angulate with ridges; petiole heavier, node broader, less markedly pedunculate than in worker, subpeduncular process negligible or small, with tooth or thin flange in some species;

postpetiole more broadly attached to gaster; most surfaces smooth and shining, propodeum often striated with petiole and postpetiole occasionally sculptured.

Male. Larger to much larger than worker (but nearly always smaller than gyne); antennae 12-13 segmented; scape short, barrel-shaped, about twice diameter of remaining funicular segments; clypeus rounded and swollen. Occasionally straight or slightly convex; clypeal setae not in clear patterns; mandibles weakly developed, with only 1 or 2 teeth, capable of being closed; palpi as in worker; petiole and postpetiole as in gyne, postpetiole more broadly attached to gaster; genitalia strongly retracted.

Workers can be separated from similar genera such as *Monomorium*, *Dolopomyrmex*, *Carebara* etc. by the ten segmented antenna and the two segmented antenar club, which the other groups don't have.

Distribution and Natural History

The thief ants group of the genus *Solenopsis* is virtually cosmopolitan throughout the New World. The genus ranges from southern Canada to Argentina. The majority of the species can be found in tropical rain forests, especially in areas of thick leaf litter. Most colonies of the smaller species are found in the soil without an entrance hole, unless nuptial flights are occurring. Occasionally nests are discovered under stones, but are often found while one is excavating the nest of another ant species (Mackay and Mackay 2002). They are considered thief ants because they pilfer the nests of other ants, where they steal brood or food. Some species are considered pests, such as *S. molesta*, perhaps the most abundant of the "smaller species." It can be found in parks and residential areas and occasionally is a house pest. Many species can be collected with subterranean baited traps set at least 10 cm down in the soil column. The ecology of most species is virtually unknown. Hopefully this revision will make such inquiries possible.

Revision of the Thief Ants

The previous taxonomic work of the New World species of this group was largely accomplished by the end of the 19th and beginning of the 20th centuries. This taxonomy was performed by European specialists such as Auguste Forel, Felix Santschi and Carlo Emery who received specimens collected by non-specialists in the New World (Agosti *et al.*, 2000). It was often the case that new species were described based on few characters and subspecies and varieties named solely on color and size. The number of taxa thus increased dramatically during the early taxonomic history of the genus and eventually may have overrepresented the diversity of this genus. Type specimens are largely located at the “classical” European collections, which restricts their access for taxonomic revisions and for species identifications in the New World. Moreover, many species are inconspicuous, strictly subterranean and notoriously difficult to collect. This poor access is reflected in the many incomplete series of available specimens for most species. What are available are mainly worker castes and only rarely females and very rarely males.

Although we have been able to obtain the workers of 97% the New World named *Solenopsis*, we only had access to females for 43 taxa and males of 20 taxa (including subspecies, varieties and races). Moreover, a collection bias exists in that more specimens are included from certain countries (especially the USA and Brazil). Undoubtedly natural variation of certain species throughout geographic ranges is clearly under sampled.

The age of the specimens can be an impediment as well, as many type specimens have become damaged over the years, making identification infeasible. In addition, since so few males exist in collections, taxonomic groupings based on genitalic features is impossible. Molecular analysis is difficult as most species are rare.

However, successful revisions are possible through collaboration in the myrmecological community. Personal collections are becoming more important and the afore mentioned lack of material can be supplemented. We need only mention the revision of the World *Acropyga* by LaPolla (2004), Longino's (2003) *Crematogaster* of Costa Rica and Wild's (2007) revision of *Linepithema* to name a few modern examples.

**Synonymic list of species of the New World Thief Ants
of the Genus *Solenopsis***

(Fossils are denoted by a †, ♀ = worker, ♀ = female, ♀ = major worker, ♂ = male, l = larva and k = karyotype, Modified from Bolton, 1995)

- S. abdita* Thompson, 1989: 275 (♀ ♀ ♂)
- S. abjectior* Pacheco & Mackay, this work (♀), **NEW STATUS**
- S. altnodis* Forel, 1912: 10 (♀)
- S. andina* Santschi, 1923: 262 (♀)
- S. azteca* Forel, 1893: 390 (♀)
= *S. azteca* var. *pallida* Wheeler, 1908a: 131 (♀), **NEW SYNONYM**
- S. basalis* Forel, 1896: 178 (♀); Forel, 1913: 219 (♀ ♂)
= *S. basalis* var. *urichi* Forel, 1912: 6 (♀ ♀), **NEW SYNONYM**
= *S. basalis* var. *vittata* Forel, 1912: 6 (♀), **NEW SYNONYM**
= *S. basalis* r. *oculatio*r Forel, 1913: 220 (♀), **NEW SYNONYM**
= *S. basalis* var. *raptor* Santschi, 1919: 42 (♀), **NEW SYNONYM**
= *S. novemmaculata* Wheeler, W. M. 1925a: 35 (♀), **NEW SYNONYM**
- S. brevicornis* Emery, 1888: 356 (♀ ♀)
= *S. brevicornis petropolitana* Borgmeier, 1928: 35-36 (♀), **NEW SYNONYM**
= *S. brevicornis* var. *medioclara* Santschi, 1923: 254 (♀), **NEW SYNONYM**
- S. bucki* Kempf, 1973:29-32 (♀)
- S. carolinensis* Forel, 1901a:345 (♀ ♀ ♂), (Raised to species, Creighton, 1950)
= *S. texana* r. *truncorum* Forel, 1901a: 346 (♀ ♀), **NEW SYNONYM**
= *Solenopsis molesta* var. *castanea* W. M. Wheeler, 1908b: 430 (♀) USA
(junior synonym of *truncorum* Creighton 1950)
- S. castor* Forel, 1893, 391(♀ ♀)
- S. clytemnestra* Emery, 1896, 87 (♀); Emery: 1906, 124 (♂)
= *S. clytemnestra* r. *bruchi* Forel, 1912, 6 (♀ ♂); Santschi: 1933, 115 (♀), **NEW SYNONYM**
= *S. clytemnestra* var. *leda* Forel: 1913, 221 (♀), **NEW SYNONYM**
= *S. clytemnestra* r. *strangulata* Forel, 1913: 221 (♀), **NEW SYNONYM**
= *S. reichenspergeri* Santschi, 1923: 256 (♀); Borgmeier, 1929: 211 (♀), **NEW SYNONYM**
= *S. braziliana* Santschi, 1925a: 235 (♀), **NEW SYNONYM**
- S. conjurata* Wheeler, 1925b: 178 (♀)

- S. corticalis* Forel, 1881: 13 (♂ ♀)
 = *S. corticalis* var. *virgula* Forel, 1904a: 172 (♂); Menozzi, 1929: 2 (♀),
NEW SYNONYM
 = *S. corticalis* r. *amazonensis* Forel, 1904b: 680 (♂ ♀), **NEW SYNONYM**
 = *S. corticalis* subsp. *margotae* Forel, 1908a: 364 (♂ ♀), **NEW SYNONYM**
 = *S. corticalis* var. *binotata* Mann, 1920: 428 (♂), **NEW SYNONYM**
- S. decipiens* Emery, 1906: 126 (♂ ♀ ♂)
 = *S. decipiens* subsp. *abjecta* Emery, 1906: 128 (♂); Forel, 1912, 8 (♀),
NEW SYNONYM
 = *S. decipiens* var. *scelestae* Forel, 1908a: 364 (♂), **NEW SYNONYM**
 = *S. decipiens* race *abjecta* var. *ignobilis* Forel, 1913: 220-221 (♂), [unavailable name], **material referred here**
- S. desecheoensis* Mann, 1920: 428 (♂), **NEW STATUS**
- S. dysderces* Snelling, 1975: 84 (♂)
- S. emiliae* Santschi, 1912: 526, **NEW STATUS**
 = *S. metanotalis* var. *pelotana* Forel, 1912: 5 (subspecies of *metanotalis* by Creighton, 1930), **NEW SYNONYM**
- S. franki* Forel, 1908a, 364 (♂); Forel, 1909: 259 (♀)
- S. gensterblumi* Forel, 1901b: 298 (♂), (Subspecies of *nigella* by Creighton, 1930), **NEW STATUS**
 = *S. angulata* r. *carettei* Forel, 1913: 223 **NEW SYNONYM**
 = *S. nigella* st. *prevalens* Santschi, 1923: 257 (♂), (Santschi, 1929, 297 [♂]), (Junior synonym of *gensterblumi* by Creighton, 1930)
- S. germaini* Emery, 1895a: 12 (♂),
 = *S. germaini* *schedingi* Forel, 1907a: 4 (♂ ♀ ♂), (synonymy by Snelling & Hunt, 1976)
- S. globularia* F. Smith, 1858: 131 (♂ ♀ ♂)
 = *S. steinheili* Forel, 1881: 11 (♂) (Junior synonym of *globularia* by Wheeler, W.M., 1908a; Emery, 1922: 199). Revived from synonymy as subspecies of *globularia* and senior synonym of *borinquenensis* and *cubaensis*, Creighton, 1930, **RETURNED TO SYNONYMY**
 = *S. globularia* var. *borinquenensis* W. M. Wheeler, 1908a: 131 (♂) (Junior synonym of *steinheili*, Creighton, 1930)
 = *S. globularia* r. *lucayensis* var. *curta* Forel, 1912: 4 (♂) (Unavailable name; material referred to *globularia* by Creighton, 1930)
 = *S. globularia* var. *cubaensis* W.M. Wheeler, 1913: 493 (♂) (Junior synonym of *steinheili*, Creighton, 1930)
 = *S. globularia* subsp. *pacifica* W. M. Wheeler, 1919: 273 (♂ ♂);
 W. M. Wheeler, 1924: 108 (♀), **NEW SYNONYM**

- = *S. globularia globularia* subsp. *littoralis* Creighton, 1930: 113; Wheeler, G. C. & J. Wheeler, 1960: 22) (Senior synonym of *mobilensis*, M. R. Smith, 1951), **NEW SYNONYM**
 = *S. globularia* subsp. *mobilensis* M. R. Smith, 1931: 20 (♀) (attributed to Creighton) (junior synonym of *littoralis*, M. R. Smith, 1951)
- S. gnoma*** Pacheco, Herrera & Mackay, 2007: 1075 (♀ ♀)
- S. goeldii*** Forel, 1912: 9 (♀ ♂)
- S. hayemi*** Forel, 1908b: 45 (♀)
 = *S. franki* subsp. *idae* Forel, 1908a: 365 (♀), **NEW SYNONYM**
- S. helena*** Emery, 1895a: 14 (♀ ♀)
 = *S. schmalzi* Forel, 1901b: 297 (♀), **NEW SYNONYM**
 = *S. schmalzi* var. *flaveolens* Forel, 1901b: 298 (♀ ♂), **NEW SYNONYM**
 = *S. hammari* Mayr, 1903: 400 (♀ ♀), **NEW SYNONYM**
 = *S. hammari* var. *carhuensis* Forel, 1912: 8 (♀), **NEW SYNONYM**
 = *S. helena* subsp. *hermione* M. W. Wheeler, 1921: 157 (♀ ♀), **NEW SYNONYM**
 = *S. helena* subsp. *ultrix* W. M. Wheeler, 1921: 157 (♀ ♀), **NEW SYNONYM**
- S. iheringi*** Forel, 1908a: 362 (2♂ ♂)
- S. impolita*** (♀), **NEW SPECIES**
- S. isopilis*** (♀), **NEW SPECIES**
- S. joergenseni*** Santschi, 1919: 42 (♀)
 = *S. joergenseni* var. *cuspiator* Santschi, 1923: 254 (♀), **NEW SYNONYM**
 = *S. (Diplorhoptrum) joergenseni* var. *edentula* Santschi, 1933: 115 (♀), **NEW SYNONYM**
 = *S. trihasta* Santschi, 1923: 252 (♀), **NEW SYNONYM**
- S. johnsoni*** (♀ ♀), **NEW SPECIES**
- S. krockowi*** Wheeler, 1908b: 438 (♀ ♀)
- S. laeviceps*** Mayr, 1870: 406 (♀)
 = *S. laeviceps* var. *antoniensis* Forel, 1912: 5 (♀), **NEW SYNONYM**
- S. latastei*** Emery, 1895a, 13 (♀ ♀); Menozzi, 1935: 320 (♂)
 = *S. latastei* var. *hoffmanni* Forel, 1912: 7 (♀ ♀) (synonymy by Snelling & Hunt, 1976)
 = *S. latastei* var. *masora* Forel, 1912: 7 (♀), **NEW SYNONYM**
 = *S. tenuis* r. *weiseri* Forel, 1914: 278 (♀ ♀ ♂) (Raised to species by Santschi, 1923), **NEW SYNONYM**
- S. leptanilloides*** Santschi, 1925b: 159 (♀)
- S. longinoi*** (♀), **NEW SPECIES**
- S. loreтана*** Santschi, 1936: 406 (♀)

- S. lucayensis* W. M. Wheeler, 1908a: 131 (♀), **NEW STATUS**
- S. maboya* Snelling, 2001: 518 (♀ ♀)
- S. macrops* Santschi, 1917: 280 (♀)
- S. major* Forel, 1913: 220, **NEW STATUS**
 = *S. tenuis* r. *delfinoi* Forel, 1913: 222; Forel, 1914, 278, **NEW SYNONYM**
S. major Théobald, 1937: 201-202, pl. 4, Fig. 16; pl. 14, Fig. 4 (♂ ♂)
 FRANCE (Oligocene). [Unresolved junior primary homonym of *major* Forel 1913]
- S. melina* (♀ ♀), **NEW SPECIES**
- S. metanotalis* Emery, 1896: 86 (♀)
 = *Solenopsis silvestrii* Emery, 1906: 120 (♀ ♀), **NEW SYNONYM**
 = *S. metanotalis* var. *argus* Santschi, 1923: 260 (♀ ♂), **NEW SYNONYM**
 = *S. (Euophthalma) metanotalis* var. *picturata* Santschi, 1931: 276 (♀);
 Santschi, 1933: 114 (♀), **NEW SYNONYM**
- S. minutissima* Emery, 1906, 133 (♀ ♂); Wheeler and W.M. Mann, 1914: 43-44 (♀)
 = *S. brevipes* Emery, 1906, :135 (♀)
- S. molesta* Say, 1836: 293 (♀)
 = *Myrmica (Tetramorium) exigua* Buckley, 1867: 342 (♀ ♀) (synonymy by Emery, 1895b)
 = *S. debilis* Mayr, 1886: 461 (♀ ♀ ♂) (synonymy by Emery 1895b)
 = *S. minuta* Say, 1836: 294 (♀) (synonymy by Emery 1895b)
- S. nickersoni* Thompson, 1982:468 (♀); Thompson, 1989: 281 (♀)
- S. nigella* Emery, 1888: 355 (♀); Forel, 1912: 5 (♀)
- S. ocellata* (♀), **NEW SPECIES**
- S. oculata* Santschi, 1925b: 161 (♀)
- S. orestes* Forel, 1903: 256 (♀, ♂); Forel, 1912: 6 (♀), **NEW STATUS**
 = *S. clytemnestra* r. *orestes* var. *tucumana* Forel, 1914: 278 (♀) [unavailable name], **material referred here**
- S. parva* Mayr, 1868: 175 (♀)
 = *S. angulata* Emery, 1894: 393 (♀ ♀), **NEW SYNONYM**
 = *S. angulata* var. *dolichops* Emery, 1906: 123 (♀ ♀), **NEW SYNONYM**
 = *S. angulata* r. *huasanensis* Forel, 1912: 8 (♀), **NEW SYNONYM**
 = *S. angulata* r. *mendozensis* Forel, 1914: 277 (♀), **NEW SYNONYM**
 = *S. (Diplorhoptrum) gallardoi* Santschi, 1925b: 160 (♀), **NEW SYNONYM**

- S. patagonica* Emery, 1906: 132 (♀); Gallardo, 1919: 246-247 (♀ ♂)
 = *S. patagonica* r. *medeis* Forel, 1912: 10 (♀ ♂), **NEW SYNONYM**
- S. patriciae* (♀ ♀), **NEW SPECIES**
- S. pergandei* Forel, 1901a: 45, p. 343 (♀ ♀ ♂), G.C. & J. Wheeler, 1960: 21 (l.)
 Combination in *S. (Diplorhoptrum)*, M. R. Smith, 1947: 37 (3), p. 568, pl. 9, Fig. 36 (♀)
 = *S. puncticeps* Mackay and Vinson, 1989: 175-178 (♀), **NEW SYNONYM**
- S. photophila* Santschi, 1923: 250, Fig. 1 (♀); Combination in *Synsolenopsis*, Kusnezov, 1953 (referred to *Solenopsis*, Ettershank 1966)
- S. picea* Emery, 1896: 89 (♀ ♀)
 = *S. picea* r. *subadpressa* Forel, 1903: 257 (♀), **NEW SYNONYM**
 = *S. angulata* r. *nigelloides* Forel, 1913: 223 (♀ ♀ ♂), **NEW SYNONYM**
 = *S. picea* r. *reducta* Menozzi, 1927: 276-277 (♀), **NEW SYNONYM**
 = *S. angulata* r. *carettei* var. *ardua* Santschi 1929: 298 (♀ ♀), [unavailable name], **material referred here**
 = *S. parabiatica* Weber, 1943: 90 (♀ ♀), **NEW SYNONYM**
- S. picta* Emery, 1895b, 278 (♀); G. C. & J. Wheeler, 1960: 22 (l.)
 = *S. picta* var. *moerens* W. M. Wheeler, 1915: 393 (junior synonym of *picta* by Creighton, 1950)
- S. pilosula* W. M. Wheeler, 1908b: 24, 426 (♀ ♂)
- S. pollux* Forel, 1893: 393 (♀ ♀ ♂)
- S. pulleni* (♀), **NEW SPECIES**
- S. pygmaea* Forel, 1901a: 345, (replacement name for *exigua* by Forel, 1893), (junior secondary homonym of *exigua* Buckley, 1867)
- S. quadridentata* (♀ ♀), **NEW SPECIES**
- S. rosella* Kennedy, 1938: 232 (♀ ♀ ♂) (incorrectly considered junior synonym of *texana*, Creighton, 1950), **NEW STATUS**
- S. rugiceps* Mayr, 1870: 406 (♀)
- S. salina* Wheeler, 1908b: 427 (♀)
- S. schilleri* Santschi, 1923: 263 (♀)
- S. shiptoni* Forel, 1914: 276 (♀) (Subspecies of *metanotalis* by Creighton, 1930), **NEW STATUS**
 = *S. shiptoni* var. *steigeri* Santschi, 1916: 378 (♀), (Subspecies of *metanotalis*), **NEW SYNONYM**
- S. striata* (♀), **NEW SPECIES**

- S. stricta* Emery, 1896: 90 (♀)
 = *S. laeviceps* v. *antoniensis* Forel, 1912: 5 (♀), **NEW SYNONYM**
 = *S. stricta* st. *foederata* Santschi, 1923: 255 (♀ ♀), **NEW SYNONYM**
 = *S. stricta* st. *foederata* var. *specularis* Santschi, 1923: 255, [unavailable name], **material referred here**
- S. subterranea* Mackay and Vinson 1989: 175-178 (♀)
- S. subtilis* Emery, 1896: 90 (♀)
- S. succinea* Emery, 1890: 52 (♀ ♀ ♂)
 = *S. succinea* r. *nicai* Forel, 1913: 222 (♀); Santschi, 1923: 267 (♀ ♂), **NEW SYNONYM**
 = *S. inermiceps* W. M. Wheeler & W. Mann, 1914: 20, (synonymy by Creighton, 1930)
- S. sulfurea* Roger, 1862: 296 (♀)
 = *S. albidula* Emery, 1906: 129 (♀ ♀ ♂), **NEW SYNONYM**
 = *S. albidula* var. *postbrunnea* Forel, 1913: 220 (♀), **NEW SYNONYM**
 = *S. albidula* var. *flava* Santschi, 1929: 298 (♀ ♀), **NEW SYNONYM**
- S. tennesseensis* M. R. Smith, 1951: 814 (♀)
- S. tenuis* Mayr, 1878: 874 (♀ ♀); Forel, 1913: 222 (♂); G. C. & J. Wheeler, 1955: 135 (l)
 = *S. tenuis* var. *minuiscens* Forel, 1912: 8 (♀), **NEW SYNONYM**
- S. terricola* Menozzi, 1931: 267-269 (♀ ♀)
- S. tetracantha* Emery, 1906: 131 (♀ ♀); Santschi, 1917: 281 (♂)
 = *S. tetracantha* var. *videns* Forel, 1912: 4 (♀), **NEW SYNONYM**
- S. texana* Forel, 1901a, 345 (♀); Forel, 1901a: 345 (♀ ♂); G. C. & J. Wheeler, 1955: 136 (l) (combination in *S. (Diplorhoptrum)*, Creighton, 1950) (Raised to species, Forel, 1901a)
 = *S. texana* subsp. *catalinae* W. M. Wheeler, 1904: 269-270 (♀ ♀), **NEW SYNONYM**
- S. thoracica* Santschi, 1923: 261 (♀ ♂) (junior synonym of *patagonica*, Kusnezov, 1960), **NEW STATUS**
- S. tomsa* Thompson, 1989: 272 (♀ ♀ ♂)
- S. validiuscula* Emery, 1895b: 278 (♀); G. C. & J. Wheeler, 1955: 135 (l); (Subspecies of *molesta*, Creighton, 1950), **NEW STATUS**
- S. vinsoni* (♀ ♀ ♀), **NEW SPECIES**
- S. wasmannii* Emery, 1894, 151 (♀); Emery, 1906: 122 (♀ ♂)
 = *S. wasmanni* subsp. *transformis* Forel, 1911: 298 (♀ ♀), **NEW SYNONYM**
 = *S. wasmanni* st. *transformis* var. *robustior* Santschi, 1923: 265 (♀) [unavailable name], **material referred here**

S. westwoodi Forel, 1894: 100 (♂)

= *S. westwoodi* var. *atticola* Forel, 1912: 7 (♂); Santschi, 1929: 298 (♀),

NEW SYNONYM

= *S. westwoodi* var. *platensis* Emery, 1906: 125, Fig. 7 (♂ ♀), **NEW**

SYNONYM

= *S. wasmanni* r. *transformis* var. *innocens* Forel, 1915: 354 (♂) [unavailable name], **material referred here**

S. whitfordi (♂), **NEW SPECIES**

S. zeteki W. M. Wheeler, 1942: 204 (♂)

= *S. torresi* Snelling, 2001: 514 (♂ ♀ ♂), **NEW SYNONYM**

Taxon excluded from or moved to *Solenopsis*

Solenopsis picquarti Forel, 1899: 80-81 (♀) COSTA RICA. Combination in *S.* (*Euophthalma*), Creighton, 1930: 135: *Xenomyrmex picquarti* (Forel), NEW COMBINATION

This species was placed in the former subgenus *Euophthalma* by Creighton, although the type was not examined (Creighton 1930). At the time, *Euophthalma* was comprised of the species of the *globularia*, *nigella* and *metanotalis* groups. The eyes of *picquarti* are large and it has similar coloration as the members of the *nigella* group. However, upon comparison, this species belongs to *Xenomyrmex* and is formally referred as the diagnostic characters are the two medial clypeal setae and the reduced petiolar node. No name change is proposed at this time, although this species appears to be near *X. stollii*. *Xenomyrmex* is in need of revision.

Taxon moved to *Solenopsis*

Carebarella bicolor Emery, 1905: 138 (= *Solenopsis spei* Forel, 1912, 11 (♀) NEW COMBINATION, NEW SYNONYM

The workers of *Solenopsis spei* are identical in form and size to those of *Carebarella bicolor*. The diagnostic character is the toothless anterior clypeal margin which both species possess. Additionally, both species are monomorphic and are thus recognized here as the same species. We did not examine the sexuals of both species as those of *S. spei* are unknown and we were unable to attain the types of *C. bicolor* and its subspecies. *Carebarella* is in need of revision and may be a synonym of *Solenopsis*.

Species Complexes

Species complexes are often used for a group of taxa that are morphologically similar and are thusly grouped together for taxonomic utility. The thief ants of the genus *Solenopsis* are in need of taxonomic reorganization with the former subgeneric designations not useful and the previous species complexes not encompassing all the taxa of thief ants in the New World. The designation of “complex” may not reflect monophyly in this revision but is retained as previous works implemented this term (Moreno-Gonzalez, 2001).

Creighton (1930) was the first to delineate species complexes within the thief ants. However, his groupings were based on “characteristics that are fairly consistent,” that were unfortunately not included in his paper, stating that they would be presented in a future publication. Regrettably, the publication never appeared. Creighton again addressed the thief ants in 1950, but this study dealt with only 10 of the 40 North American species. Trager (1991) revised the larger fire ants of the *saevissima* group excluding the thief ants. In 1989, Thompson worked on the thief ants of Florida which addressed 10 species that occur in the state. Subsequent papers were only descriptions of new species in localized areas such as Mackay and Vinson (1989), Snelling (2001) and Davis and Deyrup (2006).

Isidra Moreno-Gonzalez (2001) attempted to use Creighton’s classification of five species complexes, but early in her revision it became clear that this was unfeasible (Moreno-Gonzalez, pers. comm.). Some of his species complexes appear to be monophyletic, such as the *westwoodi* group (now known as the *fugax* species complex) and the *azteca* species complex (now known as the *brevicornis* species complex) (Moreno-Gonzalez, 2001). The *laeviceps* and *basalis-tenuis* group are members of the *molesta* species complex (Moreno-Gonzalez, 2001). The *minutissima* group is now termed the *pygmaea* species complex. Additionally, it has been necessary to recognize several additional complexes, the *wasmannii*, *nigella*, *globularia* and the *stricta* species complexes (Fig. 7). The *fugax* and *molesta* species complexes remain, but the *succinea* complex has been synonymized with the *wasmannii* species complex.

Key to the species complexes of the genus *Solenopsis* in the New World

Note, The *geminata* species complex is included for ease of identification and to avoid confusion, as they are commonly found.

1. Second and usually third segment of funiculus at least 1 ½ times as long as broad (Fig. 5)
***geminata* species complex** (former subgen *Solenopsis*, fire ants and *Labauchena*)
 - Second and at least third segment of funiculus only slightly longer than broad, usually broader than long (Fig. 5) **2**

- 2(1). Eyes of worker with at least 12 ommatidia (Fig. 6) **3**
 - Eyes of worker with fewer than 12 ommatidia, usually fewer than 6 (Fig. 7) **4**

- 3(2). Postpetiole greatly dilated (seen from above), globose (Fig. 8)
 ***globularia* species complex** (former subgenus *Euophthalma* in part) (p. 54)
 - Postpetiole not greatly dilated, scale-like (Fig. 13)
 ***nigella* species complex** (former subgenus *Euophthalma* in part) (p. 82)

- 4(2). Clypeus of minor workers usually bicarinate (occasionally lacking carinae) with clypeal carina turning medially from anterior margin of clypeus (Fig. 4), anterior clypeal margin of minor worker (Fig. 4) lacking teeth (major workers with 4 to 5 teeth); female with 10-11 segmented antennae
 ***wasmannii* species complex** (former subgenus *Diagyne* and includes *Carebarella bicolor*) (p. 97)
 - Clypeus of minor workers bicarinate, carinae diverge anteriorly and always present (Fig. 6), clypeal teeth always present, but may be poorly developed; female with 11-segmented antenna; widely distributed throughout New World **5** (former subgenus *Diplorhoptrum*, **thief ants**)

- 5(4).** Eye tiny and difficult to see (Fig. 253), postpetiole circular viewed dorsally (Fig. 185); head elongate and typically coarsely punctured (Fig. 183) ...
 ***pygmaea* species complex** (p. 88)
 - Eye small, but easily seen (Fig. 7), usually consisting of about 4 (rarely more) ommatidia; without all of the above characteristics **6**
- 6(5).** Scape (Fig. 39) short (typically less than 0.24 mm), minor segments of funiculus short (about 0.07 mm); petiole thickened as seen in profile (Fig. 40)
 ***brevicornis* species complex** (p. 43)
 - Scape (Fig. 6) longer (typically longer than 0.24 mm), minor segments of funiculus long (typically > 0.70 mm), if shorter, petiole narrow as seen in profile **7**
- 7(6).** Petiole very wide, apex of node forming extensive arch viewed laterally (Fig. 25) much wider than postpetiole ***stricta* species complex** (p. 95)
 - Petiole approximately as wide as postpetiole (typically slightly wider) than postpetiole, apex of node acute, triangular viewed laterally (Fig. 28) **8**
- 8(7).** Punctures on dorsum of head usually small, barely perceptible (Fig. 7); extralateral clypeal teeth poorly developed (Fig. 7); head somewhat elongate (CI 83-85) ***molesta* species complex** (p. 57)
 - Punctures on head coarse, much wider than hairs arising from them (Fig. 138); extralateral teeth typically well developed (at least in majority of nest series) (Fig. 328); head nearly quadrate (CI 85-92)
 ***fugax* species complex** (p. 45)

Clave a los complejos de las especies del género *Solenopsis* en el Nuevo Mundo

Nota, se incluye el complejo *geminata*, las hormigas del fuego, para facilitar la identificación y evitar confusiones.

1. Segundo segmento y generalmente tercer segmento del funículo por lo menos 1½ veces más largo que ancho (Fig. 5) **complejo de especies *geminata*** (anteriormente subgénero *Solenopsis*, hormigas de fuego)
 - Segundo segmento y por lo menos tercer segmento del funículo levemente más largos que anchos, o generalmente más anchos que largos (Fig. 5) 2
- 2(1). Ojo de la obrera con por lo menos 12 omatidios (Fig. 6) 3
 - Ojo de la obrera con menos de 12 omatidios, generalmente menos de 6 (Fig. 7) 4
- 3(2). Pospeciólo muy dilatado (visto desde arriba), globoso (Fig. 8)
 ... **complejo de especies *globularia*** (anteriormente subg. *Euophthalma*, en parte)
 - Pospeciólo no muy dilatado, como en forma de escama (Fig. 13)
complejo de especies *nigella* (anteriormente subgénero *Euophthalma*, en parte)
- 4(2). Clípeo de la obrera menor generalmente bicarinado (de vez en cuando sin carenas), la carena clipeal gira medialmente desde el margen anterior del clípeo (Fig. 4), margen clipeal anterior de la obrera menor (Fig. 4) sin dientes (obreras mayores con 4 a 5 dientes); antena de la hembra con 10-11 segmentos **complejo de especies *wasmannii*** (anteriormente subgénero *Diagyne* y *Carebarella bicolor*)
 - Clípeo de la obrera menor bicarinado, carenas divergen anteriormente y siempre presentes (Fig. 6), dientes clipeales siempre presentes, pero pueden estar poco desarrollados; antena de la hembra con 11 segmentos; distribuido extensamente en el Nuevo Mundo
 5 (anteriormente subgénero *Diplorhoptrum*, **hormigas ladronas**)
- 5(4). Ojo diminuto y difícil de ver (Fig. 253); pospeciólo circular en vista dorsal (Fig. 185); cabeza alargada y típicamente fuertemente punteada (Fig. 183) .
 **complejo de especies *pygmaea***
 - Ojo pequeño, pero fácil de ver (Fig. 7), generalmente consiste de cerca de 4 omatidios (raramente más), sin todas las características anteriores 6

- 6(5).** Escapo (Fig. 39) corto (típicamente menos de 0,24 mm), segmentos menores del funículo cortos (cerca de 0,07 mm en total); pecíolo engrosado en vista lateral (Fig. 40)..... **complejo de especies *brevicornis***
 - Escapo (Fig. 6) más largo (típicamente más de 0,24 mm), segmentos menores del funículo más largos (típicamente > 0,07 mm en total), si son más cortos, pecíolo estrecho visto en perfil **7**
- 7(6).** Pecíolo muy ancho, ápice del nodo formando arco extenso en vista lateral (Fig. 25) **complejo de especies *stricta***
 - Pecíolo aproximadamente tan ancho como el pospecíolo (típicamente un poco más ancho), ápice del nodo agudo, triangular en vista lateral (Fig. 28) **8**
- 8(7).** Puntos en el dorso de la cabeza generalmente pequeños, apenas perceptibles (Fig. 7); dientes clipeales extralaterales poco desarrollados (Fig. 7); cabeza un poco alargada (índice cefálico 83-85) **complejo de especies *molesta***
 - Puntos más obvios, mucho más grandes que diámetro de pelos que se salen de ellos (Fig. 138); dientes extralaterales típicamente bien desarrollados (por lo menos en mayoría de miembros de una serie) (Fig. 328); cabeza casi cuadrada (CI 85 - 92) **complejo de especies *fugax***

***brevicornis* Species Complex**

Diagnosis. Workers of this group can be recognized by the short antennal scape and the thickened petiole (as seen in profile, less thickened in *S. brevicornis*). The minor segments of the funiculus are very short (up to about 0.7 mm). The head is nearly quadrate (slightly elongated), the eyes relatively large, with at least two ommatidia. The clypeus is flattened and the extralateral teeth are not developed. The notopropodeal suture usually deeply depressed (*S. azteca* with a shallow metanotal suture).

Key to the workers of the *brevicornis* species complex

1. Mesopleuron (Fig. 30) completely smooth and glossy (if sculpture present, roughened region near lower, anterior border); clypeus completely flat, lateral teeth poorly developed (Fig. 29); Central and South America, common in Caribbean region ***azteca* Forel**
 - Mesopleuron (Fig. 40) mostly punctate (at least lower half); clypeal teeth (Fig. 37) angulate (occasionally extend past anterior clypeal margin); México to South America, less common in Caribbean **2**
- 2(1). Concolorous yellow to dark brown (normally dark colored); side of petiole heavily punctate (Fig. 38), node slightly angulate (Fig. 40); common; México to Brazil (unknown from Caribbean) ***brevicornis* Emery**
 - Dark mahogany brown with yellowish appendages (concolorous with mesosoma, medium brown in specimens from Caribbean); side of petiole mostly smooth and glossy (Fig. 312), node rounded at apex; not as widespread (although common in Costa Rica and Panamá) ***terricola* Menozzi**

Clave para las obreras del complejo *brevicornis*

1. Mesopleuron (Fig. 30) totalmente liso y brillante (posiblemente región cerca del borde más baja y anterior áspera); cípeo completamente plano; dientes laterales poco desarrollados (Fig. 29); Centro América y Norte de Suramérica, región del Caribe ***azteca* Forel**
 - Mayoría de mesopleuron (Fig. 40) punteado (por lo menos en la mitad inferior); dientes laterales (Fig. 37) angulados (a veces se extienden más allá que margen anterior del cípeo; México a Suramérica, no común en Caribe **2**
- 2(1). Amarillo a marrón, con patas del mismo color (normalmente café); lado del pecíolo generalmente algo esculpido (Fig. 38), nodo levemente angulado (Fig. 40); comunes, México a Brasil, no ha sido reportado en Caribe ***brevicornis* Emery**
 - Marrón de caoba oscuro, con patas amarillentas (concolorosos con patas café mediano en ejemplares del Caribe); lado del pecíolo sobre todo liso y brillante (Fig. 312), ápice redondeado; infrecuentes, pero comunes en Costa Rica y Panamá ***terricola* Menozzi**

***fugax* Species Complex**

Diagnosis. Workers of this group have the head wider than long (may be only slightly longer than wide) with the posterior border straight. The dorsum of the head is coarsely punctate. There are four well-developed teeth on the anterior border of the clypeus typically (occasionally the extralateral teeth are reduced to bumps or are angulate). The eyes range from 1-10 ommatidia. The notopropodeal suture is typically deeply depressed. The petiolar peduncle typically contains a tooth or flange ventrally. The postpetiole is oval-shaped (round in *S. pergandei*) and slightly wider than the petiole (viewed dorsally). Nearly all of the New World species are yellow (with the exception of *S. vinsoni*, *S. germaini* and *S. westwoodi*), moderately to very pilose and size varies, although they are relatively large (1.1-2.5 mm total length). Several members of this species complex are dimorphic (majority apparently monomorphic) with majors that are distinct morphologically from the minor workers.

Two species, *S. rugiceps* and the major worker of *S. vinsoni*, contain rugulae on the dorsum of the head, a character restricted to these two species in the thief ants. Additionally *S. vinsoni* contains rugulae on the petiole and postpetiole (viewed laterally).

The females of these species, where they are known, are very large (> 5 mm, most ~ 7 mm total length). The males of these species (although rarely collected) can be large as well (up to 5 mm).

Solenopsis fugax is a European species and is similar morphologically to these New World forms and thus is the name given for this species complex (Fig. 5).

Note, *Solenopsis orestes* is a species that has intermediate characters between the *molesta* and *fugax* complexes (it has angulate extralateral clypeal teeth and coarse cephalic punctures) and is placed in both the keys for the *molesta* and *fugax* species complexes.

Key to the workers of North American (north of Colombia) species of the *fugax* Complex

1. Western México to Colombia; dimorphic; minor workers total length 1.1-1.4 mm, major workers 1.7-2.5 mm; concolorous yellow to brown; eye with 3-8 ommatidia; extralateral teeth nearly absent (Fig. 132) to fully developed (Fig. 134) and equal in size to lateral teeth; petiole and postpetiole smooth and shiny (Fig. 133) or horizontally rugose viewed laterally 2
- Continental USA, North Carolina to Arizona; monomorphic; total length 1.4-2.5 mm; concolorous yellow; eye with 2-6 ommatidia; extralateral teeth always present, either angulate or well developed; petiole and postpetiole always smooth and shiny 3
- 2(1). Central and southern México to Colombia; concolorous medium to dark brown; minor worker, small, total length 1.1-1.4 mm; head length 0.35-0.38 mm; scape length shorter, 0.22-0.24 mm; eye larger, with 3-5 ommatidia (difficult to distinguish); petiolar peduncle with tooth ventrally (Fig. 342); major worker, small, total length 1.5-1.7 mm; head length 0.50-0.53 mm, dorsum of head with sculpturing, entirely rugose and coarsely punctate; scape shorter (Fig. 343), 0.26-0.28 mm; extralateral teeth reduced, nearly absent (Fig. 343); eye larger, with 5-8 ommatidia; petiole and postpetiole with sculpturing, horizontally rugose to punctate (Fig. 343) ***vinsoni* Pacheco & Mackay, NEW SPECIES**
- Central México, Baja California; concolorous yellow; minor worker, larger, total length 1.3-1.5 mm; head length 0.42-0.48; scape length longer, ~0.3 mm; eye smaller (Fig. 132), with ~3 ommatidia; major worker, larger, total length 1.8-2.5 mm; head length 0.54-0.62 mm; dorsum of head without sculpturing, smooth and shiny between punctures; scape longer, 0.36-0.42 mm (Fig. 134); extralateral teeth larger, well developed; eye smaller, with 3-5 ommatidia; petiole and postpetiole without sculpturing, smooth and shiny (Fig. 135) ***johnsoni* Pacheco, Mackay & Moreno, NEW SPECIES**

- 3(1).** Southwestern USA, Arizona to Texas; larger, total length 2.2-2.5 mm, head length 0.60-0.64 mm; extralateral teeth sharp (Fig. 237), well developed, nearly equal in size to lateral teeth; frontal lobes lacking vertical striae (Fig. 138); mesopleuron lacking sculpturing (Fig. 139) or horizontally striated (Fig. 238); eye larger, with 3-6 ommatidia **4**
- Widely distributed, North Carolina to New Mexico; smaller, total length 1.4-1.9 mm, head length 0.43-0.51 mm; extralateral teeth angulate (Fig. 172), smaller than lateral teeth; mesopleuron always lacking sculpturing (Fig. 173); eye smaller, with 2-5 ommatidia **5**
- 4(3).** Frontal carinae diverging anteriorly (Fig. 138); mesopleuron lacking sculpturing (Fig. 139); eye relatively large (Fig. 138), eye length 0.06-0.07 mm, 5-6 ommatidia; scape longer (Fig. 138), 0.40-0.47 mm; narrowest distance between clypeal carinae wide at 0.1 mm; common New Mexico to western Texas ***krockowi* Wheeler**
- Carinae nearly parallel (Fig. 237); mesopleuron horizontally striated (Fig. 238); eye smaller (Fig. 237), eye length ~0.04 mm, 3-5 ommatidia; scape shorter (Fig. 237), 0.33-0.35 mm; distance between clypeal carinae narrow at less than 0.1 mm; rarely collected central to eastern Texas ***pilosula* Wheeler**
- 5(3).** Head wider (Fig. 222), 0.43-0.51 mm; eye with 2 ommatidia; postpetiole (Fig. 223) circular (seen from above); common, eastern Texas to Florida ***pergandei* Forel**
- Head narrower (Fig. 172), 0.35-0.43 mm; eye larger; postpetiolar node wider than long (seen from above); rare, southern New Mexico ***melina* Pacheco & Mackay, NEW SPECIES**

Clave para las obreras del complejo *fugax* en América al Norte de Colombia

1. México occidental hasta Colombia; dimórficas, longitud total de obreras menores 1,1-1,4 mm, obreras mayores 1,7-2,5 mm; todo cuerpo del mismo color, de amarillo a marrón; ojo con 3-8 omatidios (difíciles de ver); dientes extralaterales del cíleo casi ausentes (Fig. 132) hasta completamente desarrollados (Fig. 134) y al igual de tamaño que los dientes laterales; pecíolo y pospecíolo vistos lateralmente lisos y brillantes (Fig. 133) o rugosos horizontalmente 2
- EUA (Carolina del Norte y Arizona); monomórficas; longitud total 1,4-2,5 mm; totalmente amarillas; ojo con 2-6 omatidios; dientes extralaterales siempre presentes, formando ángulo o bien desarrollados; pecíolo y pospecíolo siempre lisos y brillantes 3
- 2(1). México central y meridional a Colombia; todo cuerpo del mismo color, de marrón medio hasta marrón oscuro; obrero menor: pequeña, longitud total 1,1-1,4 mm; longitud de cabeza 0,35-0,38 mm; longitud del escapo más corto, 0,22-0,24 mm; ojo más grande, con 3-5 omatidios, difíciles de distinguir; pecíolo con diente ventral (Fig. 342); obrero mayor: pequeña, largo total 1,5-1,7 mm; longitud de cabeza 0,50-0,53 mm, dorso de cabeza con escultura, enteramente rugoso y con puntos gruesos; escapo corto (Fig. 343) 0,26-0,28 mm; dientes extralaterales reducidos, casi ausentes (Fig. 343); ojo más grande, con 5-8 omatidios; pecíolo y pospecíolo con escultura, horizontalmente rugosos hasta punteados (Fig. 344) ***vinsoni* Mackay, Moreno, y Pacheco, ESPECIE NUEVA**
- México central, Baja California; todo cuerpo amarillo; obrero menor: más grande, longitud total 1,3-1,5 mm; longitud de cabeza 0,42-0,48; longitud del escapo más largo, ~0,3 mm; ojo más pequeño (Fig. 132), con ~3 omatidios; obrero mayor: más grande, longitud total 1,8-2,5 mm; longitud de cabeza 0,54-0,62 mm; dorso de cabeza sin escultura, liso y brillante entre los puntos (Fig. 134); escapo más largo, 0,36-0,42 mm (Fig. 134); dientes extralaterales más grandes, bien desarrollados; ojo más pequeño (Fig. 134), con 3-5 omatidios; pecíolo y pospecíolo sin escultura, lisos y brillantes (Fig. 135) ***johnsoni* Pacheco, Mackay y Moreno ESPECIE NUEVA**

- 3(1).** EUA (Arizona a Tejas); más grande, longitud total 2,2-2,5 mm, longitud de cabeza 0,60-0,64 mm; dientes extralaterales agudos (Fig. 237), bien desarrollados, casi iguales de tamaño que dientes laterales; lóbulos frontales sin estrías verticales (Fig. 138); meosopleuron sin escultura (Fig. 139) o estriada horizontalmente (Fig. 238); ojo más grande, con 3-6 omatidios 4
- Distribuido extensamente en los EUA (Carolina del Norte a Nuevo México); longitud más pequeña, total de 1,4-1,9 mm, longitud de la cabeza 0,43-0,51 mm; dientes extralaterales forman ángulos (Fig. 172), más pequeños que dientes laterales; mesopleuron siempre sin escultura (Fig. 173); ojo más pequeño, con 2-5 omatidios 5
- 4(3).** Carenas clipeales se divergen anteriormente (Fig. 138); mesopleuron carece de escultura (Fig. 139); ojo relativamente grande (Fig. 138), longitud total de 0,06-0,07 mm, con 5-6 omatidios; escapo más largo (Fig. 138), 0,40-0,47 mm; distancia más estrecha entre las carenas clipeales, de 0,1 mm; EUA (Arizona y Nuevo México) ***krockowi* Wheeler**
- Carenas frontales casi paralelas (Fig. 237); mesopleuron con estriación horizontal (Fig. 238); ojo más pequeño (Fig. 237), longitud ~0,04 mm, con 3-5 omatidios; escapo más corto (Fig. 237), 0,33-0,35 mm; distancia entre carenas clipeales reducida a menos de 0,1 mm; EUA (Tejas) ***pilosula* Wheeler**
- 5(3).** Cabeza más ancha (Fig. 222), de 0,43-0,51 mm; ojo de 2 omatidios; pospeciólo (Fig. 223) circular (véase desde arriba); sur este de EUA ***pergandei* Forel**
- Cabeza más estrecha (Fig. 172), de 0,35-0,43 mm; ojo más grande; nodo postpetiolar más ancho que largo (véase arriba); EUA (Nuevo México) ***melina* Pacheco y Mackay ESPECIE NUEVA**

Key to the workers of the South American species of the *fugax* complex¹

1. Dorsum of head mostly covered with rugulae (Fig. 267), which meld into shiny subsurface; petiole somewhat thickened, in form of dome viewed laterally (Fig. 268); Colombia 2
 - Dorsum of head mostly smooth and glossy between punctures (Fig. 206), if rugulae present, mesosoma mostly sculptured and dull; petiole usually narrow as seen in profile, not dome-shaped; widely distributed in South America 3
- 2(1). Mesosoma and sides of petiole and postpetiole mostly smooth and glossy (Fig. 268) *rugiceps* Mayr
 - Mesosoma and sides of petiole and postpetiole mostly sculptured, with punctures and striae (Fig. 344) *vinsoni* Pacheco & Mackay
- 3(1). Weakly dimorphic; concolorous yellow; eye relatively large with 8-10 relatively distinct ommatidia; flange-like angle present ventrally on petiolar peduncle (Fig. 208); anterior clypeal margin (Fig. 206) with 2 well developed lateral teeth (extralateral teeth reduced to bumps, nearly absent); northeastern Brazil to northeastern Argentina (*molesta* species complex) *orestes* Forel
 - Monomorphic and dimorphic; concolorous yellow to dark brown; eye generally small, ranging from 1-10 mostly fused ommatidia; tooth usually present ventrally on petiolar peduncle (Fig. 316); anterior clypeal margin (Fig. 315) with 4 well developed teeth (occasionally extralateral teeth angulate but always present at least on major) 4
- 4(3). Clypeus of minor worker with 4 clypeal teeth (2 lateral, 2 extralateral), all 4 teeth about equal in shape and size (Fig. 328), clypeus of major with 4 well developed clypeal teeth (Fig. 330); eye larger, 3-10 ommatidia 5
 - Clypeus of minor with 2 well developed lateral teeth, extralateral teeth smaller than lateral teeth, angulate (Fig. 315); clypeus of major with 4 well developed clypeal teeth (Fig. 317), lateral and extralateral teeth closely spaced (0.03 mm between tips); eye smaller, at least 1 ommatidium; La Plata, Argentina *tetracantha* Emery

¹ It is possible that some species listed as monomorphic are actually dimorphic and the majors have not yet been collected.

- 5(4). Dimorphic, larger in total length, minor worker 1.8-2.6 mm, major worker 2.9-3.2 mm; eye large 5-10 ommatidia; scape length longer, 0.36-0.55 mm 6
 - Monomorphic, smaller in total length, workers 1.4-1.7 mm; eye smaller 3-5 ommatidia; scape length shorter, 0.26-0.30 mm 7
- 6(5). Dimorphic (Figs. 328-331), minor worker, total length ~2.16 mm; frontal lobes vertically striated; pronotum finely punctate; eye large, width 0.03-0.04 mm, with 7 ommatidia; concolorous yellow; minor funicular segments longer 0.18-0.21 mm; major worker, larger, 2.9-3.2 mm, head length 0.75-0.78 mm; frontal lobes vertically striated (Fig. 330); pronotum finely punctate (Fig. 331); eye larger, width 0.50-0.55 mm, 8-10 ommatidia; concolorous golden brown; scape length longer, 0.54-0.55 mm; minor funicular segments longer, 0.24-0.28 mm; southern Chile *thoracica* Santschi
 - Apparently monomorphic, workers 1.8-2.7 mm, head length 0.52-0.71; frontal lobes with sculpturing (Fig. 91); pronotum coarsely punctate; eye smaller, 5-8 ommatidia; concolorous golden brown; minor funicular segments shorter, 0.14-0.18 mm; southern Chile and Argentina *germaini* Emery
- 7(5). Postpetiole with ventral tooth (Fig. 215); concolorous yellow to light brown; pronotum coarsely punctate; posterior propodeal margin angulate (Fig. 215); southern Brazil and southeastern Argentina *patagonica* Emery
 - Postpetiole lacking tooth or bump ventrally (Fig. 356); concolorous medium brown; pronotum finely punctate; posterior propodeal margin rounded (Fig. 356); southern Brazil, Paraguay and northern Argentina *westwoodi* Forel

Clave para las obreras del complejo *fugax* en Sur América

1. Dorso de la cabeza cubierto con arrúgalos (Fig. 267), que se fusionan al subsuperficie brillante; pecíolo un poco grueso, en forma de cúpula visto de perfil; (Fig. 268) Colombia **2**
 - Dorso de la cabeza liso y brillante, con puncturas (Fig. 206), si hay arrúgalos presentes, mesosoma con escultura, opaco; pecíolo usualmente angosto visto de perfil, no en forma de cúpula; de distribución amplia en sur América . **3**
- 2(1).** Mesosoma y lados del pecíolo y postpecíolo predominante lisos y brillantes (Fig. 268) ***rugiceps* Mayr**
 - Mesosoma y lados del pecíolo y postpecíolo con escultura, con punticos y estrías (Fig. 344) ***vinsoni* Pacheco y Mackay**
- 3(1).** Levemente dimórficas; totalmente amarillas; ojo con 8-10 omatidios; ángulo ventral del pedúnculo del pecíolo en forma de pestaña (Fig. 208); margen anterior del clípeo (Fig. 206) con 2 dientes laterales bien desarrollados (dientes extralaterales reducidos a protuberancias, casi ausentes); noreste de Brasil hasta noreste del Argentina (grupo de *molesta*) ***orestes* Forel**
 - Monomórficas y dimórficas; de color amarillo hasta marrón oscuro; ojo con 1-10 omatidios; diente usualmente presente en borde ventral del pedúnculo del pecíolo (Fig. 316); margen anterior del clípeo (Fig. 315) con 4 dientes bien desarrollados (de rara vez dientes extralaterales son en forma de ángulos, pero siempre presentes por lo menos en obreras mayores) **4**
- 4(3).** Clípeo de obrera menor con 4 dientes (2 laterales, 2 extralaterales), que son casi iguales en forma y tamaño (Fig. 328), clípeo de obrera mayor con 4 dientes bien desarrollados (Fig. 330); ojo más grande de 3-10 omatidios **5**
 - Clípeo de obrera menor con 2 dientes laterales bien desarrollados, dientes extralaterales más pequeños que dientes laterales angulados (Fig. 315); clípeo de obrera mayor con 4 dientes bien desarrollados (Fig. 317), diente lateral y extralateral muy cercanos (0,03 mm entre los ápices); ojos más pequeños, por lo menos 1 omatidio; La Plata, Argentina ***tetracantha* Emery**

- 5(4).** Más grandes, dimórficas, largura total de obrera menor 1,8-2,6 mm, obrera mayor 2,9-3,2 mm; ojo grande con 5-10 omatidios; escape más largo, de 0,36-0,55 mm **6**
 - Más pequeñas, monomórficas, largura total de obreras 1,4-1,7 mm; ojo más pequeño, de 3-5 omatidios; escapo más corto, de 0,26-0,30 mm **7**
- 6(5).** Dimórficas (Figs. 328-331), largura total de obrero menor ~2,6 mm; lóbulos frontales estriados verticalmente (Fig. 328); pronoto punteado finamente; ojo grande, anchura del ojo 0,03-0,04 mm, con 7 omatidios; totalmente amarillo, segmentos funiculares menores más largos, de 0,18-0,21 mm; obrero mayor más larga, 2,9-3,2 mm, largura de cabeza 0,75-0,78 mm; lóbulos frontales estriados verticalmente (Fig. 330); pronoto punteado finamente (Fig. 331); ojos grandes, anchura 0,50-0,55, con 8-10 omatidios, totalmente marrón dorado; escapo más largo de 0,54-0,55 mm; segmentos funiculares menores más largos, 0,24-0,28 mm; sur de Chile ***thoracica* Santschi**
 - Obreras parecen ser monomórficas, largo total de 1,8-2,7 mm; longitud de la cabeza 0,52-0,71; lóbulos frontales con escultura (Fig. 91); pronoto fuertemente punteado; ojo más pequeño, con 5-8 omatidios; todo cuerpo marrón dorado; segmentos menores del funículo más cortos, de 0,14-0,18 mm; sudeste de Argentina y Chile ***germaini* Emery**
- 7(5).** Pospeciolo con diente ventral (Fig. 215); cuerpo amarillo o marrón claro; pronoto punteado fuertemente; margen posterior del propodeo formando ángulo (Fig. 215); sudeste de Argentina y sur de Brasil ***patagonica* Emery**
 - Pospeciolo carece del diente ventral, o solamente con un topetón ventral (Fig. 356); cuerpo marrón medio; pronoto finamente punteado; margen posterior del propodeo redondeado (Fig. 356); norte de Argentina y sur de Brasil ***westwoodi* Forel**

***globularia* Species Complex**

Diagnosis. The workers of this complex can be distinguished by their greatly dilated, globose postpetiole. Additionally, the clypeal carinae are well developed with five teeth present on the anterior clypeal margin. The extralateral teeth are present as angles, the lateral teeth are well developed and a medial tooth is present as well. Moreover, the workers of this complex have horizontal striae present on the mesopleuron as well as the metapleuron and range in color from pale yellow to dark brown. The eyes are large, with 12-25 ommatidia. *Solenopsis globularia* is polymorphic, while *S. bucki*, *S. desecheoensis* and *S. lucayensis* are monomorphic, based on examined material.

All members of this species complex are highly variable. The eye can have 12-25 ommatidia, the medial clypeal tooth can be viewed as well developed to nearly absent, striae is present on the mesopleuron and covers the whole propodeum. Because of these variable characters, we propose synonymy of all varieties and subspecies as the polytypic *Solenopsis globularia*. The only species that does not have striae covering the whole propodeum is *S. lucayensis* and it is concolorous pale yellow, monomorphic and based upon available all workers appear to have 12-15 ommatidia and we raise it to species status. The variety from Desecheo Island is concolorous dark brown and appears to be monomorphic is given new status, as a valid species. *Solenopsis bucki* is undeniably a member of this species complex based on the large eye (20 ommatidia), striated mesopleuron and metapleuron and globose postpetiole. The globose postpetiole is the definitive trait of these species, but is also found in a potentially unrelated species (a possible parallelism), *S. loretana* (placed in the *molesta* species complex). *Solenopsis loretana* can be separated based on the much smaller eye that only contains five ommatidia and is only mentioned to reduce confusion in identification.

Key to workers of the *globularia* Complex

- 1. Mandibles straight, narrow, with 2 teeth on the masticatory margin (Fig. 15); workers without medial tooth on clypeal margin (Fig. 15) and without horizontal striae on mesopleuron (Fig. 42); southern Brazil ***bucki* Kempf**
 - Mandibles slightly curved and relatively wide, with 4 teeth on the masticatory margin; workers typically with medial clypeal tooth (Fig. 98), mesopleuron horizontally striated (Fig. 99) **2**

- 2(1).** Workers polymorphic; usually bicolored (head and mesosoma yellowish-brown, gaster darker brown); eye with 15-25 ommatidia (Fig. 98); head width 0.45-0.52 mm; length of minor funicular segments (3-8) 0.162-0.210 mm; widely distributed USA to Paraguay and southern Brazil ***globularia* Smith**
 - Workers monomorphic; concolorous yellow or concolorous dark brown; eye with 12-25 ommatidia; head width 0.42-0.48; length of minor funicular segments (3-8) 0.162-0.180 mm; Caribbean **3**

- 3(2).** Eye with 12-15 ommatidia (Fig. 159); concolorous pale yellow; striae lacking on dorsum of propodeum (Fig. 160); Bahamas, Andros Island ***lucayensis* Wheeler**
 - Eye with approximately 25 ommatidia (Fig. 75); concolorous dark brown; striae present on dorsum of propodeum (Fig. 76); Desecheo Island near Puerto Rico ***desecheoensis* Mann**

Clave para las obreras del complejo *globularia*

1. Mandíbulas rectas, estrechas, con 2 dientes en el margen masticatorio (Fig. 15); obreras carecen de diente medial en el margen clipeal (Fig. 15); sin estrías horizontales en la mesopleuron (Fig. 42); sur de Brasil ... ***bucki* Kempf**
 - Mandíbulas débilmente curvadas y relativamente anchas, con 4 dientes en el margen masticatorio; obreras típicamente con el diente clipeal medial (Fig. 98), mesopleuron con estrías horizontes (Fig. 99)..... **2**
- 2(1).** Obreras polimórficas; generalmente bicoloreadas (cabeza y mesosoma de color marrón amarillento, gáster marrón más oscuro); ojo con 15-25 omatidios (Fig. 98); ancho de la cabeza 0,45-0,52 mm; longitud de los segmentos funiculares menores (3-8) 0,162-0,210 mm; distribuido extensamente; EUA hasta sur de Brasil ***globularia* Smith**
 - Obreras monomórficas; marrón oscuro o todo amarillo; ojo con 12-25 omatidios; ancho de la cabeza 0,42-0,48; longitud de los segmentos funiculares menores (3-8) 0,162-0,180 mm; Caribe **3**
- 3(2).** Ojo con 12-15 omatidios (Fig. 159); todo amarillo claro; carecen de estrías en el dorso del propodeo (Fig. 160); Bahamas, Isla de Andros ***lucayensis* Wheeler**
 - Ojo con aproximadamente 25 omatidios (Fig. 75); todo marrón oscuro; estrías presentes en el dorso del propodeo (Fig. 76); Isla de Desecheo cerca de Puerto Rico ***desecheoensis* Mann**

molesta Species Complex

Diagnosis. These species bestow thief ants the reputation of being difficult to identify, as they are all small to medium sized, yellow ants (with a few exceptions of dark brown to black coloration), in which the worker caste is morphologically very similar. The head is longer than wide, usually slightly elongate, but can be quadrate. These species are nearly devoid of sculpturing with nearly all body surfaces smooth and shiny. When sculpturing is present it consists of horizontal striae on the metapleuron, occasionally on the mesopleuron, petiole and postpetiole. In the majority of the species, the cephalic punctures are fine and difficult to see, but in a few species the punctures are semi-coarse (however not as coarse as in the members of the *fugax* species complex). There are typically only two teeth (the lateral teeth) along the anterior clypeal border with an occasional swelling in the extralateral position that is angulate in some instances (Moreno-Gonzalez, 2001). The petiole is wider than the postpetiole viewed laterally with an occasional subpeduncular tooth present ventrally. The postpetiole is oval and about as wide as the petiole or larger than the petiole when viewed dorsally.

Workers are very difficult to identify without females. For example, workers of *Solenopsis castor*, *S. conjurata*, *S. corticalis*, *S. gnoma*, *S. nickersoni*, *S. picta*, *S. subtilis*, *S. sulfurea*, *S. tenuis* and *S. zeteki* are nearly identical. Likewise the workers of *S. basalis*, *S. clytemnestra*, *S. decipiens*, *S. franki*, *S. helena*, *S. joergenseni*, *S. laeviceps*, *S. latastei*, *S. loreтана*, *S. major*, *S. molesta*, *S. parva*, *S. picea*, *S. quadridentata*, *S. rosella*, *S. salina*, *S. striata* and *S. validiuscula* are difficult to separate. Workers of a third group, consisting of *S. abdita*, *S. abjectior*, *S. carolinensis*, *S. maboya*, *S. orestes*, *S. patriciae*, *S. pollux* and *S. texana* are nearly impossible to separate. Unfortunately the workers are often collected without females, especially in series from baits, pitfall traps and litter samples. The differences among the females suggest that they are all valid species and the females are usually necessary for accurate identification. Consequently, it has been necessary to recognize three subgroupings; the *molesta*, *pollux* and *tenuis* subgroups to facilitate identification. Workers of the *molesta* subgroup are relatively large (1.4-2.0 mm) in total length, moderately hairy and ranging from yellow to black in coloration. The *pollux* subgroup is small to relatively large (1.0-1.5 mm) in total length, very hairy and yellow to medium brown in color. The *tenuis* group is small to relatively large (1.0-1.6 mm) in total length, not hairy to moderately pilose and yellow to dark brown in coloration.

The minor worker of *S. tetracantha* (also placed in the *fugax* species complex) is placed in the South American key as it may be confused with workers of the *pollux* subgroup. Due to the great similarity in the worker caste form, a reference collection of these species may be necessary for correct identification.

Key to workers (north of Colombia) of species of the *molesta* Complex

1. Relatively large, total length 1.4-2.0 mm, head length 0.40-0.54 mm; concolorous yellow to black; moderately hairy; cephalic punctures fine to semi-coarse (Fig. 189); clypeal teeth less developed (Fig. 189), typically lateral teeth angulate (occasionally bent inward) or reduced; eye with 3-5 ommatidia; head quadrate (Fig. 189) to slightly elongated; scape relatively long (Fig. 189), 0.28-0.40 mm; minor funicular segments relatively long, 0.12-0.18 mm; mesopleuron occasionally striated, metapleuron always striated (Fig. 190); posterior propodeal margin rounded (Fig. 190); petiolar peduncle typically with ventral tooth (Fig. 338); posterior tibiae with erect to suberect hairs **2 (*molesta* subgroup)**
- Smaller, total length 1.0-1.5 mm; head length 0.32-0.44 mm; concolorous yellow; very pilose (Fig. 246); cephalic punctures always fine (Fig. 244); clypeal teeth more developed (Fig. 244), typically lateral teeth angulate to well developed; eye usually smaller, with 3-5 ommatidia; head quadrate (Fig. 244); scape length shorter 0.21-0.30 mm; minor funicular segments relatively short, 0.08-0.12 mm; mesopleuron without sculpturing (Fig. 246), always smooth and shiny; metapleuron typically striated (Fig. 246); posterior propodeal margin rounded to angulate (Fig. 246); petiolar peduncle with or without ventral tooth (Fig. 246); posterior tibiae typically with appressed hairs (with few suberect hairs) (Fig. 46) **9 (*pollux* subgroup)**
- Smaller, total length 1.0-1.6 mm, head length (0.30-0.46 mm); concolorous yellow to medium brown; sparsely to moderately pilose; cephalic punctures always fine (Fig. 305); clypeal teeth less developed, typically lateral teeth reduced to angulate (Fig. 305); eye 3-7 ommatidia; scape length 0.22-0.30 mm; minor funicular segments relatively short, 0.08-0.12 mm; mesopleuron without sculpturing (Fig. 306), always smooth and shiny; metapleuron typically striated Fig. 306); posterior propodeal margin typically rounded (few exceptions of being angulate); petiolar peduncle lacking ventral tooth (Fig. 306); posterior tibiae typically with appressed hairs (with few suberect hairs) **14 (*tenuis* subgroup)**

- 2(1).** North America primarily, central to northern México north to southern Canada (Ontario); concolorous yellow to dark brown, total length 1.4-1.8 mm; lacking sculpturing on mesopleuron (Fig. 190); petiolar peduncle (Fig. 338) nearly always with ventral tooth (typically well developed, but can be reduced) **3**
- Central and South America predominantly, southern México (Veracruz and Hidalgo) south to northern Argentina (Buenos Aires); yellow to black, occasionally pale brown with yellow appendages; total length 1.4-2.0 mm; mesopleuron typically horizontally striated (Fig. 279, but can be absent); petiolar peduncle usually lacking ventral tooth (Fig. 228) **7**
- 3(2).** Larger, total length 1.5-1.8 mm; head length 0.45-0.5 mm, head width 0.38-0.43; dark yellow to dark brown; space between tips of lateral clypeal teeth wider than 0.09 mm (Fig. 337); found in ponderosa pine forests under rocks; rare; southwest USA (California, Colorado, Arizona, New Mexico, Coahuila México) south to central and western México ***validiuscula* Emery**
- Smaller, total length 1.4-1.6 mm, head length 0.41-0.5 mm, head width 0.36-0.43; pinkish yellow to pale brown; space between tips of lateral clypeal teeth narrower (Fig. 261, always less than 0.09 mm); found in a variety of habitats, in soil to under rocks, etc.; common; widely distributed, southern Canada to California south to central México **4**
- 4(3).** Gaster of female concolorous pink (living) to pale yellow (preserved); scape of worker shorter, ~0.28 mm; minor funicular segments shorter, ~0.11 mm; eye with 5 ommatidia; posterior propodeal margin slightly angulate (Fig. 262); known only from Pelee Point and Pelee Island, Ontario, Canada ***rosella* Kennedy**
- Female and worker concolorous yellow to pale brown, gaster nearly always yellow; scape longer, 0.28-0.35 mm; minor funicular segments longer, 0.11-0.16 mm; eye with 3-5 ommatidia; posterior propodeal margin rounded (Fig. 190); widely distributed, most of continental USA (New York to California) and México **5**

- 5(4).** Extensive range, most of continental USA (New York to California) to México; head larger, length 0.42-0.51 mm; width 0.36-0.43 mm; minor funicular segments longer, 0.13-0.15 mm; lateral clypeal teeth angulate (Fig. 189) to well developed (never turned inward); posterior tibiae with mostly suberect to erect hairs; common *molesta* Say
 - Restricted range, southwestern USA to México; head smaller, length 0.41-0.45 mm, width 0.34-0.39 mm; minor funicular segments shorter, 0.11-0.13 mm; lateral clypeal teeth (Fig. 257) angulate (often blunt and turned inward); posterior tibiae with appressed to suberect hairs **6**
- 6(5).** Concolorous yellow; lateral clypeal teeth angulate, never turned inward; female golden brown, with 4 well developed clypeal teeth (Fig. 259), coarse cephalic (Figs. 257 & 259) and pronotum punctures, frontal lobes and anterior border of head between frontal lobes and eye vertically striated (Fig. 259); petiole and postpetiole with horizontal striae restricted to basal areas (Fig. 260); known only from New Mexico
 *quadridentata* Mackay, Moreno, & Pacheco
 - Concolorous yellow to pale brown; lateral clypeal teeth typically blunt (can be angulate) and turned inward (Fig. 269); female medium brown, with well-developed lateral teeth (Fig. 271) and reduced bumps at extralateral position (Fig. 271), frontal lobes striated vertically striated; sides of petiole and postpetiole entirely horizontally striated (Fig. 272); found in Texas, New Mexico and México *salina* Wheeler
- 7(2).** Mesopleuron without sculpturing (although metapleuron horizontally striated (Fig. 143); Belize to Brazil *laeviceps* Mayr
 - Mesopleuron and metapleuron striated (Fig. 279) **8**
- 8(7).** Smaller, total length 1.4-1.6 mm; head length 0.42-0.43 mm; eye length 0.03-0.36 mm; minor funicular segments shorter, 0.12-0.14 mm; concolorous yellow; Central America (Costa Rica)
 *striata* Pacheco & Mackay, NEW SPECIES
 - Larger, total length 1.4-2.0 mm, head length 0.40-0.54 mm; eye length 0.04-0.06 mm; minor funicular segments longer, 0.12-0.18 mm; concolorous dark brown to black (occasionally bicolored, light brown with dark brown gaster); widely distributed from México to Argentina *picea* Emery

- 9(1).** Common or part of range in Caribbean or Florida; worker generally with more than 10 erect hairs (Fig. 17) on the dorsum of promesonotum (seen in profile) **10**
 - Not ranging into Caribbean or Florida; worker generally with fewer than 10 erect hairs (Fig. 219) on dorsum of promesonotum (in profile) **12**
- 10(9).** Common in Florida based on material examined (likely to be in surrounding states); posterior tibial hairs mostly appressed ***abdita* Thompson**
 - Common in Caribbean, México south to Colombia, not found in Florida,; posterior tibial hairs mostly suberect **11**
- 11(10).** Head (Fig. 161) and pronotum with fine punctures, difficult to see; head larger, cephalic index 88-134; minor funicular segments longer, 0.08-0.11 mm; notopropodeal suture well depressed (Fig. 162); female smaller (Total Length < 3 mm) and dark brown; Puerto Rico ***maboya* Snelling**
 - Head and pronotum with conspicuous, semi-coarse punctures (Fig. 244) head smaller and narrower, cephalic index 78; minor funicular segments short, ~0.08 mm; notopropodeal suture weakly depressed (Fig. 246); female larger (TL > 3 mm) and yellowish brown or pale brown; Caribbean, central Mexico south to Colombia ***pollux* Forel**
- 12(9).** Petiolar peduncle lacking tooth or flange ventrally (Fig. 219); smaller, total length, ~1.0 mm; smaller head, maximum cephalic index 82; female black; uncommon, México (Tabasco) . ***patriciae* Pacheco & Mackay, NEW SPECIES²**
 - Petiolar peduncle with tooth or flange ventrally; larger, total length, 1.2-1.5 mm; larger head, maximum cephalic index 90; widely distributed (North Carolina to Colombia) **13**
- 13(12).** United States, southernmost part of distribution, in Texas; worker: hairs of posterior tibia mostly suberect (Fig. 46); female: larger, total length 4.1-4.2 mm; yellow to pale brown; eye larger, length ~0.24 mm, width 0.18-0.19 mm ***carolinensis* Forel²**
 - North America to South America, southernmost part of distribution, Colombia; worker: hairs of posterior tibiae mostly appressed (Fig. 323); female: smaller, total length 3.1-3.8 mm, dark brown; eye smaller, length 0.17-0.20 mm, width 0.15-0.16 mm ***texana* Forel²**

² Female usually necessary to correctly identify these species where the distributions overlap.

- 14(1).** Restricted range, continental USA, Florida through Gulf states to southern Texas (*Victoria*); medium brown to dark brown, usually bicolored (darker body with lighter appendages or lighter body with darker gaster); maximum total length 1.5 mm, posterior propodeal margin rounded or slightly angulate (Fig. 196) **15**
- Widely distributed, not in continental USA, México, Caribbean, south to Argentina; concolorous yellow to dark brown (if bicolored, with lighter appendages); maximum total length 1.6 mm; posterior propodeal margin always rounded (Fig. 52) **16**
- 15(14).** Moderately hairy (Fig. 196); medium brown with yellowish appendages; posterior propodeal margin rounded (Fig. 196); minor funicular segments longer, 0.1-0.12 mm; known only from Florida *nickersoni* **Thompson**
- Not very pilose (Fig. 234); concolorous dark brown or bicolored reddish brown with dark brown gaster; posterior propodeal margin slightly angulate (Fig. 234); minor funicular segments shorter, 0.90-0.96 mm; ranging from Florida through Gulf states to Texas *picta* **Emery**
- 16(14).** Partial range in the Caribbean; concolorous yellow to medium brown (if bicolored with lighter appendages) **17**
- Does not range in the Caribbean; concolorous yellow to pale brown (never bicolored) **19**
- 17(16).** Medium brown with lighter appendages; scape longer, minimum length 0.29 mm; minor funicular segments longer, minimum length 0.12 mm; Mexico to Panama, Caribbean *castor* **Forel**
- Yellow to golden yellow; scape shorter, 0.22-0.29 mm; minor funicular segments shorter, 0.08-0.12 mm **18**
- 18(17).** Worker: Lateral clypeal teeth more developed, sharp (Fig. 66); concolorous yellow to golden yellow; female: golden brown, with well-defined clypeal carinae (Fig. 68); petiolar peduncle with thin flange present ventrally (Fig. 69); eye smaller, length 0.14-0.19 mm, width 0.11-0.16 mm; Mexico to Brazil, Caribbean *corticalis* **Forel**
- Worker: Lateral clypeal teeth less developed, angulate (Fig. 362); concolorous yellow; female: pale yellow, with weakly defined clypeal carinae (Fig. 364); petiolar peduncle without flange ventrally; eye larger, length ~0.192 mm, width ~0.16 mm; Mexico to Colombia, Caribbean *zeteki* **Wheeler**

- 19(16).** Worker, Eye larger, oval, length 0.04-0.05 mm, width 0.03-0.04 mm, with 5-7 ommatidia; concolorous pale to medium brown; Female, medium brown; lateral clypeal teeth poorly defined (Fig. 307); cephalic punctures fine, with frontal lobes (Fig. 307) vertically striated (striae restricted to lobes and do not extend posteriorly on head); Mexico to Argentina ***tenuis* Mayr**
- Worker, eye smaller, circular (Fig. 62) length 0.03-0.04 mm, width 0.02-0.03 mm, with ~3 ommatidia; concolorous yellow; Female, golden brown, lateral clypeal teeth well developed (Fig. 64); cephalic punctures coarse, with frontal lobes (Fig. 64) vertically striated (with striae extending posteriorly on head to vertex); Mexico to Panama ***conjurata* Wheeler**

Clave para las obreras del complejo *molesta* (América al Norte de Colombia)

1. Longitud relativamente grande, total 1,4-2,0 mm, longitud de cabeza 0,40-0,54 mm; todo amarillo a negro; pilosidad moderada; punturas cefálicas muy finas a semifuertes (Fig. 189); dientes clipeales menos desarrollados (Fig. 189), dientes laterales típicamente en ángulos (de vez en cuando doblados hacia adentro) o reducidos; ojo con 3-5 omatidios; cabeza cuadrada (Fig. 189) hasta levemente alargada; escapo relativamente largo (Fig. 189), 0,28-0,40 mm; segmentos funiculares menores relativamente largos, 0,12-0,18 mm; mesopleuron ocasionalmente estriada, metapleuron siempre estriada (Fig. 190); margen posterior del propodeo redondeado (Fig. 190); pedúnculo del pecíolo típicamente con diente ventral presente (Fig. 338); tibias posteriores con pelos rectos a subrectos **2 (subgrupo *molesta*)**
- Longitud más pequeña, total 1,0-1,5 mm; longitud de la cabeza 0,32-0,44 mm; todo amarillo; muy pilosa (Fig. 246); punturas cefálicas siempre finas (Fig. 244); dientes clipeales más desarrollados (Fig. 244), dientes laterales típicamente se disponen en ángulos bien desarrollados; ojo generalmente más pequeño, con 3-5 omatidios; cabeza cuadrada (Fig. 244); escapo más corto, longitud 0,21-0,30 mm; segmentos funiculares menores relativamente cortos, 0,08-0,12 mm; mesopleuron sin escultura (Fig. 246), siempre lisa y brillante; metapleuron típicamente estriada (Fig. 246); margen posterior del propodeo redondeado hasta formando ángulo (Fig. 246); pedúnculo del pecíolo con o sin el diente ventral (Fig. 246); tibias posteriores típicamente con pelos recostados (con pocos pelos subrectos) (Fig. 46) **9 (subgrupo de *pollux*)**
- Longitud más pequeña, total 1,0-1,6 mm; longitud de la cabeza 0,30-0,46 mm; amarillo a marrón moderado; pilosidad escasa a moderada; punturas cefálicas siempre finas (Fig. 305); dientes clipeales menos desarrollados, dientes laterales típicamente reducidos hasta formar ángulos (Fig. 305); ojo con 3-7 omatidios; longitud del escapo 0,22-0,30 mm; segmentos funiculares menores relativamente cortos, 0,08-0,12 mm; mesopleuron sin escultura (Fig. 306), siempre liso y brillante; metapleuron típicamente estriada (Fig. 306); margen posterior del propodeo típicamente redondeado (con pocas excepciones angulado); pedúnculo del pecíolo siempre sin diente ventral (Fig. 306); tibias posteriores típicamente con pelos recostados (con pocos pelos subrectos) **14 (subgrupo de *tenuis*)**

- 2(1).** Más común en Norteamérica, de México central al norte hasta Canadá meridional (Ontario); amarillo a marrón oscuro; longitud total 1,4-1,8 mm; sin escultura en la mesopleuron (Fig. 190); pedúnculo del pecíolo (Fig. 338) siempre con un diente ventral (típicamente bien desarrollado, pero puede ser reducido) **3**
- Predominante Central y Suramérica, México meridional (Veracruz e Hidalgo) hasta norte de Argentina (Buenos Aires); amarillo a negro, de vez en cuando marrón pálido con patas amarillas; longitud total 1,4-2,0 mm; mesopleuron típicamente estriada horizontalmente (Fig. 279, pero estrías pueden estar ausentes); pedúnculo del pecíolo siempre carece del diente ventral (Fig. 228) **7**
- 3(2).** Más grande; longitud total 1,5-1,8 mm; longitud de cabeza 0,45-0,50 mm, ancho 0,38-0,43; amarillo oscuro a marrón oscuro; espacio entre los ápices de dientes clipeales laterales (Fig. 337) más ancho (0,09 mm); en bosques del pino ponderoso debajo de rocas; raro, sudoeste los EUA (Colorado, Arizona, Nuevo México) al sur a centro y occidente de México ***validiuscula* Emery**
- Longitud más pequeña, total 1,4-1,6 mm; longitud de la cabeza 0,41-0,50 mm, ancho 0,36-0,43; amarillo rosáceo a marrón pálido; espacio entre los ápices de dientes clipeales laterales más estrechos (Fig. 261, siempre menos de 0,09 mm); encontrado en variedad de hábitats, en suelo y debajo de piedras, etc.; común; extensamente distribuida, de Canadá meridional al sur de California a México Central **4**
- 4(3).** Gáster de hembra (viva) de color rosado a amarillo claro (preservada); escapo de obrera más corto, ~0,28 mm; segmentos funiculares menores más cortos, ~0,11 mm; ojo con 5 omatidios; margen posterior del propodeo dispuesto levemente en ángulo (Fig. 262); colectada solamente en Punto de Pelee y Isla de Pelee, Ontario, Canadá ***rosella* Kennedy**
- Hembra y obrera amarillo hasta marrón pálido, gáster de hembra (viva) casi siempre amarillo; escapo más largo, 0,28-0,35 mm; segmentos funiculares menores más largos, 0,11-0,16 mm; ojo con 3-5 omatidios; margen posterior del propodeo redondeado (Fig. 190); extensamente distribuidas, la mayor parte de los EUA continental (Nueva York a California) y México **5**

5(4). Distribución extensa, mayor parte de EUA continental (Nueva York a California) y México; cabeza más grande, longitud 0,42-0,51 mm; anchura 0,36-0,43 mm; segmentos funiculares menores más largos, 0,13-0,15 mm; dientes laterales del clípeo forman ángulos (Fig. 189) bien desarrollados (nunca doblados hacia el medio); tibias posteriores cubiertas con pelos erectos y suberectos; comunes ***molesta* Say**

- Distribución restringida, sudoeste de los EUA hasta México; cabeza más pequeña, longitud 0,41-0,45 mm, ancho 0,34-0,39 mm; segmentos funiculares menores más cortos, 0,11-0,13 mm; dientes laterales del clípeo (Fig. 257) forman ángulos (romos y doblados hacia adentro); tibias posteriores con pelos recostados a suberectos **6**

6(5). Totalmente amarilla; dientes laterales del clípeo forman ángulos, nunca doblados hacia al medio; hembra marrón dorada, con 4 dientes clipeales bien desarrollados (Fig. 259), punturas cefálicas (Figs. 257 & 259) y del pronoto gruesas; lóbulos frontales y borde anterior de la cabeza entre los lóbulos frontales y ojo, estriados verticalmente (Fig. 259); pecíolo y pospecíolo con estrías horizontales restringidas a áreas basales (Fig. 260); conocida solamente de Nuevo México (EUA) ***quadridentata* Mackay, Moreno, y Pacheco**

- Totalmente amarilla a marrón pálido; dientes laterales del clípeo típicamente romos (ocasionalmente angulados) y doblados hacia adentro (Fig. 269); hembra marrón moderado; con dientes laterales bien desarrollados (Fig. 271); topes en posiciones extralaterales reducidos (Fig. 271), lóbulos frontales estriados verticalmente; lados de pecíolo y pospecíolo totalmente estriados horizontalmente (Fig. 272); EUA (Tejas, Nuevo México) y México (Chihuahua) .. ***salina* Wheeler**

7(2). Mesopleuron sin escultura (aunque metapleuron puede ser estriado horizontalmente Fig. 143); Belice a Brasil ***laeviceps* Mayr**

- Mesopleuron y metapleuron con estriación (Fig. 279) **8**

8(7). Más pequeña, longitud total 1,4-1,6 mm; longitud de cabeza 0,42-0,43 mm; longitud del ojo 0,030-0,036 mm; segmentos funiculares menores más cortos, 0,12-0,14 mm; totalmente amarilla; América Central (Costa Rica y Panamá) ***striata* Mackay, Moreno, y Pacheco**

- Más grande, longitud total 1,4-2,0 mm, longitud de cabeza 0,40-0,54 mm; longitud del ojo 0,04-0,06 mm; segmentos funiculares menores más largos, 0,12-0,18 mm; marrón oscuro a negra (de vez en cuando bicoloradas, marrón claro con el gáster marrón oscuro); distribuido extensamente de México hasta Argentina, Caribe ***picea* Emery**

- 9(1).** Común o parte de distribución en el Caribe o estado de Florida (EUA); obrera generalmente con más de 10 pelos rectos (Fig. 17) en dorso del promesonoto (visto en perfil) **10**
- No extendiéndose en el Caribe o Florida (EUA); obrera generalmente con menos de 10 pelos rectos (Fig. 219) en dorso del promesonoto (visto en perfil) **12**
- 10(9).** Común en Florida (EUA); la mayoría de pelos de tibia posterior aplastados ***abdita* Thompson**
- No encontrada en Florida, endémica o la parte de la distribución en el Caribe; pelos tibiales posteriores sobre todo subrectos **11**
- 11(10).** Cabeza (Fig. 161) y pronoto con punturas finas, difíciles de ver; cabeza más grande, índice cefálico 88-134; segmentos funiculares menores más largos, 0,08-0,11 mm; surco notopropodeal bien desarrollado (Fig. 162); hembra pequeña (largura total < 3 mm) y café oscuro; Puerto Rico ***maboya* Snelling**
- Cabeza y pronoto con punturas visibles, semi-fuertes, conspicuas (Fig. 244); cabeza más pequeña, índice cefálico 78; segmentos funiculares menores cortos, ~0,08 mm, surco notopropodeal poco deprimido (Fig. 246); hembra has grande (largura total > 3 mm) y café-amarillo o café pálido; común, México hasta Brasil, Caribe ***pollux* Forel**
- 12(9).** Pedúnculo del pecíolo carece de diente o reborde ventral (Fig. 219); pequeña, longitud total ~1,0 mm; cabeza más pequeña, índice cefálico máximo 82; hembra negra; no común, México (Tabasco) .. ***patriciae* Pacheco y Mackay**³
- Pedúnculo del pecíolo con diente o reborde ventral; más grande, longitud total 1,2-1,5 mm; cabeza más grande, índice cefálico máximo 90; extensamente distribuida (Carolina Norte [EUA] hasta Colombia) **13**

³ Usualmente se necesita una hembra para identificar estas especies donde sus distribuciones están en superposición

- 13(12).** EUA al sur hasta Tejas; obrero: pelos de tibia posterior sobre todo suberectos (Fig. 46); hembra: longitud de más grande, total 4,1-4,2 mm; amarillo a marrón claro; ojo más grande, longitud ~0,24 mm, ancho de 0,18-0,19 mm; EUA (Colorado a Virginia al sur hasta Texas) *carolinensis* Forel³
 - Norte a Suramérica (Colombia); Obrero: pelos de tibia posterior sobre todo aplastados (Fig. 323); hembra: más pequeña, longitud total 3,1-3,8 mm; ojo más pequeño, longitud 0,17-0,20 mm, ancho 0,15-0,16 mm; marrón oscuro
 *texana* Forel³
- 14(1).** Distribución restringida, EUA continental, Florida a través de estados del golfo hasta el sur de Tejas (Victoria); marrón moderado a oscuro, generalmente bicolorada (cuerpo más oscuro con patas más claros o cuerpo más claro con gáster más oscuro); longitud total máxima 1,5 mm; margen posterior del propodeo redondeado o levemente angulado (Fig. 196) 15
 - Distribuido ampliamente, México y el Caribe al sur hasta Argentina; amarillo concoloreado a marrón oscuro (si es bicolorada, patas más claras); longitud total máxima 1,6 mm; margen posterior propodeal siempre redondeado (Fig. 52) 16
- 15(14).** Moderadamente pilosa (Fig. 196); marrón moderado con patas amarillentas; margen posterior del propodeo redondeado (Fig. 196); segmentos funiculares menores más largos, 0,10-0,12 mm; conocida solamente del estado de Florida, EUA *nickersoni* Thompson
 - No muy pilosa (Fig. 234); marrón oscuro concoloreado o rojizo bicolorado con gáster marrón oscuro; margen posterior del propodeo dispuesto levemente en ángulo (Fig. 234); segmentos funiculares menores más cortos, 0,90-0,96 mm; de Florida (EUA) en los estados del golfo hasta Tejas *picta* Emery
- 16(14).** Distribución parcial en el Caribe; amarillo concoloreado a marrón moderado (si es bicolorado, con patas más claras) 17
 - No se extiende en el Caribe; amarillo concoloreado a marrón pálido (nunca bicolorada) 19
- 17(16).** Marrón moderado con patas más claras; escapo más largo, longitud mínima 0,29 mm; segmentos funiculares menores más largos, longitud mínima 0,12 mm; México al sur hasta Panamá, Caribe *castor* Forel
 - Amarillo a dorado; escapo más corto, 0,22-0,29 mm; segmentos funiculares menores más cortos, 0,08-0,12 mm 18

18(17). Obrera: Dientes clipeales laterales más desarrollados, agudos (Fig. 66); amarillo concoloreado a dorado; hembra: marrón dorado, con carenas clipeales bien definidas (Fig. 68), pedúnculo del pecíolo con reborde fino ventral (Fig. 69); ojo más pequeño, longitud 0,14-0,19 mm, ancho 0,11-0,16 mm; México a Brasil, Caribe ***corticalis* Forel**

- Obrera: dientes clipeales laterales menos desarrollados, dispuestos en ángulos (Fig. 362); amarillo concoloreado; hembra: amarillo claro, con carenas clipeales débiles, poco definidas (Fig. 364); pedúnculo del pecíolo sin reborde ventral; ojo más grande, longitud ~0,192 mm, anchura ~0,16 mm; México al sur hasta Colombia, Caribe ***zeteki* Wheeler**

19(16). Obrera: ojo más grande, ovalado, longitud 0,04-0,05 mm, ancho 0,03-0,04 mm, con 5- 7 omatidios; pálido concoloreado a marrón medio; hembra: marrón moderado, dientes laterales clipeales poco definidos (Fig. 307); punturas cefálicas finas, con los lóbulos frontales (Fig. 307) verticalmente estriados (las estrías restringidas a los lóbulos y no se extienden posteriormente encima de la cabeza); común, México hasta Brasil ***tenuis* Mayr**

- Obrera: ojo más pequeño, circular (Fig. 62), longitud 0,03-0,04 mm, ancho 0,02-0,03 mm, con ~3 omatidios; amarillo concoloreado; hembra: marrón dorado; dientes laterales clipeales bien desarrollados (Fig. 62); punturas cefálicas gruesas, con lóbulos frontales (Fig. 64) verticalmente estriados (con las estrías extendiéndose posteriormente encima de la cabeza); no tan común, México a Panamá ***conjurata* Wheeler**

Key to workers of South American species of the *molesta* complex

1. Relatively larger, total length 1.3-2.5 mm, head length 0.4-0.6 mm; concolorous yellow to dark brown, occasionally bicolored yellow and brown; moderately hairy; cephalic punctures fine; clypeal teeth less developed (Fig. 189), typically lateral teeth angulate; eye with 3-10 ommatidia (typically 3-5), oval or kidney-shaped; head quadrate to slightly elongated (Fig. 189); scape relatively long, 0.27-0.40 mm; minor funicular segments (Fig. 5) relatively long, typically greater than 0.12 mm; mesopleuron occasionally striated, metapleuron always striated (Fig. 190); posterior propodeal margin rounded (Fig. 190); petiolar peduncle typically with ventral tooth or bump (Fig. 34); posterior tibiae with erect to suberect hairs **2 (*molesta* subgroup)**
- Smaller, total length 1.1-2.2 mm; head length 0.3-0.6 mm; concolorous yellow; very pilose; cephalic punctures fine to semi-coarse (Fig. 244); clypeal teeth more developed, typically lateral teeth angulate to well developed (Fig. 244); eye usually smaller, with 3-10 ommatidia (typically 1-5), oval or circular; head quadrate (Fig. 244); scape length shorter 0.24-0.40 mm (typically less than 0.4 mm); minor funicular segments relatively short, typically less than 0.12 mm; mesopleuron without sculpturing, always smooth and shiny (Fig. 246); metapleuron typically striated; posterior propodeal margin rounded to angulate; petiolar peduncle with or without ventral tooth; posterior tibiae typically with appressed hairs (with few suberect hairs) **14 (*pollux* subgroup)**
- Smaller, total length 1.0-1.6 mm; head length (0.30-0.46 mm); concolorous yellow to medium brown; sparsely to moderately pilose; cephalic punctures always fine (Fig. 305) ; clypeal teeth less developed, typically lateral teeth reduced (Fig. 305) to angulate; eye with 3-7 ommatidia, oval or almond-shaped; scape length 0.22-0.30 mm; minor funicular segments relatively short, 0.08-0.12 mm; mesopleuron without sculpturing, always smooth and shiny; metapleuron typically striated; posterior propodeal margin typically rounded (few exceptions of being angulate); petiolar peduncle always missing (Fig. 306) ventral tooth (occasionally with bump) (see *sulfurea*, Fig. 298); posterior tibiae typically with appressed hairs (with few suberect hairs) ... **18 (*tenuis* subgroup)**

- 2(1).** Relatively larger, total length often greater than 2.0 mm (typically 1.7-2.5 mm); head longer, 0.4-0.6 mm; scape longer, 0.3-0.4 mm; minor funicular segments longer, often 0.15-0.18 mm; concolorous yellow to black (rarely bicolored); petiolar peduncle typically with ventral tooth (Fig. 131); mesopleuron commonly striated (Fig. 131); mainly occurring in South America (Argentina, Brazil, Chile, Paraguay) (infrequently ranging through Central America to México, never in Caribbean) **3**
- Smaller, never greater than 2.0 mm (typically 1.5-1.7 mm); head shorter, 0.4-0.5 mm; scape shorter, 0.27-0.38 mm; minor funicular segments shorter, often 0.12-0.15 mm; concolorous yellow to pale brown (commonly bicolored, yellow or orange with brown gaster); petiolar peduncle typically lacking (Fig. 34) ventral tooth (occasionally bump present); mesopleuron rarely striated (Fig. 34); generally from South America (Argentina, Brazil, Colombia) (more frequently ranging through Central America to México, can be found in Caribbean) **8**
- 3(2).** Mesopleuron horizontally striated (Fig. 157); widely distributed, México south to Argentina **4**
- Mesopleuron lacking sculpturing (Fig. 56), always smooth and shiny; restricted to South America (Argentina, Brazil, Paraguay, Uruguay) **7**
- 4(3).** Concolorous yellow; eye larger, 8-10 ommatidia, eye length up to 0.07 mm; medial clypeal bump commonly found between lateral teeth (Fig. 130); southern Brazil, Paraguay, northern Argentina ***joergenseni* Santschi**
- Concolorous golden brown to black; eye smaller, 3-5 ommatidia, eye length up to 0.06 mm; medial clypeal bump never present on anterior clypeal margin (Fig. 227) **5**
- 5(4).** Postpetiole globose (Fig. 158), greatly dilated viewed laterally and dorsally (resembling members of the *globularia* species complex); frontal lobes vertically striated; eye with 3 ommatidia; petiolar peduncle without ventral tooth or flange (Fig. 157); southern Brazil, Argentina and Paraguay ***loretana* Santschi**
- Postpetiole oval (not globose or dilated), nearly equal in size to petiole viewed laterally, slightly wider viewed dorsally; frontal lobes lacking striae; eye with 3-5 ommatidia; petiolar peduncle occasionally with small ventral bump **6**

- 6(5).** Concolorous dark brown to black (occasionally bicolored); lateral clypeal teeth reduced (Fig. 227), angulate; petiolar peduncle lacking ventral tooth or bump (Fig. 228); female smaller, 4.0-4.7 mm, head shorter 0.67-0.7 mm, narrower 0.6-0.7 mm; vertical striae on frontal lobes extending from lobes posteriorly on dorsum of head; male larger, total length ~3.5, head longer ~0.6 mm, wider ~0.64 mm, eye larger, length 0.3 mm, width 0.18 mm; Mexico to southern Argentina *picea* Emery
 - Concolorous golden brown (never bicolored); lateral clypeal teeth sharp; petiolar peduncle with small ventral tooth or bump (Fig. 145); female larger 4.0-6.0 mm, head longer 0.75-0.8 mm, wider 0.7-0.9 mm; vertical striae restricted to frontal lobes (Fig. 146); male smaller, 3.0-3.2 mm, head shorter 0.30-0.42 mm, narrower 0.38-0.44 mm, eye smaller (Fig. 149), length 0.17-0.22 mm, width 0.15-0.17 mm; Chile and Argentina *latastei* Emery
- 7(3).** Concolorous golden yellow; larger, total length 2.1-2.5 mm; eye larger, 8-10 ommatidia (Fig. 168); space between lateral teeth wider at 0.09 mm; petiolar peduncle with flange present ventrally (Fig. 169); Argentina y Costa Rica *major* Forel
 - Concolorous yellow or dark brown; smaller, total length 1.6-2.0 mm; eye smaller, 5-7 ommatidia (Fig. 55); space between lateral teeth narrower, less than 0.09 mm; petiolar peduncle lacking flange ventrally (Fig. 56, tooth may be present); Argentina, Bolivia, Brazil, Paraguay, Uruguay *clytemnestra* Emery
- 8(2).** Part of distribution in Caribbean (Trinidad); commonly bicolored (yellow or orange with dark brown gaster), rarely concolorous (yellow or orange); eye oval (Fig. 33); petiole widened, robust viewed laterally (Fig. 34); South America *basalis* Forel
 - Does not occur in Caribbean (never bicolored); commonly concolorous pale yellow or pale brown; eye oval or kidney shaped (Fig. 210); petiole narrower, slightly wider than postpetiole viewed laterally (Fig. 211) 10
- 10(8).** Eye larger, 5-8 ommatidia, eye length up to 0.08 mm (Fig. 209), kidney shaped (Fig. 210); mesopleuron horizontally striated (Fig. 211); lateral clypeal teeth angulate; concolorous pale yellow to pale brown; southern South America *parva* Mayr
 - Eye smaller, 3-6 ommatidia, eye length up to 0.06 mm, oval; mesopleuron lacking sculpturing, smooth and shiny; lateral clypeal teeth often reduced but can be angulate; concolorous yellow to pale brown; Central America, Colombia to Argentina and Brazil 11

- 11(10).** Sides of head nearly straight (Fig. 72) or slightly convex **12**
 - Sides of head conspicuously convex, rounded (Fig. 118); Panama to Chile and Argentina ***helena* Emery**
- 12(11).** Eye larger, with 6 ommatidia (Fig. 73); lateral clypeal teeth angulate (Fig. 72); petiolar node with subparallel faces (Fig. 74); concolorous yellow; South America ***decipiens* Emery**
 - Eye smaller, with 3-5 ommatidia (Fig. 84); lateral clypeal teeth reduced to angulate, petiolar node with arched node (Fig. 85); concolorous golden yellow to pale brown **13**
- 13(12).** Anterior clypeal margin elongated, extending anteriorly (Fig. 84); concolorous golden yellow; Costa Rica and Brazil ***franki* Forel**
 - Anterior clypeal margin shortened, compact (Fig. 142); concolorous yellow to pale brown; Mexico to Brazil ***laeviceps* Mayr**
- 14(1).** Head (Fig. 315) elongate (CI 70-79), cephalic punctures fine (Fig. 315), difficult to see; clypeus elongated (Fig. 315); eye with at least one ommatidium; moderately hairy (Fig. 316); Argentina ***tetracantha* Emery (minor worker)**
 - Head (Fig. 206) quadrate (CI 77-134), cephalic punctures fine to semi-coarse (Fig. 206); clypeus shortened (Fig. 206); eye with 3-10 ommatidia; moderately to very hairy (Fig. 208); widely distributed, Continental U.S.A., Caribbean to South America (south to Argentina) **15**
- 15(14).** Eye larger 8-10 ommatidia (Fig. 206), maximum eye length 0.07 mm; cephalic punctures semi-coarse (Fig. 206); lateral clypeal teeth sharp; pronotal punctures semi-coarse (Fig. 208); notopropodeal suture weakly depressed (Fig. 208); very hairy; Argentina and Brazil ***orestes* Forel**
 - Eye smaller 3-5 ommatidia (Fig. 244), maximum eye length 0.04 mm; cephalic punctures typically fine (but can be semi-coarse); pronotal punctures always fine, difficult to see; notopropodeal suture well depressed (Fig. 246); moderately to very hairy; Continental USA, Caribbean, south to Brazil **16**
- 16(15).** Petiolar peduncle lacking tooth or flange ventrally (Fig. 246); concolorous yellow; part of range in Caribbean, Mexico south to Brazil
 ***pollux* Forel**
 - Petiolar peduncle always with tooth or flange ventrally (Fig. 23); concolorous yellow to pale brown; not ranging into Caribbean **17**

- 17(16).** Lateral clypeal teeth sharp (Fig. 22); cephalic punctures semi-coarse; faces of petiolar node parallel (Figs. 23); known only from Buenos Aires, Argentina ***abjectior* Pacheco & Mackay, NEW STATUS**
 - Lateral clypeal teeth angulate (Fig. 321); cephalic punctures fine; faces of petiolar node subparallel (Fig. 322); continental USA south to Colombia ...
 ***texana* Forel**
- 18(1).** Partial range in the Caribbean (Puerto Rico, Cuba) and distributed in México south to Panama (unknown from South America); yellow to medium brown (if bicolored, brown with yellow appendages) **19**
 - Not found in the Caribbean; predominantly distributed in South America (Brazil, Galápagos Islands, Paraguay, Uruguay) but does range in Central America north to México **21**
- 19(18).** Medium brown with lighter colored appendages; scape longer (Fig. 51), minimum length 0.29 mm; minor funicular segments longer, minimum length 0.12 mm; Mexico to Bolivia, Caribbean ***castor* Forel**
 - Yellow to golden yellow; scape shorter (Fig. 66), 0.22-0.29 mm; minor funicular segments shorter, 0.08-0.12 mm; Mexico to Brazil, Caribbean **20**
- 20(19).** Worker: Lateral clypeal teeth better developed, sharp (Fig. 66); concolorous yellow to golden yellow; female: golden brown, with well-defined clypeal carinae (Fig. 68); petiolar peduncle with thin ventral flange (Fig. 69); eye smaller, length 0.14-0.19 mm, width 0.11-0.16 mm; Mexico to Brazil, Caribbean ***corticalis* Forel**
 - Worker: Lateral clypeal teeth less developed, angulate; concolorous yellow; female: pale yellow, with weakly defined clypeal carinae, petiolar peduncle without ventral tooth or flange; eye larger, length ~0.192 mm, width ~0.16 mm; Mexico to Colombia, Puerto Rico ***zeteki* Wheeler**
- 21(18).** Common; eye larger with 5-7 ommatidia (Fig. 305); concolorous pale to medium brown (never bicolored); clypeus compact (Fig. 305); teeth angulate; petiolar peduncle lacking ventral bump (Fig. 306); México south to Brazil
 ***tenuis* Mayr**
 - Rare; eye smaller with 3-5 ommatidia (Fig. 297); concolorous yellow to pale brown (often bicolored, yellow with brown gaster or pale brown body with yellowish appendages); clypeus compact or elongated; lateral clypeal teeth sharp (Fig. 287); petiolar peduncle with small ventral bump or minute flange (Fig. 288); restricted range in South America (Brazil, Paraguay, Argentina) **22**

22(21). Clypeus compact (Fig. 287); cephalic punctures sparsely spaced; typically light brown (if bicolored, light brown body with yellowish appendages); petiole and postpetiole of female horizontally striated when viewed laterally (Fig. 290); Venezuela south to Brazil and Paraguay ***subtilis* Emery**

- Clypeus elongated (Fig. 106); cephalic punctures densely spaced; typically concolorous pale yellow (if bicolored, yellow body with brown gaster); petiole and postpetiole of female with roughened sculpturing when viewed laterally (Fig. 300); Argentina, Brazil, Galápagos Islands, Guianas, Paraguay, Venezuela **23**

23(22). Worker, Clypeal carinae weakly defined (Fig. 297); extralateral teeth absent; eye with maximum of 3 ommatidia; frontal lobes without sculpturing (Fig. 297); Female, golden brown, slender bodied; head elongate; clypeus with 4 well-developed teeth (Fig. 299); Venezuela south to Argentina

..... ***sulfurea* Roger**

- Worker, Clypeal carinae well-defined (Fig. 106); extralateral teeth angulate; eye with 3-5 ommatidia; frontal lobes weakly vertically striated; Female, dark brown with golden appendages, body not slender; head rectangular (Fig. 109), not conspicuously elongated; lateral teeth well-developed, extralateral teeth angulate (Fig. 109); known only from the Galápagos Islands

..... ***gnoma* Pacheco, Herrera, & Mackay**

Clave para las obreras del complejo *molesta* en Suramérica

1. Longitud relativamente más grande, total 1,3-2,5 mm, longitud de cabeza 0,4-0,6 mm; amarillo concoloreado a marrón oscuro, de vez en cuando bicoloreada amarillo y marrón; moderadamente pilosa; punturas cefálicas finas; dientes clipeales menos desarrollados (Fig. 189), dientes laterales típicamente se disponen en ángulos; ojo con 3-10 omatidios (típicamente 3-5), ovalado o en forma de riñón; cabeza cuadrada a levemente alargada (Fig. 189); escapo relativamente alargado, 0,27-0,40 mm; segmentos funiculares menores (Fig. 5) relativamente largos, típicamente mayores de 0,12 mm; mesopleuron ocasionalmente estriado; metapleuron siempre estriado (Fig. 190); margen posterior del propodeo redondeado (Fig. 190); pedúnculo del pecíolo típicamente con diente o jojoba ventral presente (Fig. 34); tibias posteriores con pelos erectos o suberectos **2 (subgrupo de *molesta*)**
- Longitud más pequeña, total 1,1-2,2 mm; longitud de cabeza 0,3-0,6 mm; amarillo concoloreado; muy pilosa; punturas cefálicas finas a semi-gruesas (Fig. 244); dientes clipeales más desarrollados, dientes laterales típicamente disponen en ángulo, hasta bien desarrollados (Fig. 244); ojo generalmente más pequeño, con 3-10 omatidios (típicamente 1-5), forma de óvalo o círculo; cabeza cuadrada (Fig. 244); longitud del escapo más corto, 0,24-0,40 mm (típicamente menos de 0,4 mm); segmentos funiculares menores relativamente cortos, típicamente menos de 0,12 mm; mesopleuron sin escultura, siempre liso y brillante (Fig. 246); metapleuron típicamente estriado; margen posterior del propodeo redondeado hasta angulado; pedúnculo del pecíolo con o sin diente ventral; tibias posteriores típicamente con pelos aplastados (con pocos pelos suberectos) **14 (subgrupo de *pollux*)**
- Longitud más pequeña, total 1,0-1,6 mm; longitud de cabeza 0,30-0,46 mm; amarillo concoloreado a marrón medio; pilosidad escasa a moderada; punturas cefálicas siempre finas (Fig. 305); dientes clipeales menos desarrollados, dientes laterales típicamente reducidos (Fig. 305) hasta formar ángulos; ojo con 3-7 omatidios, ovalado o en forma de almendra; longitud del escapo 0,22-0,30 mm; segmentos funiculares menores relativamente cortos, 0,08-0,12 mm; mesopleuron sin escultura, siempre liso y brillante; metapleuron típicamente estriado; margen posterior del propodeo típicamente redondeada (pocas excepciones de ser dispuesto en ángulo); pedúnculo del pecíolo (Fig. 306) siempre sin diente ventral (de vez en cuando con un tope) (Fig. 298); tibias posteriores típicamente con los pelos aplastados (con pocos pelos suberectos) **18 (subgrupo de *tenuis*)**

- 2(1).** Relativamente más grande, usualmente mayor de 2,0 mm (típicamente 1,7-2,5 mm); cabeza más larga, 0,4-0,6 mm; escapo más largo, 0,3-0,4 mm; segmentos funiculares menores más largos, comúnmente 0,15-0,18 mm; amarillo concoloreado al negro (raramente bicoloreado); pedúnculo del pecíolo típicamente con diente ventral (Fig. 131); mesopleuron comúnmente estriado (Fig. 131); encontrada principalmente en Suramérica (Argentina, Brasil, Chile, Paraguay) (extendiéndose infrecuentemente hasta América Central y México, nunca en el Caribe) **3**
- Más pequeña, nunca mayor de 2,0 mm (típicamente 1,5-1,7 mm); cabeza más corta, 0,4-0,5 mm; escapo más corto, 0,27-0,38 mm; segmentos funiculares menores más cortos, frecuentemente 0,12-0,15 mm; amarillo concoloreado a marrón pálido (comúnmente bicoloreada, amarillo o naranja con gáster marrón); pedúnculo del pecíolo (Fig. 34) típicamente carece de diente ventral (de vez en cuando tope presente); mesopleuron raramente estriada (Fig. 34); generalmente en Suramérica (Argentina, Brasil, Colombia) (extendiéndose con más frecuencia a través de América Central a México, puede ser encontrada en el Caribe) **8**
- 3(2).** Mesopleuron estriado horizontalmente (Fig. 157); distribuido extensamente, sur de México a la Argentina **4**
- Mesopleuron carece de escultura (Fig. 56), siempre liso y brillante; restringida a Suramérica (la Argentina, Brasil, Paraguay, Uruguay) **7**
- 4(3).** Amarillo concoloreado; ojo más grande, con 8-10 omatidios, longitud del ojo hasta 0,07 mm; tope clipeal comúnmente encontrado entre dientes laterales (Fig. 130); sur de Brasil y norte de Argentina **joergenseni Santschi**
- Concoloreado marrón dorado a negro; ojo más pequeño, con 3-5 omatidios, longitud del ojo hasta 0,06 mm; tope clipeal medial nunca presente en el margen anterior clipeal (Fig. 227) **5**
- 5(4).** Pospecíolo globoso (Fig. 158), muy dilatado visto lateralmente y dorsalmente (asemejándose a los miembros del complejo *globularia*); lóbulos frontales estriados verticalmente; ojo con 3 omatidios; pecíolo sin diente o reborde ventral (Fig. 157); Argentina, Brasil y Paraguay **loretana Santschi**
- Pospecíolo ovalado (no globoso ni dilatado), casi igual de tamaño al pecíolo visto lateralmente, poco más ancho en vista dorsal; lóbulos frontales carecen las estrías; ojo con 3-5 omatidios; pecíolo de vez en cuando con tope pequeño ventral **6**

- 6(5).** Concoloreado marrón oscuro a negro (de vez en cuando bicoloreada); dientes clipeales laterales reducidos (Fig. 227), dispuestos en ángulos; pedúnculo del pecíolo carece diente o tope ventral (Fig. 228); hembra más pequeña, 4,0-4,7 mm, cabeza más corta, 0,67-0,70 mm; más estrecha 0,6-0,7 mm; estrías verticales en lóbulos frontales, se extienden del dorso de los lóbulos posteriormente en dorso de cabeza; macho más grande, longitud total ~3,5, cabeza más larga, ~0,60 mm, más ancha, ~0,64 mm, ojo más grande, longitud 0,30 mm, anchura 0,18 mm; México a Brasil, Caribe *picea* Emery
- Concolorada marrón dorado (nunca bicoloreada); dientes clipeales laterales agudos; pecíolo con pequeño diente o tope ventral (Fig. 145); hembra más grande, 4,0-6,0 mm, cabeza más larga, 0,75-0,80 mm, más ancha, 0,7-0,9 mm; estrías verticales restringidas a los lóbulos frontales (Fig. 146); macho más pequeño, 3,0-3,2 mm, cabeza más corta, 0,30-0,42 mm, más estrecho, 0,38-0,44 mm, ojo más pequeño (Fig. 149), longitud 0,17-0,22 mm, anchura 0,15-0,17 mm; Chile y Argentina *latastei* Emery
- 7(3).** Concoloreado amarillo dorado; longitud total más grande, 2,1-2,5 mm; ojo más grande, 8-10 omatidios (Fig. 168); espacio entre ápices de los dientes laterales más ancho de 0,09 mm; superficie ventral del pedúnculo con reborde (Fig. 169); Argentina y Costa Rica *major* Forel
- Concoloreado amarillo o marrón oscuro; más pequeña, longitud total 1,6-2,0 mm; ojo más pequeño, 5-7 omatidios (Fig. 55); espacio entre ápices de dientes laterales más estrecho, menos de 0,09 mm; pecíolo carece o reborde ventral (Fig. 56, diente puede estar presente); Argentina, Brasil, Paraguay, Uruguay *clytemnestra* Emery
- 8(2).** Parte de distribución en el Caribe (Trinidad); comúnmente bicoloreado (amarillo o anaranjado con el gáster de marrón oscuro), raramente concoloreado (amarillo o anaranjado); ojo ovalado (Fig. 33); pecíolo relativamente ancho y robusto, visto lateralmente (Fig. 34); Colombia, Bolivia, Brasil, Argentina, Trinidad, Caribe *basalis* Forel
- Distribución no se extiende en el Caribe (nunca bicoloreado); comúnmente concoloreado amarillo claro o marrón pálido; ojo ovalado o en forma de riñón (Fig. 210); pecíolo más estrecho, levemente más ancho que pospecíolo visto lateralmente (Fig. 211) **10**

- 10(8).** Ojo más grande, 5-8 omatidios, longitud del ojo hasta 0,08 mm (Fig. 209), en forma de riñón (Fig. 210); mesopleuron estriado horizontalmente (Fig. 211); dientes clipeales laterales forman ángulos; concoloreado amarillo claro hasta marrón pálido; Argentina y Brasil ***parva* Mayr**
 - Ojo más pequeño, 3-6 omatidios, longitud del ojo hasta 0,06 mm, formando óvalo; mesopleuron carece de escultura, liso y brillante; dientes clipeales laterales reducidos, pero pueden ser angulados; amarillo concoloreado hasta marrón pálido; América Central, Colombia a la Argentina y al Brasil **11**
- 11(10).** Lados de cabeza casi derechos (Fig. 72) o levemente convexos **12**
 - Lados de cabeza convexos, redondeados (Fig. 118); distribución no se extiende hasta Colombia (Panamá, Guyana, Argentina Chile, Brasil,)
 ***helena* Emery**
- 12(11).** Ojo más grande, con 6 omatidios (Fig. 73); dientes clipeales laterales forman ángulos (Fig. 72), nodo peciolar con caras casi anterior y posterior paralelas (Fig. 74); amarillo concoloreado; Colombia, Argentina y Brasil
 ***decipiens* Emery**
 - Ojo más pequeño (Fig. 84), con 3-5 omatidios; dientes laterales de; clípeo reducidos hasta angulados; peciolo con nodo arqueado (Fig. 85); concoloreado amarillo de oro hasta marrón pálido **13**
- 13(12).** Margen anterior del clípeo alargado, extendiéndose anteriormente (Fig. 84); concoloreado amarillo dorado; Costa Rica y Brasil ***franki* Forel**
 - Margen anterior del clípeo acortado, compacto (Fig. 142); concoloreado amarillo hasta marrón pálido; Costa Rica a Brasil ***laeviceps* Mayr**
- 14(1).** Cabeza (Fig. 315) alargada (CI 70-79), punturas cefálicas muy finas, difíciles de ver (Fig. 315); clípeo alargado (Fig. 315); ojo con por lo menos un omatidio; pilosidad moderada (Fig. 316); Argentina
 ***tetracantha* Emery (obrero menor)**
 - Cabeza (Fig. 206) cuadrada (CI 77-134), punturas cefálicas finas hasta semi-fuertes (Fig. 206); clípeo acortado (Fig. 206); ojo con 3-10 omatidios; pilosidad moderada a peludo (Fig. 208); extensamente distribuido: EUA, Caribe a sur hasta Argentina **15**

- 15(14).** Ojo más grande, de 8-10 omatidios (Fig. 206), longitud máxima del ojo 0,07 mm; punturas cefálicas semi-fuertes (Fig. 206); dientes clipeales laterales agudos; punturas pronotales semi-fuertes (Fig. 208); sutura notopropodeal débilmente imprimida (Fig. 208); muy pilosa; Argentina y Brasil ***orestes* Forel**
 - Ojo más pequeño (Fig. 244), 3-5 omatidios, longitud máxima del ojo 0,04 mm; punturas cefálicas típicamente finas (pero pueden ser semi-fuertes); punturas pronotales siempre finas, difíciles de ver; sutura notopropodeal bien imprimida (Fig. 246); pilosidad moderada a fuerte; EUA, el Caribe, al sur hasta Brasil **16**
- 16(15).** Pedúnculo del pecíolo carece diente o reborde ventral (Fig. 246); concoloreado amarillo; parte de distribución en el Caribe, México a Brasil ***pollux* Forel**
 - Pedúnculo del pecíolo siempre con diente o reborde ventral (Fig. 23); amarillo concoloreado hasta marrón pálido; no extendiéndose al Caribe **17**
- 17(16).** Dientes clipeales laterales agudos (Fig. 22); punturas cefálicas semi-fuertes; caras anterior y posterior del nodo del pecíolo paralelas (Fig. 23); conocido solamente de Buenos Aires, Argentina ***abjectior* Pacheco y Mackay**
 - Dientes clipeales laterales angulados (Fig. 321); punturas cefálicas finas; caras del nodo del pecíolo sub-paralelas (Fig. 322); EUA a Colombia ***texana* Forel**
- 18(1).** Distribuida parcialmente en el Caribe (Puerto Rico, Cuba), y en el sur de México a Bolivia; amarillo a marrón medio (si es bicoloreado, marrón con patas amarillas) **19**
 - No se extiende en el Caribe; distribuido predominante en Suramérica (Islas Galápagos, Brasil, Paraguay, Uruguay) pero se encuentra en América Central al norte hasta México **21**
- 19(18).** Marrón medio con patas más claras; escapo más largo (Fig. 51), longitud mínima 0,29 mm; segmentos funiculares menores más largos, longitud mínima 0,12 mm; Caribe, México a Bolivia ***castor* Forel**
 - Amarillo a amarillo dorado; escapo más corto (Fig. 66), 0,22-0,29 mm; segmentos funiculares menores más cortos, 0,08-0,12 mm; México hasta Brasil, Caribe **20**

- 20(19).** Obrera: dientes clipeales laterales más desarrollados, agudos (Fig. 66); amarillo concoloreado a amarillo dorado; hembra: marrón dorado, con carenas clipeales bien definidas (Fig. 68); pedúnculo del pecíolo con reborde ventral fino (Fig. 69) pero presente; ojo más pequeño, longitud 0,14-0,19 mm, ancho 0,11-0,16 mm; México a Brasil, Caribe ***corticalis* Forel**
 - Obrera: dientes clipeales laterales menos desarrollados, dispuestos en ángulos; amarillo concoloreado; hembra: amarillo claro, con carenas clipeales débilmente definidas, pedúnculo sin diente o reborde; ojo más grande, longitud ~0,192 mm, ancho ~0,16 mm; México a Colombia, Puerto Rico .. ***zeteki* Wheeler**
- 21(18).** Común; ojo más grande con 5-7 omatidios (Fig. 305); concoloreado marrón pálido a marrón medio (nunca bicoloreado); clipeo compacto (Fig. 305); dientes se disponen en ángulos; pedúnculo del pecíolo carece de tope ventral (Fig. 306); sur de México hasta Brasil ***tenuis* Mayr**
 - No común; ojo más pequeño con 3-5 omatidios (Fig. 297); amarillo concoloreado hasta marrón pálido (a menudo bicoloreado amarillo con el gáster marrón o el cuerpo marrón pálido con las patas amarillentas); clipeo compacto o alargado; dientes clipeales agudos (Fig. 287); pedúnculo del pecíolo con pequeño tope o un ensanchamiento ventral pequeño (Fig. 288); distribución restringida a Suramérica (Brasil, Paraguay, Argentina) **22**
- 22(21).** Clipeo compacto (Fig. 287); puntos cefálicos esparcidos; típicamente marrón claro (si es bicoloreado, cuerpo marrón claro con patas amarillentas) pecíolo y postpecíolo de hembra estriada horizontalmente visto del lado (Fig. 290); Venezuela, Brasil, Bolivia y Paraguay ***subtilis* Emery**
 - Clipeo alargado (Fig. 106); puntos cefálicos densos; típicamente concoloreado amarillo claro (si es bicoloreado, cuerpo amarillo con el gáster marrón); pecíolo y postpecíolo de hembra con escultura punteada áspera, visto del lado (Fig. 300); Venezuela, Guianas, Brasil, Paraguay, Argentina, Islas Galápagos . **23**
- 23(22).** Obrera: carina clipeal poco definida (Fig. 297); dientes extralaterales ausentes; ojo con un máximo de 3 omatidios; lóbulos frontales sin escultura (Fig. 297); hembra, marrón dorado, cuerpo delgado; cabeza alargada; clipeo con 4 dientes bien desarrollados (Fig. 299); Venezuela a Argentina ***sulfurea* Roger**
 - Obrera: carinas clipeales bien desarrolladas (Fig. 106); dientes extralaterales angulados; ojo con 3-5 omatidios; lóbulos frontales con estrías verticales poco definidas; hembra: Marrón oscuro con patas doradas; cuerpo no delgado; cabeza rectangular (Fig. 109), no conspicuamente alargada; dientes laterales del clipeo bien desarrollados; dientes extralaterales angulados (Fig. 109); conocido solamente de las Islas Galápagos ***gnoma* Pacheco, Herrera y Mackay**

***nigella* Species Complex**

Diagnosis. The workers of this complex can be distinguished by their large eyes (20-60 ommatidia), well developed clypeal carinae that extend into well-developed lateral teeth, the presence of horizontal striae that cover both the mesopleuron and metapleuron entirely and with *S. metanotalis* the pronotum as well, most species are sparsely to moderately pilose. The posterior margin of the propodeum is angled with a flattened dorsopropodeum, not rounded as in other species complexes. The petiolar node has steep sides and forms a sharp, scale-like node. Most species have a well-developed subpeduncular tooth or flange (exception of *S. oculata*). The members of this species complex appear to be found only in South America, especially in southern Brazil, Uruguay and northern Argentina.

The members of this species complex can be separated into two subgroups, the *nigella* subgroup (*S. nigella* and similar species) and the *metanotalis* subgroup (*S. metanotalis* and sister forms). The *nigella* subgroup is comprised of concolorous dark brown species that have horizontal striae on the metapleuron and mesopleuron. The members of the *metanotalis* subgroup are bicolored reddish-brown with dark brown gasters and have punctate/roughened sculpturing on the petiole and postpetiole in addition to the horizontally striated mesosoma.

Solenopsis andina, *S. gensterblumi* and *S. nigella* are extremely similar in form and may be members of the same polymorphic species, with *S. andina* as the larger majors, *S. gensterblumi* as the minor workers and *S. nigella* as the intermediate sized workers. Based on the available material (few specimens), the three appear to be monomorphic and will be recognized as valid species and placed in the key as such, however additional collections or future molecular analyses may allow us to better understand the relationship between these similar taxa.

Two species, *S. macrops* and *S. photophila*, are unique within the species complex in that they have very large (30-35 ommatidia), kidney-shaped eyes that nearly reach the mandible insertion and are placed within the *nigella* subgroup as they are concolorous dark brown, although *S. photophila* has punctate/roughened sculpturing on the mesopleuron, metapleuron, petiole and postpetiole.

Key to workers of New World species of the *nigella* Complex

1. Concolorous dark brown; eye with 20-60 ommatidia (Fig. 166); lateral clypeal teeth well developed, slightly extending past anterior clypeal border (Fig. 165); lower mesopleuron and metapleuron horizontally striated (Fig. 167); petiole and postpetiole lacking sculpturing (Fig. 167) **2 (*nigella* subgroup)**
 - Bicolored, reddish-brown body, darker brown gaster; eye with 17-50 ommatidia (Fig. 276); lateral clypeal teeth well developed (Fig. 275), considerably extending past anterior clypeal border (0.02-0.06 mm past border); nearly entire mesosoma (Fig. 277) horizontally striated (occasionally with small patch lacking sculpturing on pronotum, but if so, entire propodeum striated); usually entire petiole and postpetiole with punctate/roughened sculpturing (occasionally sculpturing restricted to basal portions of petiole and postpetiole) **8 (*metanotalis* subgroup)**
- 2(1).** Eye kidney-shaped, 30-35 ommatidia, nearly reaching mandible insertion (see *macrops*, Fig. 166); total length 1.4-1.5 mm; northern Argentina **3**
 - Eye oval, 20-60 ommatidia, distant from mandible insertion (see *andina*, Fig. 27); total length 1.4-2.8 mm; Argentina and Brazil **4**
- 3(2).** Petiole and postpetiole smooth and shiny, without sculpturing (Fig. 167); eye larger (Fig. 166), ~35 ommatidia, eye length ~0.16 mm, eye width ~0.70-0.80 mm; head slender in full face view (0.4-0.41 mm); Argentina (Buenos Aires) ***macrops* Santschi**
 - Petiole and postpetiole with punctate/roughened sculpturing (Fig. 226); eye smaller; ~30 ommatidia (Fig. 225), eye length ~0.12 mm, eye width ~0.06 mm; head wider (~0.46 mm); Argentina (Mendoza) ***photophila* Santschi**
- 4(2).** Relatively larger, total length 2.4-2.8 mm; eye larger, 45-60 ommatidia **5**
 - Relatively smaller, total length 1.4-2.0 mm; eye smaller, 20-35 ommatidia **6**

- 5(4).** Head larger, length 0.62-0.74 mm, width 0.64-0.71 mm; total length 2.6-2.8; sides of head nearly straight (Fig. 27); eye with 45-55 ommatidia (Fig. 27); striae restricted from mid to basal portion of mesopleuron (Fig. 28); Argentina (Jujuy) ***andina* Santschi**
 - Head smaller, length ~0.66 mm, width ~0.6 mm; total length ~2.4 mm; sides of head noticeably convex; eye with 50-60 ommatidia (Fig. 273); striae covering entire mesopleuron (Fig. 274); Argentina (Neuquén) . ***schilleri* Santschi**
- 6(4).** Eye smaller, 20-25 ommatidia (Fig. 89); total length 1.4-1.6 mm; scape length 0.28-0.36 mm; lacking vertical striae anterior to eye, between eye and clypeal border (Fig. 89); Argentina and Brazil ***gensterblumi* Emery**
 - Eye larger, 25-35 ommatidia (Fig. 203); total length 1.7-2.0 mm; scape length 0.38-0.44 mm; striae present between eye and clypeus (Fig. 203) **7**
- 7(6).** Lacking vertical fine striae (Fig. 202) on frontal lobes (2 coarse striae may be present); lacking tooth at subpeduncular process (Fig. 205, bump may be present); head thinner in frontal view (width 0.40-0.46 mm); Argentina (Catamarca) ***oculata* Santschi**
 - Fine vertical striae present on frontal lobes (Fig. 197) extending > 0.15 mm; well-developed tooth at subpeduncular process (Fig. 199); head wider (width 0.64-0.70 mm), Argentina and Brazil ***nigella* Emery**
- 8(1).** Moderately hairy, with erect and suberect hairs on all body surfaces, generally more than 10 on dorsum of mesosoma (Fig. 277); lateral clypeal teeth extend slightly (0.02 mm) past anterior clypeal border (Fig. 275); eye smaller, ~17 ommatidia; pronotum without sculpturing, lacking horizontal striae roughened/punctate sculpturing restricted basally on petiole and postpetiole; Argentina (Chaco, Tucuman) ***shiptoni* Forel**
 - Sparsely pilose, with scattered erect and suberect on body surfaces, generally fewer than 10 on the dorsum of mesosoma (Fig. 178); lateral clypeal teeth extend considerably past (0.05 mm) anterior clypeal border (Fig. 176); eye larger, 40-50 ommatidia; entire mesosoma horizontally striated (Fig. 178), including pronotum (dorsum of mesosoma partially smooth); entire petiole and postpetiole except for dorsum covered with roughened/punctate sculpturing (Fig. 178) **9**
- 9(8).** Vertical striae present (Fig. 178), between eye and clypeal margin (Fig. 177); total length 2.1-2.3 mm; Argentina and Uruguay ***metanotalis* Emery**
 - Lacking striae between eye and clypeal margin (Fig. 80); total length 1.9-2.2 mm; Argentina, southern Brazil and Uruguay ***emiliae* Santschi**

Clave para las obreras del complejo *nigella*

1. Marrón oscuro concoloreado; ojo con 20-60 omatidios (Fig. 166); dientes clipeales laterales bien desarrollados, se extienden levemente más allá de margen anterior clipeal (Fig. 165); partes bajas del mesopleuron y metapleuron estriados horizontalmente (Fig. 167); pecíolo y postpecíolo sin escultura (Fig. 167) **2 (subgrupo de *nigella*)**
- Cuerpo bicoloreado, mesosoma rojizo, gáster de marrón más oscuro; ojo con 17-50 omatidios (Fig. 276); dientes clipeales laterales bien desarrollados (Fig. 275), se extienden considerablemente (0,02-0,06 mm) más allá de margen anterior; mesosoma (Fig. 277) casi enteramente estriado horizontalmente (de vez en cuando con un pequeño parche que carece de escultura en pronoto, pero si es así propodeo entero estriado); total del pecíolo y el pospecíolo generalmente punteado tosco (de vez en cuando la escultura restringida a las porciones basales del pecíolo y pospecíolo) **8 (subgrupo de *metanotalis*)**
- 2(1).** Ojo en forma de riñón, 30-35 omatidios, alcanzando casi inserción de mandíbula (Fig. 166); longitud total 1,4-1,5 mm **3**
- Ojo ovalado, 20-60 omatidios, distante de inserción de mandíbula (Fig. 27); longitud total 1,4-2,8 mm; Argentina y Brasil **4**
- 3(2).** Pecíolo y pospecíolo lisos y brillantes, sin escultura (Fig. 167); ojo más grande (Fig. 166), ~35 omatidios, longitud del ojo ~0,16 mm, ancho del ojo ~0,7-0,8 mm; cabeza delgada, visto del frente (0,40-0,41 mm); Argentina (Buenos Aires) ***macrops* Santschi**
- Pecíolo y pospecíolo con escultura tosca punteada (Fig. 226); ojo más pequeño (Fig. 225), ~30 omatidios, longitud del ojo ~0,12 mm, ancho del ojo ~0,06 mm; cabeza más ancha (~0,46 mm); Argentina (Mendoza) ***photophila* Santschi**
- 4(2).** Relativamente más grande, longitud total 2,4-2,8 mm; ojo más grande, 45-60 omatidios **5**
- Relativamente más pequeña, longitud total 1,4-2,0 mm; ojo más pequeño, 20-35 omatidios **6**

- 5(5).** Cabeza más grande, longitud 0,62-0,74 mm, ancho 0,64-0,71 mm; longitud total 2,6-2,8 mm; lados de cabeza casi rectos (Fig. 27); ojo con 45-55 omatidios (Fig. 27); estrías restringidas a porciones media y basal de mesopleuron (Fig. 28); Argentina (Jujuy) ***andina* Santschi**
 - Cabeza más pequeña, longitud ~0,66 mm, ancho ~0,6 mm; longitud total ~2,4 mm; ojo con 50-60 omatidios (Fig. 273); estrías cubren mesopleuron entero (Fig. 274); lados de cabeza perceptiblemente convexos, Argentina (Neuquén) ***schilleri* Santschi**
- 6(4).** Ojo más pequeño, 20-25 omatidios (Fig. 89); longitud total 1,4-1,6 mm; longitud del escapo 0,28-0,36 mm; careciendo estrías verticales anterior del ojo, entre ojo y margen clipeal (Fig. 89); Argentina y Brasil ***gensterblumi* Emery**
 - Ojo más grande, 25-35 omatidios (Fig. 203); longitud total 1,7-2,0 mm; longitud del escapo 0,38-0,44 mm; estrías verticales presentes entre ojo y margen clipeal (Fig. 203) **7**
- 7(6).** Carecen de estrías finas verticales (Fig. 202) en lóbulos frontales (2 estrías gruesas pueden estar presentes); carecen del diente en proceso subpeduncular (Fig. 205, joroba puede ser presente); cabeza delgada, en vista frontal (anchura 0,40-0,46 mm); Argentina ***oculata* Santschi**
 - Estrías verticales finas presentes en los lóbulos frontales (Fig. 197) que se extienden > 0,15 mm; diente bien desarrollado en proceso subpeduncular (Fig. 199); cabeza más ancha (anchura 0,64-0,70 mm); Argentina y Brasil ***nigella* Emery**
- 8(1).** Moderadamente piloso, con pelos erectos y suberectos en todas superficies del cuerpo, generalmente más de 10 en dorso del mesosoma (Fig. 277); dientes clipeales laterales se extienden levemente más allá del borde anterior (Fig. 275) del clipeo (0,02 mm); ojo más pequeño, ~17 omatidios; pronoto sin escultura, sin estrías horizontales, escultura punteada restringida basalmente en pecíolo y pospecíolo; Argentina (Tucumán, Chaco) ***shiptoni* Forel**
 - Escasa pilosidad, con pelos erectos y suberectos dispersos en superficies del cuerpo, generalmente menos de 10 en dorso del mesosoma (Fig. 178); dientes clipeales laterales se extienden considerablemente más allá del borde anterior (Fig. 176) clipeal (0,05 mm); ojo más grande, 40-50 omatidios; mesosoma entero estriado horizontalmente (Fig. 178), incluyendo pronoto (dorso del mesosoma parcialmente liso); pecíolo y pospecíolo a excepción del dorso cubierto con escultura punteada (Fig. 178) **9**

- 9(8). Estrías verticales presentes (Fig. 178) entre ojo y margen clipeal (Fig. 177); longitud total 2,1-2,3 mm; norte de Argentina, Uruguay ***metanotalis* Emery**
- Careciendo las estrías entre ojo y margen clipeal (Fig. 80); longitud total 1,9-2,2 mm; Argentina, Brasil, Uruguay ***emiliae* Santschi**

***pygmaea* Species Complex**

Diagnosis. The *pygmaea* group appears to be a monophyletic group in which workers are characterized by being extremely small (1.20-1.45 mm total length), with very small and poorly developed eyes (occasionally without pigment), having elongated heads, very coarse cephalic punctures and very well-developed clypeal teeth (Moreno-Gonzalez 2001). The notopropodeal suture is only slightly impressed and the postpetiole is circular or nearly circular as seen from above. The legs are relatively short and stocky and usually covered with relatively coarse, erect or suberect hairs. *Solenopsis minutissima* is a Brazilian species, but it is very similar to the species in North America (Moreno-Gonzalez 2001). It has an elongate head, coarse punctures and poorly developed eyes and the mesosoma is narrower and shorter than the North American species and is usually not very hairy (Moreno-Gonzalez 2001).

Key to species of the *pygmaea* Complex

- 1. Very hairy, with more than 20 erect and suberect hairs (Fig. 304) on outline of pronotum (as seen with mesosoma in lateral view) 2
 - Hairs absent or with not more than 10 erect and suberect hairs on outline of pronotum (in lateral view of mesosoma) 7

- 2(1). Pronotal hairs (Fig. 304) of various lengths (0.03-0.05 mm), minor funicular segments (3-8) 0.07 - 0.09 mm in total length 3
 - Pronotal hairs all short (Fig. 286) and approximately of same length (mostly less than 0.03 mm), minor funicular segments (3-8) 0.07 mm or less in total length 6

- 3(2). Relatively few erect and suberect hairs on first gastral tergum (fewer than 20) of various lengths, up to 0.05 mm 4
 - First gastral tergum with abundant fine, short hairs (up to 0.04 mm, most less than 0.03 mm) all approximately same length 5

- 4(3). Smaller (total length typically less than 1.3 mm); southern USA south into México *tennesseensis* Smith
 - Larger (total length at least 1.3 mm); southeastern Brazil *goeldii* Forel

- 5(3). Head thicker (Fig. 335) viewed laterally (0.25 mm from dorsal to ventral surface); total length 1.4-1.7 mm; head length 0.39-0.40 mm; head width 0.31-0.35 mm; petiolar peduncle with small ventral tooth (Fig. 336); USA (Florida and Texas) *tonsa* Thompson
 - Head thinner viewed laterally (less than 0.25 mm from dorsal to ventral surface); total length 0.9-1.0 mm; head length 0.34-0.36 mm; head width 0.24-0.28 mm; petiolar peduncle lacking ventral tooth (Fig. 254); Caribbean Islands and eastern México and Guatemala *pygmaea* Forel

- 6(2). Head thinner (Fig. 285, 0.18 mm from dorsal to ventral surface); length of minor segments of funiculus ~0.06 mm in length; USA (Louisiana and Texas) to Colombia (Cauca) and Venezuela (Distrito Federal) ***subterranea* Mackay & Vinson**
 Head thicker (0.24 mm from dorsal to ventral surface); length of minor segments of funiculus 0.8 mm in length; Trinidad, Guianas, Argentina (Buenos Aires, Tucuman) ***minutissima* Emery**
- 7(1). Eyes poorly defined or nearly absent 8
 - Eyes present, with at least one ommatidium (rarely 2) 9
- 8(7). Pronotum without hair (Fig. 127); total length 1.3 mm; cuticle unpolished, translucent (milky appearance); head width 0.30-0.33 mm; central Texas ***impolita* Moreno, Mackay, & Pacheco, NEW SPECIES**
 - Pronotum with more than 4 hairs (Fig. 128); widely distributed 10
- 9(7). Dorsum of first gastral tergum with more than 40 erect or suberect hairs (Fig. 129) approximately equal in length (about 0.02 mm); central-eastern México ***isopilis* Pacheco & Mackay, NEW SPECIES**
 - Dorsum of first gastral tergum with fewer than 40 erect or suberect hairs (Fig. 252) of various lengths (many over 0.05 mm); USA (southern New Mexico and Louisiana) 11
- 10(8). USA (southern New Mexico), head greatly elongate (Fig. 251), ~0.4 mm in length ***pulleni* Pacheco, Mackay & Moreno, NEW SPECIES**
 - Widely distributed, Argentina; Chile; Guianas; Trinidad; and México; head not greatly elongated 12
- 11(10). Head longer (HL 0.38-0.41 mm); scape (Fig. 200) relatively longer (SL 0.23-0.26 mm, SI 59-63); Arizona and Louisiana ***ocellata* Moreno, Mackay & Pacheco, NEW SPECIES**
 - Head (Fig. 359) shorter (HL 0.35-0.36 mm); scape relatively shorter (SL 0.19-0.20 mm, SI 53-55); New Mexico ***whitfordi* Mackay, Moreno, & Pacheco, NEW SPECIES**

- 12(10).** Head thicker (0.24 mm from dorsal to ventral surface), elongate but robust, sparsely punctate (Fig.77), 0.42 mm in length (CI 73-74); total length 1.2-1.3 mm; Chile ***dysderces* Snelling**
- Head thinner (0.18 mm from dorsal to ventral surface) elongate and slender, heavily punctate with punctures close to each other (Fig. 151), head 0.36 mm in length (CI 67-77); total length 0.9-1.2 mm; Argentina (Santa Fe) ..
..... ***leptanilloides* Santschi**

Clave para las especies del complejo *pygmaea*

1. Muy pilosas, con más de 20 pelos erectos y suberectos (Fig. 304) en pronoto (con mesosoma en vista lateral) 2
 - Pelos ausentes o con no más que 10 pelos erectos y suberectos en esquema del pronoto (vista lateral) 7
- 2(1). Pelos del pronoto (Fig. 304) de varias larguras (0,03-0,05 mm), segmentos funiculares menores (3-8) 0,07 – 0,09 mm en longitud total 3
 - Pelos pronotales (Fig. 286) cortos y aproximadamente del mismo largo (sobre todo menos de 0,03 mm), segmentos funiculares menores (3-8) 0,07 mm o menos en longitud total 6
- 3(2). Relativamente pocos pelos erectos y suberectos en primer tergo gastral (menos de 20); de varias larguras, hasta 0,05 mm 4
 - Primer tergo gastral con pelos finos, cortos y abundantes (hasta 0,04 mm, la mayoría menos de 0,03 mm) todos aproximadamente del mismo tamaño ...
 5
- 4(3). Más pequeño (longitud total típicamente menos de 1,3 mm); sur de los EUA hasta México (Tabasco) *tennesseensis* Smith
 - Más grande (longitud total por lo menos 1,3 mm); del sudeste de Brasil (Rio de Janeiro) *goeldii* Forel
- 5(3). Cabeza vista lateralmente (Fig. 335) más ancha (0,25 mm de superficie dorsal a superficie ventral); longitud total 1,4-1,7 mm; longitud de cabeza 0,39-0,40 mm; ancho de cabeza 0,31-0,35 mm; pedúnculo del pecíolo con pequeño diente ventral (Fig. 336); EUA (Florida y Tejas) *tonsa* Thompson
 - Cabeza vista lateralmente delgada (menos de 0,25 mm de superficie dorsal a superficie ventral); longitud total 0,9-1,0 mm; longitud de cabeza 0,34-0,36 mm; ancho de cabeza 0,24-0,28 mm; pedúnculo del pecíolo carece del diente ventral (Fig. 254); Islas caribeñas y este de México al sur hasta Guatemala
 *pygmaea* Forel

- 6(2).** Cabeza delgada vista lateralmente (Fig. 285, 0,18 mm de superficie dorsal a superficie ventral); longitud de segmentos menores del funículo ~0,06 mm en longitud; los EUA (Louisiana and Texas) a Colombia (Cauca) y Venezuela (Distrito Federal) ***subterranea* Mackay y Vinson**
 - Cabeza ancha, vista lateral (distancia desde superficie dorsal hasta superficie ventral 0,24 mm) largo de segmentos menores del funículo 0,8 mm; Trinidad, Guianas, Argentina ***minutissima* Emery**
- 7(1).** Ojos poco definidos o casi ausentes **8**
 - Ojos presentes, con por lo menos un omatidio (raramente 2) **9**
- 8(7).** Pronoto sin pelos (Fig. 127); longitud total 1,3 mm; cutícula sin pulir, translúcido (aspecto lechoso); anchura de cabeza 0,30-0,33 mm; central de Tejas ***impolita* Moreno, Mackay y Pacheco, NUEVA ESPECIE**
 - Pronoto con más de 4 pelos (Fig. 128); extensamente distribuidos **10**
- 9(7).** Dorso del primer tergo gastral con más de 40 pelos erectos o suberectos (Fig. 129) aproximadamente iguales en longitud (cerca de 0,02 mm); central y este de México (Veracruz) ***isopilis* Pacheco y Mackay NUEVA ESPECIE**
 - Dorso del primer tergo con menos de 40 pelos erectos o suberectos (Fig. 252) de varias larguras (muchos sobre 0,05 mm); sur de EUA (Nuevo México y Louisiana) **11**
- 10(9).** Los EUA (sur de Nuevo México); cabeza muy alargada (Fig. 251), ~0,4 mm longitud ***pulleni* Pacheco, Mackay y Moreno NUEVA ESPECIE**
 - Distribuido extensamente, Argentina; Chile, Guianas; Trinidad; y México; cabeza menos alargada **12**
- 11(10).** Cabeza más larga (HL 0,38-0,41 mm); escapo (Fig. 200) relativamente más de largo (SL 0,23-0,26 mm, SI 59-63); los EUA (Arizona y de Louisiana) ***ocellata* Moreno, Mackay y Pacheco, NUEVA ESPECIE**
 - Cabeza (Fig. 359) más pequeña (HL 0,35-0,36 mm); escapo relativamente más corto (SL 0,19-0,20 mm, SI 53-55); los EUA (Nuevo México) ***whitfordi* Mackay, Moreno y Pacheco, NUEVA ESPECIE**

- 12(10).** Cabeza ancha en visto lateral (distancia desde la superficie dorsal hasta la superficie ventral 0,24 mm), alargada pero robusta, escasamente punteada (Fig.77), 0,42 mm en longitud (CI 77-74); longitud total de 1,2-1,3 mm; Chile .
..... ***dysderces* Snelling**
- Cabeza delgada en visto lateral (0,18 mm) alargada y delgada en vista frontal, fuertemente puntuada con puntas muy cercanas entre sí (Fig. 151), cabeza 0,36 mm en longitud (CI 67-77); longitud total 0,9-1,2 mm; Argentina (Santa Fé)
..... ***leptanilloides* Santschi**

***stricta* Species Complex**

Diagnosis. The workers are moderately large in size (total length 1.6-2.25 mm), with relatively large eyes (0.03-0.04 mm maximum diameter). The lateral clypeal teeth are poorly developed or even absent, with the clypeal carina passing anteriorly, abruptly bending and forming the lateral anterior border of the clypeus. The notopropodeal suture is deeply impressed; the propodeum is broadly rounded, with no indication of a separation into a dorsopropodeum and posteropropodeum. The petiole is much larger and wider than in the workers in the other complexes, with the width (at the level of the dorsum of the anterior peduncle) greater than the height (from dorsum of anterior peduncle to apex).

Key to workers of the *stricta* complex

1. Propodeum dome-shaped, with noticeable hump (Fig. 155); scape (Fig. 154) long (0.48-0.50 mm); length of minor funicular segments long (0.22-0.24 mm); peduncle noticeably elongate (Fig. 155); known only from Costa Rica
 ***longinoi* Pacheco & Mackay, NEW SPECIES**
- Propodeum broadly rounded (Fig. 117), with no prominent bulge; scape (Fig. 118) shorter (0.33-0.42 mm); length of minor funicular segments shorter (0.15-0.18 mm); peduncle not extended (Fig. 117); widespread **2**
- 2(1).** Usually deep reddish-brown, with black gaster (occasionally concolorous yellow in Brazil); petiole thickened (Fig. 117), robust (viewed dorsally); Mexico to Paraguay ***hayemi* Forel**
- Usually pale brown to medium brown, with slightly darker gaster; petiole thin, slender (viewed dorsally); Panama south to Paraguay and Bolivia ***stricta* Emery**

Clave para las obreras del complejo *stricta*

1. Propodeo en forma de cúpula (Fig. 155), con una joroba notable; escapo (Fig. 154) alargado (0,48-0,50 mm); segmentos menores del funículo alargados (0,22-0,24 mm); pedúnculo peciolar notablemente alargado (Fig. 155); reportada solamente de Costa Rica
 ***longinoi* Pacheco y Mackay ESPECIE NUEVA**
- Propodeo redondeado posteriormente (Fig. 117), sin joroba; escapo (Fig. 118) más corto (0,33-0,42 mm); segmentos menores del funículo más cortos (0,15-0,18 mm); pedúnculo no muy alargado (Fig. 117); de amplia distribución . **2**
- 2(1).** Usualmente rojizo oscuro, con gáster negro (de vez en cuando amarillo concoloreado en Brasil); pecíolo grueso (Fig. 117), robusto (visto dorsal); México (Chiapas y Veracruz) a Brasil (São Paulo) y Paraguay (Canindeyú)
 ***hayemi* Forel**
- Usualmente marrón pálido a marrón medio, con gáster levemente más oscuro; pecíolo delgado (visto dorsal); Panamá a Bolivia y Brasil .. ***stricta* Emery**

wasmannii Species Complex

Diagnosis. Workers of this species complex can be recognized by the unusual shape of the clypeus. The clypeal carinae pass dorsally between the antennae and bend laterally, where they reach the anterior margin of the clypeus (Fig. 6). Thus, both sides of the anterior margin of the clypeus are bounded by the same carina forming a socket. The eyes are relatively large, ranging up to a diameter of 0.07 mm, with 10 ommatidia. The petiole is often thickened as seen in profile and is nearly always wider than the postpetiole (not seen in *S. iheringi*), when both are viewed in profile. The postpetiole is often very narrow. Most surfaces of the body are covered with relatively long (0.10 mm), erect hairs. *Carebarella alvarengai* Kempf (1975) is neither a member of this complex nor a member of *Solenopsis*. It is separated based on the 11-segmented antenna (10 segmented on left side, due to fusion of the second segment being fused with the third), with a 3-segmented club and the anterior margin of the clypeus has a pair of sharp, lateral teeth.

The minor workers of *S. iheringi* and *C. bicolor* are virtually identical. If one happens to capture a small series of these two species, *S. iheringi* can be distinguished as the clypeal carinae do not touch the anterior clypeal margin, as seen with *C. bicolor*. The workers of *Solenopsis succinea* are very similar to the workers of this group and is included to facilitate identification, however *S. succinea* is likely unrelated and may be revealed (especially through molecular means) as the monotype to a new complex.

Key to the workers of the *wasmannii* species complex

1. Eye small (Fig. 291), with at least 2 ommatidia; clypeus of worker lacking carinae (Fig. 291); concolorous yellow or orange; Guatemala to Argentina, Caribbean *succinea* Emery
 - Eye larger (Fig. 347), ommatidia ranging from 3-18 (typically 10-12); clypeus of minor worker bicarinate (Fig. 347); typically bicolored red with black gaster (occasionally concolorous medium to dark brown) 2
- 2(1). Major with large, coarsely punctate head (Fig. 349), very distinct from minor workers 3
 - Major with slightly enlarged head with fine, sparse punctures (Fig. 37); morphologically similar to minors 4
- 3(2). Minor worker with 5 well developed clypeal teeth (Fig. 347); Paraguay, Brazil, Bolivia, Chile, Argentina *wasmannii* Emery
 - Minor worker without clypeal teeth (Fig. 122) or poorly defined denticles; Brazil, Paraguay *iheringi* Forel
- 4(2). Petiole about as long (at upper level of anterior peduncle) as height (upper level of peduncle to apex of petiole) viewed laterally (Fig. 38); bicolored (light brown with dark brown gaster); eyes with about 3-5 ommatidia; Belize to Bolivia *bicolor* Emery
 - Petiole thickened (Fig. 25) and quadrate-shaped (viewed laterally), usually longer (at upper level of anterior peduncle) than high (upper level of peduncle to apex of petiole); bicolored (medium brown to dark reddish-brown, often with slightly darker gaster); eyes relatively large with greater than 10 ommatidia (Fig. 24); Costa Rica to Venezuela, Guiana *altinodis* Forel

Clave para las obreras del complejo *wasmannii*

1. Ojo pequeño (Fig. 291), con por lo menos 2 omatidios; clipeo de la obrera carece de carenas (Fig. 291); concoloreado amarillo o anaranjado; Guatemala a Argentina, Caribe *succinea* Emery
 - Ojo más grande (Fig. 347), 3-18 omatidios (típicamente 10-12); clipeo de obrera menor bicarinado (Fig. 347); típicamente bicoloreada (rojizo con gáster negro, de vez en cuando concoloreado medio marrón al marrón oscuro) 2
- 2(1). Obrera mayor con cabeza grande (Fig. 349), punteada gruesamente; muy distinta de obreras menores 3
 - Obrera mayor con cabeza levemente agrandada con punturas finas (Fig. 37), escasas; morfológicamente similar a obreras menores 4
- 3(2). Obrera menor con 5 dientes clipeales bien desarrollados (Fig. 347); Chile, Argentina, Bolivia y Paraguay *wasmannii* Emery
 - Obrera menor sin dientes clipeales (Fig. 122) o dentículos poco definidos; Brasil y Paraguay *iheringi* Forel
- 4(2). Pecíolo casi tan largo (en el nivel superior del pedúnculo anterior) como alto (nivel superior del pedúnculo al ápice del pecíolo), en vista lateral (Fig. 38); bicoloreado (marrón claro con gáster marrón oscuro); ojos con cerca de 3-5 omatidios; Belice a Perú y Venezuela, Argentina, Bolivia, Caribe *bicolor* Emery
 - Pecíolo grueso (Fig. 25) y en forma cuadrado, en vista lateral, generalmente más largo (en el nivel superior del pedúnculo anterior) que alto (nivel superior del pedúnculo al ápice del pecíolo); bicoloreado (marrón medio a rojizo oscuro, a menudo con gáster levemente más oscuro); ojos relativamente grandes con más de 10 omatidios (Fig. 24); Costa Rica a Guiana *altinodis* Forel

Species Accounts

Compare with
carolinensis, *texana*

molesta complex

abdita 101

***Solenopsis abdita* Thompson**

Figs. 16-21; Map 1

molesta species complex, *pollux* subgroup

Solenopsis abdita Thompson, 1989: 275-281, Figs. 1-4 (♀ ♀ ♂) U.S.A: Florida, Broward County, Ft. Lauderdale; see also Thompson & Johnson, 1989: 698.

Diagnosis.

Worker. This species is concolorous golden yellow, with coarse punctures present on the dorsum of the head. There are two angular lateral clypeal teeth. The funicular segments 3-8 are short (0.078 mm). Most of the hairs present on the posterior tibia are appressed.

Female. The gyne has a golden brown body with yellow appendages (antennae and legs) and is similar to the worker with modifications present in the caste. The posterior propodeal margin has an angular ridge. The postpetiole is larger than the petiole when viewed dorsally and is globular in shape.

Male. This caste is a golden brown color with yellow appendages. The anterior clypeal margin is straight. The posterior propodeal margin is rounded. The propodeal spiracle is large at 0.06 mm in length. The petiolar node is elongate compared to the postpetiole in profile.

Worker Description.

Measurements (n=6) (range with average in parentheses). TL 1.02-1.20 (1.12); HL 0.378-0.402 (0.389); HW 0.288-0.300 (0.297); EL 0.030; ED 0.018-0.024 (0.023); SL 0.240 (0.240); FSL 0.090-0.096 (0.091); CI 74.6-78.1 (76.46); SI 59.7-63.5 (61.8); PL 0.042-0.048 (0.044); PW 0.072-0.090 (0.083); PI 46.7-61.5 (53.9); PPL 0.072-0.084 (0.078); PPW 0.102-0.108 (0.105); PPI 66.7-77.8 (75.0); WL 0.240 (0.240); PSL 0.024-0.030 (0.025); PSW 0.018-0.024 (0.021).

Small, concolorous yellow species; lateral posterior margin of head quadrate, head longer than wide with coarse punctures present; lateral clypeal teeth present as angles with extralateral teeth present as bumps; clypeal anterior margin between lateral teeth lacking medial tooth, slightly concave in shape; eyes small with no more than five ommatidia; pronotum sloped posteriorly with notopropodeal suture depressed and notch shaped, metanotal groove breaking sculpture of mesosoma, mesopleuron smooth, shiny, lacking striae or roughened sculpturing; posterior propodeal margin slightly angled with poorly defined ridge present, pro-

abdita – USA: Florida

podeal spiracle small (0.024 mm diameter); metapleuron with few, thin horizontal striae present that cover gland; petiole with rounded triangular node; postpetiole rhomboid oval when viewed in profile, both petiolar peduncle and postpetiole lack tooth or flange ventrally, with only very small subpeduncular.

Hairy with erect and suberect hairs covering all body surfaces; scape mostly with appressed hairs present; approximately 10 suberect hairs present on mesosoma when viewed in profile; hairs on posterior tibia mostly appressed; petiole and postpetiole have suberect hairs that curve posteriorly; gaster fully covered in suberect hairs.

Female Description.

Measurements (n=2). TL 2.82-3.00 (2.91); HL 0.540 (0.540); HW 0.480 (0.480); EL 0.174-0.180 (0.177); ED 0.156 (0.156); MOL 0.042-0.048 (0.045); MOD 0.060 (0.060); SL 0.360 (0.360); FSL 0.150-0.162 (0.156); CI 88.9 (88.9); SI 66.7 (66.7); PSL 0.048 (0.048); PSW 0.042 (0.042); PL 0.090-0.102 (0.096); PW 0.180-0.210 (0.195); PI 48.6-50.0 (49.2); PPL 0.150-0.162 (0.156); PPW 0.240 (0.240); PPI 62.5-67.5 (65); WL 0.720 (0.720).

Concolorous golden brown with golden yellow appendages (antennae and legs); head quadrate and longer than wide with coarse punctures; lateral clypeal teeth not well developed and present as angles with extralateral teeth present as bumps; clypeal carinae present, well developed; torulae without striae; eye large (approximately 132 ommatidia); medial ocellus small; posterior margin of propodeum slightly angled, propodeal spiracle small at 0.03 mm in diameter; latitudinal striae present on metapleuron; petiole with triangular node, lacks tooth or flange at subpeduncular process; postpetiole globular node, lacks ventral tooth or flange.

Hairy with setae on all body surfaces; scape covered in suberect hairs equal or longer than width of scape; mesosoma, petiole, postpetiole and gaster covered with suberect hairs that curve posteriorly.

Male Description.

Measurements, (n=1). TL 2.64; HL 0.390; HW 0.402; EL 0.180; ED 0.174; MOL 0.054; MOD 0.078; SL 0.162; FSL 0.762; CI 103; SI 41.5; PSL 0.066; PSW 0.060; PL 0.090; PW 0.180; PI 50.0; PPL 0.120; PPW 0.198; PPI 60.6; WL 0.720

Concolorous golden brown with yellow appendages; posterolateral margin of head rounded, head wider than long; eyes large (approximately 280 ommatidia); posterior margin of head dorsal to ocelli granulate; medial ocellus large; striae present lateral to antennal insertion; posterior margin of propodeum rounded, propodeal spiracle large; metapleuron with latitudinal striae present; petiole wider

than postpetiole when viewed in profile, both petiole and postpetiole lacking teeth or flanges ventrally.

Hair encompassing all body surfaces; suberect hairs cover mesosoma, petiole, postpetiole, as well as gaster with majority curving posteriorly.

Biology and habitat. The type material of *Solenopsis abdita* was collected from a palm log in Ft. Lauderdale, Florida (Thompson 1989). This species is also known to nest in rotten wood in pine oak forests and pine wetlands and has been collected in litter from a tree base. Moreover, *S. abdita* was collected in leaf litter from a slash pine stand north of buildings and from a long unburned sand pine scrub in Highlands County.

Distribution. USA (Florida).

Discussion. *Solenopsis abdita* is difficult to separate from *S. texana*, unless females are available, in which the female of *S. abdita* is golden brown and *S. texana* yellow. The scapes of the workers are shorter (0.240 mm, head length 0.378-0.402 mm) and the petiole is relatively wider than in *S. texana* (0.060 mm, postpetiole width 0.078-0.090 mm). Based on material examined, *S. texana* apparently does not occur in Florida, where *S. abdita* is only known from Florida (although we feel it is likely to occur in the surrounding states). There should thus be little confusion between these two allopatric species from samples of known geographic province.

Solenopsis abdita may be confused with *S. carolinensis* as well, but the shorter scape and the wider petiole in the worker will distinguish it from *S. carolinensis*. The workers can often be separated as the posterior tibiae have appressed hairs, which are mostly suberect in *S. carolinensis*. If females are available, they are separated by the darker color and the smaller eye, compared to the yellow females of *S. carolinensis*. At the present time, *S. carolinensis* has not been reported from Florida.

Types Series. *Solenopsis abdita* Thompson, Florida, Broward Co., Ft. Lauderdale (holotype ♀, several ♀♀, ♀♀ and ♂♂ paratypes, numbers not specified, listed as deposited in FSCA, MCZC, LACM, none found, 26-iv-1984 (Thompson, 1980).

Material examined. USA, Florida: Palm Beach Co., Corbett Wildlife Area, 16-vi-2001, M. Deyrup (5 ♀♀, 3 alate ♀♀, 1 ♂ Deyrup Collection), Citrus Co., without locality, 18-vii-1985, J. Trager (2 ♀♀, 1 ♂ CWEM), Hernando Co., 13 mi. N of Brooksville, 17-vi-1990, M. Deyrup (12 ♀♀, 4 ♀♀ CWEM, MCZC), Highlands Co., Archbold Biological Station, 22-viii-1995, A. Wild (1 ♀

104 *abdita*

molesta species complex

Compare with
carolinensis, *texana*

CWEM), Archbold Biological Station, 29-v-1995, A. Wild (2 ♂♂ CWEM), **Lake Co.**, Alexander Springs, hard wood hammock, 22-vii-1968, W. L. Brown (2 ♂♂, 2 ♀♀ MCZC).

abdita – USA: Florida

Compare with
decipiens, *pollux*

molesta complex

abjectior 105

***Solenopsis abjectior* Pacheco and Mackay**

Figs. 22-23; Map 2

molesta species complex, *pollux* subgroup

Solenopsis decipiens abjecta var. *abjectior* Forel, 1909: 266-267 (♀) ARGENTINA: Buenos Aires [unavailable name], **NEW STATUS**

Diagnosis.

Worker. This species is concolorous yellow, with a densely and coarsely punctate head. The shape of the petiole is very distinct, with the anterior and posterior faces being nearly parallel. The minor funicular segments 3-8 are short (0.09 mm).

Female and male. Unknown.

Worker Description.

Measurements (n=6). TL 1.31-1.32 (1.31); HL 0.384-0.396 (0.391); HW 0.318-0.330 (0.326); EL 0.036; ED 0.030; SL 0.240-0.258 (0.251); FSL 0.090-0.096 (0.094); CI 81.5-84.6 (83.4); SI 62.5-66.2 (64.2); PL 0.084-0.090 (0.089); PW 0.120-0.126 (0.124); PI 66.7-75.0 (71.8); PPL 0.114-0.120 (0.117); PPW 0.126; PPI 90.5-95.2 (92.9); WL 0.282-0.300 (0.297); PSL 0.018-0.024 (0.019); PSW 0.018.

Small; concolorous yellow; lateral clypeal teeth well developed, extralateral teeth absent; eye small with only three ommatidia; anterior medial clypeal margin concave; lateral teeth extend past anterior border of clypeus by 0.018 mm; head elongate (longer than wide), covered with coarse, dense punctures, similar to members of *fugax* and *pygmaea* groups; petiole somewhat rectangular-shaped, with two faces nearly parallel with well-developed tooth present on subpeduncular process.

Most body parts covered with short (0.04 mm), bristly hairs, all approximately same length.

Biology and habitat. The type series was collected in the nest of *Pheidole taurus* Emery (but in a separate chamber) (Forel 1909).

Locality. Known only from the type locality of Buenos Aires, Argentina.

Discussion. It is difficult to understand why Forel (1909) named this species as a variety of *S. decipiens abjecta*, as it is not ostensibly related. The densely and coarsely punctate head separates it from the species allied to *S. decip-*

abjectior – Argentina: Buenos Aires

106 *abjectior*

molesta species complex

Compare with
decepiens, *pollux*

iens, which also occurs in Buenos Aires. Additionally, the shape of the petiole is very distinct, with the anterior and posterior faces being nearly parallel. It appears to be more closely related to the *pollux* subgroup, with shorter funicular segments. The semi-coarsely punctate head also distinguishes this taxon from all of the others that are related to *S. pollux*.

Type series. *S. decepiens* Emery r. *abjecta* Em v. *abjectior* Forel, Argentina, Buenos Aires (Richter) (Holotype ♀ and 5 paratype ♀♀ MHNG).

Material examined. Type series.

abjectior – Argentina: Buenos Aires

Compare with
bicolor, *parva*

wasmannii complex

altinodis 107

***Solenopsis altinodis* Forel**

Figs. 24-25; Map. 3

wasmannii species complex

Solenopsis altinodis Forel, 1912: 10-11 (♀) VENEZUELA: Zig-Zag; see also W. M. Wheeler, 1921: 154

Diagnosis.

Worker. This species is bicolored with a golden yellow body and a dark brown gaster. The eye is relatively large with 10-12 ommatidia. The anterior border of the clypeus is lacking teeth. This species can be easily recognized by the shape of the petiole. The petiole (side view) is approximately as wide as tall with the anterior edge rounded and lower than the posterior edge.

Female and Male. Unknown.

Worker Description.

Measurements (n=6). TL 1.56-1.80 (1.7); HL 0.444-0.522 (0.483); HW 0.390-0.450 (0.410); EL 0.060-0.072 (0.065); ED 0.054; SL 0.276-0.312 (0.292); FSL 0.120; CI 81.3-87.8 (84.9); SI 58.8-62.7 (60.5); PL 0.132-0.168 (0.152); PW 0.096-0.120 (0.111); PI 125.0-147.0 (137.0); PPL 0.120; PPW 0.144-0.156 (0.150); PPI 76.9-83.3 (80.1); WL 0.312-0.360 (0.339); PSL 0.030-0.042 (0.036); PSW 0.024.

Eye relatively large (approximately 10 ommatidia); minor segments of funiculus relatively long; clypeal teeth absent; clypeal carinae extend anteriorly, then abruptly turn inward, passing along anterior margin of clypeus; mesosoma deeply impressed at metanotal suture; area between two faces of propodeum nearly angulate, two faces approximately equal in length; petiole approximately as long from point of dorsum of anterior peduncle, as height from same point to apex, anterior edge rounded, lower than posterior edge, petiole laterally compressed when viewed from above, being narrower anteriorly.

Entire body covered with coarse, erect hairs, approximately 0.1 mm in length.

Biology and habitat. From Wheeler, W.M. (1921), This species is found with *Tachigalia* but in the ground and not in petioles. In addition, it can often be found with *Coccidotrophus* and *Eunausibius* and destroys the colonies of these organisms. Additionally, this species can be found in ridge forest litter in Costa

altinodis – Costa Rica, Colombia, Guiana, Trinidad, Venezuela

Rica and was collected at an elevation of 110 m in Colombia. It was foraging on the vegetation in Venezuela.

Distribution. Costa Rica, Colombia, Guiana, Trinidad and Venezuela.

Discussion. We do not understand why Forel (1912) stated that this species is related to *S. angulata* (synonym of *S. parva*), which he inferred by the shape of the petiole. It is not closely related and the petioles of the two species are not similar in shape. Additionally, *S. parva* has well developed clypeal teeth, whereas *S. altinodis* has none, putting *S. altinodis* in the *wasmannii* species complex. *Solenopsis altinodis* is found in northern South America whereas *S. parva* is found in southern South America. This species may be confused with *S. bicolor* (which overlaps in distribution) based on the anterior clypeal margin and bicolored coloration. However, it can be separated as the petiolar node is unique to this species and thus dissimilar in shape to that of *C. bicolor* where the petiole is narrow in side view. Additionally, *C. bicolor* has long erect hairs on all body surfaces and often 0.240 mm in total length on the mesosoma, as compared to the much shorter (0.100 mm) setae present on *S. altinodis*.

Type series. *S. altinodis* Forel, Venezuela, Zig Zag, (lectotype ♀ [here designated] (MHNG) and 5 paralectotype ♀ ♀ MHNG).

Material examined. Type series and **COLOMBIA:** **Bolivar**, Zambrano Alt. 110 m, No. 113 (1 ♀ CWEM). **COSTA RICA:** **Puntarenas**, Osa Peninsula, Fundación Neotrópica, 23-vi-1997, R. Anderson #18687 (1 ♀ CWEM). **GUYANA:** **Kartabo**, vii, viii-1920, W. Wheeler (7 ♀ ♀ MCZC). **VENEZUELA:** **Aragua**, Parque Nacional, H. Pittier, Ran. Grande, 19-x-1988, W. Mackay #11245-5, (1 ♀ CWEM): **Bolivar**, Canaima, 16-x-1988 (Vegetation bait), W. Mackay #11225-6 (15 ♀ ♀ CWEM).

Compare with *nigella* complex
gensterblumi, *nigella*, *parva*, *schilleri*, *tridens*

andina 109

***Solenopsis andina* Santschi**

Figs. 9, 26-28; Map 4

nigella species complex, *nigella* subgroup

Solenopsis andina Santschi, 1923: 262-263, Fig. 3 (♀) ARGENTINA: Jujuy, Cueva d'Iturbe; combination in *Solenopsis* (*Euophthalma*), Creighton, 1930: 107-108

Diagnosis.

Worker. This is a moderately large brown species with large eyes that contain 45-55 ommatidia. Vertical striae are located anterior to the eye, not touching the clypeal margin anteriorly. The head is quadrate and is only slightly longer than wide. The posterior propodeal margin is angular with a triangular ridge. A large and well developed subpeduncular tooth is present.

Male and Female. Unknown.

Worker Description.

Measurements. TL 2.56-2.75 (2.66); HL 0.702-0.738 (0.720); HW 0.624-0.708 (0.666); EL 0.126-0.138 (0.132); ED 0.090-0.102 (0.096); SL 0.444-0.480 (0.462); FSL 0.156-0.174 (0.165); CI 88.9-95.9 (92.4); SI 63.2-65.0 (64.1); PL 0.12; PW 0.162-0.168 (0.165); PI 71.4-74.1 (72.8); PPL 0.144-0.150 (0.147); PPW 0.21; PPI 68.6-71.4 (70.0); WL 0.48; PSL 0.036; PSW 0.030-0.036 (0.033).

Head quadrate, only slightly longer than wide; longitudinal striae present anterior to eye, extend nearly to anterior clypeal margin; clypeal carinae well developed, extend past anterior margin to form short lateral teeth; extralateral teeth absent, but clypeus still bent at extralateral region; scape does not reach posterior border; funicular segment 2 longer than wide (approximately 0.102 mm width to 0.540 mm length); mesopleuron and metapleuron completely covered with horizontal striae; petiolar node with steep sides, forms sharp triangular node, wider than postpetiole when viewed laterally; well-developed subpeduncular tooth present.

Moderately hairy with head having most of pilosity present; head has fine punctures with semi-erect hairs protruding from them; erect and suberect hairs of various lengths present on all body surfaces.

Discussion. Santschi (1923) compared *S. andina* to the fire ant *S. tridens*, but we perceive this species is more closely related to the extremely similar species *S. nigella* and *S. gensterblumi*, which occur in the same general area. With fu-

andina – Argentina: Jujuy

ture collections, it may be shown that they are all the same polymorphic species. At the present time, they can be separated based on eye size and number of ommatidia. *Solenopsis nigella* has 30-35 ommatidia and is less than 2 mm in total length while *S. gensterblumi* has an eye with 25-30 ommatidia and is 1.5 mm in total length. *Solenopsis andina* also looks similar to *S. schilleri* from the same area of Argentina, but can be distinguished as *S. schilleri* has a larger eye (approximately 60 ommatidia) and a more rounded posterior propodeal margin. Additionally, *S. andina* can be further separated from *S. schilleri* by having less developed clypeal carinae and fewer striae at the top margin of the mesopleuron.

Biology and habitat. *Solenopsis andina* was collected at 3700m in the north of Argentina.

Locality. Known only from type locality, Argentina, Jujuy, Cueva d'Iturbe.

Type series. *Solenopsis andina* Santschi, Argentina, Jujuy, Cueva d'Iturbe, alt. 3700 m. (Ing. Weiser), (lectotype ♀ [here designated] and 1 paralectotype ♀ NHMB).

Material examined. Type series.

Compare with
brevicornis, *terricola*

brevicornis complex

azteca 111

***Solenopsis azteca* Forel**

Figs. 29-32; Map 5

brevicornis species complex

Solenopsis azteca Forel, 1893: 390 (♀) ANTILLES IS: St. Vincent.

Solenopsis azteca var. *pallida* Wheeler, 1908a: 131 (♀) PUERTO RICO: Coamo Springs, **NEW SYNONYM**

Diagnosis.

Worker. The workers of this species are small and color ranges from light yellow to light brown. The head is nearly quadrate and finely punctate. The clypeus is flat, with angular lateral teeth. The scape and minor funicular segments are short. The petiole is wider than the postpetiole viewed laterally.

Female (undescribed). The anterior clypeal margin of the female is straight and the clypeus is lacking teeth. The frontal lobes are vertically striated with the striae extending posteriorly midway to the dorsum of the head. The eye is large and slightly kidney-shaped. The female is hairy with long hairs of various lengths (0.06-0.18 mm) on all body surfaces.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.32-1.36 (1.34); HL 0.390-0.408 (0.397); HW 0.324-0.342 (0.336); EL 0.042; ED 0.036; SL 0.216-0.228 (0.223); FSL 0.078-0.084 (0.082); CI 83.1-86.4 (84.6); SI 55.2-57.6 (56.2); PL 0.084-0.090 (0.086); PW 0.12; PI 70.0-75.0 (72.0); PPL 0.108-0.120 (0.110); PPW 0.120-0.144 (0.132); PPI 78.3-90.0 (83.9); WL 0.276-0.288 (0.282); PSL 0.024-0.030 (0.028); PSW 0.024-0.030 (0.026).

Small; concolorous light yellow to light brown; head nearly quadrate, cephalic punctures fine, area between punctures smooth and shiny; eye with four ommatidia; clypeus flat, lacking lateral and extralateral teeth; scape and minor segments of funiculus short; notopropodeal suture well depressed; petiole wide viewed laterally.

Hairs vary in length, including those on gaster; scape has few erect and suberect, long hairs.

azteca – Honduras south to Colombia and Venezuela; Caribbean

Female Description.

Female. Measurements (n=1). TL 3.48; HL 0.582; HW 0.528; EL 0.198; ED 0.174; MOL 0.048; MOD 0.066; SL 0.324; FSL 0.156; CI 90.7; SI 55.7; PSL 0.054; PSW 0.078; PL 0.15; PW 0.24; PI 62.5; PPL 0.18; PPW 0.24; PPI 75; WL 0.72.

Bicolored, golden yellow head and mesosoma, golden brown gaster; head quadrate, longer than wide, sparsely semi-coarsely punctate; anterior clypeal margin nearly straight; lateral and extralateral teeth absent; clypeal carinae well developed, frontal lobes vertically striated, with striae extending posteriorly midway to posterior border of head; eye large (approximately 120 ommatidia), slightly kidney-shaped; medial ocellus small, lateral ocelli slightly larger; scape short; pronotum sparsely semi-coarsely punctate, posterior margin of propodeum slightly angulate; propodeal spiracle large; metapleuron horizontally striated; petiolar node with rounded triangular node, with thin, horizontal striae basally, subpeduncular process with angled tooth; postpetiole globose, horizontally striated basally, lacking tooth or flange ventrally.

Hairy, pilosity yellow, with long hairs of various lengths (0.06-0.18 mm) on all body surfaces, scape with numerous hairs (up to 0.12 mm in length).

Biology and habitat. These ants are found in litter in dry forests and in nests with the termite *Amitermes medius*. Specimens are most commonly collected in litter samples or in pitfall traps. The specimen from the Parque Nacional H. Pittier was collected at Vienna sausage surface bait. They can be collected in primary tropical forest.

Distribution. Honduras south to Colombia (Cauca) and northern Venezuela, Caribbean Region (Jamaica, Puerto Rico, Antilles).

Discussion. Wheeler (1908a) recognized yellow specimens as the subspecies *pallida*. Color in this species ranges from yellow to brown, with intermediates of all colors occurring (both yellow and brown forms are found in Barbados). Pale yellow specimens occur on Puerto Rico (and exemplify the type series), as well as on Jamaica, Guatemala and Colombia. These lighter colored specimens seem to represent minor variation and the subspecies *pallida* is not recognized here as an independent taxon.

The workers are similar to *S. terricola* and *S. brevicornis* in that all species have short antennal scapes and overlap in their distributions. Although color is often an unimportant character within the thief ants, *Solenopsis azteca* can be separated on the basis of color, as it is yellow to pale brown while *S. terricola*

azteca – Honduras south to Colombia and Venezuela; Caribbean

(from Central America) is black with yellow appendages. Moreover, *S. azteca* can further be separated as it lacks sculpturing on the frontal lobes as well as the mesopleuron, whereas *S. terricola* has vertical striation on the frontal lobes and the mesopleuron is punctated. If a female is collected, the female of *S. terricola* has roughened sculpturing on the petiole and postpetiole, whereas only the basal parts of the petiole and postpetiole are striated in *S. azteca*. *Solenopsis azteca* workers can be separated from those of *S. brevicornis* in that the side of petiole is sculptured, but is completely smooth and glossy in *S. azteca*.

Solenopsis azteca can be confused with *S. zeteki* in the Caribbean as they have both have moderately large eyes and reduced or absent clypeal teeth. However, *S. azteca* has a no clypeal teeth (resembling the minor workers of the *wasmannii* group), a short scape and a robust petiole viewed laterally. *Solenopsis zeteki* can be distinguished as it has angulate lateral clypeal teeth (although greatly reduced), a longer scape and a triangular petiolar node.

Type series. *Solenopsis azteca* Forel, Antilles Islands, San Vicente, (lectotype ♀ and 5 paralectotypes ♀♀ [here designated] MHNG). *Solenopsis azteca pallida* Wheeler, Porto [sic] Rico (Puerto Rico), Coamo Springs, (25 cotype ♀♀, W. M. Wheeler, Type # 9248 MCZC). *Solenopsis azteca pallida*, Porto [sic] Rico (Puerto Rico), Coamo Springs, (4 cotypes ♀♀ LACM).

Material examined. **BARBADOS:** Boarded Hall Forest, 16-vi-2006, J. Wetterer # 349 (1 ♀, CWEM), Hackleton Cliff, 17-vi-2006, J. Wetterer #'s 363, 365 (2 ♀♀, CWEM), Hopewell House, 25-xi-2003, J. Wetterer # 87 (4 ♀♀, CWEM), Moore Hill, St. Nicolas Abbey, 20-vi-2006, J. Wetterer # 419 (2 ♀♀, CWEM), Plumtree, 20-vi-2006, J. Wetterer #'s 395, 397 (3 ♀♀, CWEM), Sweet Vale, Orchid World, 21-vi-2006, J. Wetterer # 450 (2 ♀♀, CWEM). **COLOMBIA:** **Cauca**, Isla Gorgona, 16-i-1990, M. Baena # GACD-01 (2 ♀♀, CWEM), same locality, 2-x-1990, same collector, GGHI-5 (1 ♀ CWEM); **Risaralda**, La Virginia, A. Claras, 1225m, 18-vi-1997, P. Chacón # MYR-10 (66 ♀♀ CWEM). **DOMINICA:** Central Forest Reserve, 7 k SW Concord, 11-vi-2004, J. Wetterer #'s 169, 171, 173 (4 ♀♀, CWEM), 3 k SW Morpa, 14-vi-2004, J. Wetterer # 211 (1 ♀, CWEM), 1 k W Trafalgar, 12-vi-2004, J. Wetterer # 196 (1 ♀, CWEM). **GRENADE:** Concord, 12-xi-2003, J. Wetterer #'s 34, 35, 36 (29 ♀♀, CWEM), Grand Etang, 8-xi-2003, J. Wetterer # 2 (5 ♀♀, 1 ♀ CWEM), Grand Etang, 11-xi-2003, J. Wetterer # 25 (3 ♀♀, CWEM), Grand Etang, 29-vi-2006, J. Wetterer # 579 (1 ♀, CWEM), Mont D'Or, 23-vi-2006, J. Wetterer # 468 (1 ♀, CWEM), Mt. Granby, 23-vi-2006, J. Wetterer #'s 463, 464 (2 ♀♀, CWEM). **GUATEMALA:** **Izabal**, Quiriguá, 13-i-1912, W. Wheeler (3 ♀♀ MCZC). **JAMAICA**, Mandeville, Wight (20 ♀♀ MCZC), without locality, Wright (10 ♀♀ and 1 ♀ MCZC).

azteca – Honduras south to Colombia and Venezuela; Caribbean

PANAMÁ: Canal Zone, Barro Colorado Island, A. Emerson (3 ♂♂, 1 ♀ MCZC). **PUERTO RICO:** Rio Grande, El Verde Field Station., 29-vii-1988, G. Camilo (16 ♂♂ CWEM). **SAINT MARTIN:** Lotterie Farm Forest, 28-v-2006, J. Wetterer #'s 158, 161, 162 (3 ♂♂, 2 ♀♀, CWEM), Lotterie Farm, 27-v-2006, J. Wetterer # 195 (1 ♂, 1 ♀, CWEM), Lotterie Farm, Loterie Heights, 28-v-2006, J. Wetterer # 215 (1 ♂, 1 ♀, CWEM), Pic Paradis, 22-v-2006, J. Wetterer # 110 (1 ♂, CWEM). **SAINT VINCENT:** Dark View Falls, 1-vii-2006, J. Wetterer # 620 (1 ♂, CWEM), Henrys Vale, 30-vii-2006, J. Wetterer # 585 (2 ♂♂, CWEM), Hermitage, 4-vii-2006, J. Wetterer #'s 673, 677 (2 ♂♂, CWEM), Kingstown, 8-vi-2004, J. Wetterer # 139 (2 ♂♂, CWEM), La Soufriere, 5-vii-2006, J. Wetterer #'s 691, 696 (2 ♂♂, CWEM), La Soufriere Trail, 5-vii-2006, J. Wetterer #'s 706, 707 (2 ♂♂, CWEM), Peter's Hope, 4-vii-2006, J. Wetterer # 682 (1 ♂, CWEM), South Rivers, 6-vii-2006, J. Wetterer # 734 (2 ♂♂, CWEM), Spring, 30-vi-2006, J. Wetterer # 582 (1 ♂, CWEM), Trinity Falls, 1-vii-2006, J. Wetterer #'s 612, 613 (2 ♂♂, CWEM), Vermont Nature Trail, 9-vi-2006, J. Wetterer # 144 (1 ♂, CWEM), Wallilabou Falls, 3-vii-2006, J. Wetterer # 665 (2 ♂♂, CWEM), Wallilabou River, 1-vii-2006, J. Wetterer # 598 (1 ♂, CWEM). **SANTA LUCIA:** Boguis Forest, 17-xi-2003, J. Wetterer # 57 (3 ♂♂ CWEM). Barre Le L'Isle, 0.9 km W of trail, 17-xi-2003, JK Wetter# 60 (1 ♀ 2 ♂♂, CWEM). **VENEZUELA:** Aragua, Parque Nacional H. Pittier, Rancho Grande, 19-x-1988, W. Mackay # 11239-5 (1 ♂ CWEM); Bolívar, Canaima, 16-x-1998, W. Mackay #'s 11194-2, 4, 11219-2, 11223-2 (17 ♂♂ CWEM).

***Solenopsis basalis* Forel**

Figs. 33-36; Map 6

molesta species complex, *molesta* subgroup

- Solenopsis basalis* Forel, 1896: 178 [♂] BRAZIL: Rio de Janeiro, Teresópolis;
Forel, 1913, 219 (♀ ♂)
- Solenopsis basalis* var. *urichi* Forel, 1912: 6 (♂ ♀) TRINIDAD: St. Vincent,
NEW SYNONYM
- Solenopsis basalis* var. *vittata* Forel, 1912: 6 (♂) BRAZIL: Ceará, **NEW SY-**
NONYM
- Solenopsis basalis* r. *oculatio*r Forel, 1913: 220 (♂) ARGENTINA: Buenos Aires,
Tigre, **NEW SYNONYM**
- Solenopsis basalis* var. *raptor* Santschi, 1919: 42 (♂) ARGENTINA, Buenos Ai-
res, Mar del Plata. **NEW SYNONYM**
- Solenopsis novemmaculata* Wheeler, W. M. 1925a: 35 (♂) BOLIVIA, Mojos,
NEW SYNONYM

Diagnosis.

Worker. This species is usually bicolored with a yellow body and a dark brown gaster, with fine punctures on the dorsum of the head. Often the gaster is only slightly darker than the mesosoma. The clypeus has two angular lateral teeth and two extralateral bumps. The propodeal spiracle is relatively large at 0.042 mm in diameter. A character to note on this species is the wide petiole when viewed in profile as compared to the postpetiole.

Female. The gyne is bicolored with golden brown body with dark brown gaster. The clypeal carinae are weakly defined with a small medial ocellus at 0.060 mm in diameter. The propodeal spiracle is large at 0.090 mm in diameter.

Male. Not seen.

Worker Description.

Measurements (n=27). TL 1.44-1.92 (1.69); HL 0.402-0.510 (0.439); HW 0.300-0.396 (0.368); EL 0.042-0.054 (0.051); ED 0.030-0.042 (0.037); SL 0.264-0.336 (0.296); FSL 0.084-0.132 (0.116); CI 68.5-89.6 (83.8); SI 58.8-82.1 (67.4); PL 0.066-0.078 (0.074); PW 0.090-0.126 (0.114); PI 55.0-86.7 (64.9); PPL 0.090-0.096 (0.091); PPW 0.102-0.144 (0.129); PPI 62.5-88.2 (70.8); WL 0.300-0.360 (0.316); PSL 0.030-0.054 (0.039); PSW 0.030-0.420 (0.055).

basalis – Colombia, Trinidad, Brazil, Bolivia, Argentina, St. Vincent

Bicolored with yellow head, mesosoma, dark brown (occasionally light brown) gaster, but at times concolorous yellow (as seen with some populations in Brazil, ex. *vittata*); eyes contain approximately six ommatidia; both lateral and extralateral teeth angular; clypeal carinae weakly defined; head quadrate with fine punctures; notopropodeal suture deeply depressed, groove breaks sculpture of mesosoma; metapleuron with horizontal striae; propodeal margin rounded, propodeal spiracle relatively large; petiole wide when viewed laterally, wider than postpetiole.

Hairy with erect and suberect hairs covering all body surfaces; long erect hairs present at clypeal margin; antennae pilose, especially club; short suberect hairs present at posterior border of head; viewed in profile, mesosoma with erect hairs, several on pronotum, few on propodeum; petiole and postpetiole with suberect hairs that extend posteriorly; first tergite pilose with suberect hairs that extend posteriorly.

Female Description.

Measurements (n=4). TL 3.72-3.84 (3.78); HL 0.612-0.660 (0.641); HW 0.540-0.600 (0.578); EL 0.204-0.216 (0.210); ED 0.180; MOL 0.048-0.054 (0.051); MOD 0.054-0.060 (0.059); SL 0.420-0.480 (0.450); FSL 0.180-0.222 (0.209); CI 88.2-92.6 (90.1); SI 68.2-74.1 (70.2); PSL 0.078-0.090 (0.084); PSW 0.09-0.1 (0.095); PL 0.132-0.138 (0.135); PW 0.216-0.240 (0.228); PI 56.4-63.9 (59.3); PPL 0.168-0.210 (0.185); PPW 0.240-0.282 (0.270); PPI 63.8-74.5 (68.4); WL 0.840-0.960 (0.930).

Female description (*S. basalis urichi*). Bicolored, golden yellow head and mesosoma, gaster brown; clypeal carinae weakly developed; lateral clypeal teeth angular, extralateral teeth absent; scape relatively long, but does not reach posterior border of head; medial ocellus relatively small (diameter 0.180 mm); eye extends past lateral margin of head by 0.060 mm, contains approximately 120-140 ommatidia; propodeal margin rounded with propodeal spiracle large; metapleuron with horizontal striae; petiole wider than postpetiole viewed laterally, petiole lacking subpeduncular process.

All body surfaces covered with erect and suberect hairs, majority approximately 0.120 mm in length.

Biology and habitat. *Solenopsis basalis* can be found in rainforests in Brazil and Argentina. Additionally, *S. basalis* was collected in litter from montane evergreen forest and litter at 2100 m in lower yungas in Bolivia.

Distribution. Argentina, Bolivia, Brazil (Kempf, 1972), Colombia, Trinidad, St. Vincent.

basilis – Colombia, Trinidad, Brazil, Bolivia, Argentina, St. Vincent

Discussion. The workers of *S. basalis* resemble those of *S. decipiens* which it overlaps in distribution, but can be separated by the width of the petiole (more slender in *S. decipiens*). This species is also similar to *S. clytemnestra* (which is also overlaps in distribution) but can be distinguished by the fine punctures on the head (coarse on *S. clytemnestra*).

Forel (1912, 1913, 1919) named several varieties of this species. *Solenopsis basalis* is a highly variable species with a range in morphs in certain phenotypic characters. This variation is noted above and the subspecies described by Forel (*urichi*, *vittata*, *oculatio* and *raptor*) are here considered unrecognizable. Forel (1912) stated that *S. urichi* has a narrower head and a darker gaster as compared to the nominal of this bicolored species. *Solenopsis basalis urichi* does have lateral clypeal teeth that are more developed, but this is a variable character in addition to the variation in color and thus is synonymized. *Solenopsis basalis urichi* was described from Trinidad near Guiana and Venezuela. Since it is found in Brazil one would expect its distribution to continue into these countries and Trinidad. Forel (1912) diagnosed *S. basalis vittata* as slightly more slender than the nominal species and with a yellow gaster with brown highlights at each segment. These are also variable characters.

Solenopsis basalis raptor, *urichi*, *vittata* and *novemmaculata* all have a similar clypeus (and poorly developed teeth), the same deep depression of the notopropodeal suture and the same wide petiole when viewed in profile as the nominal form; all these features are suggestive of a single species-level taxon without subspecies. *Solenopsis basalis oculatio* has the same characters and is only different in being concolorous orange, similarly part of the overall color variation within this species.

Type series. *Solenopsis basalis* Forel, (lectotype ♀ and 1 paralectotype ♀ [here designated]; Typus, 6 ♀♀ MCZC). *S. basalis* var. *urichi* Forel, Trinidad, St. Vincent (Trenuvar) Urich 124; Typus, 6 ♀♀ MHNG). *S. basalis* var. *vittata* Forel, Typus, Brazil, Ceará, (Diaz Da Rocha) 47; Typus, 107, 6 ♀♀ MHNG). *S. basalis* For. r. *oculatio* worker type Forel, Argentina, Buenos Aires, 190, C. Bruch, 788, Mar de del Plata v. Steiger, Tigre (Richter leg.) Argentine unter Baumrinde (Type, 2 ♀♀ MHNG). *S. basalis* For. v. *raptor* Type Santschi, Sammlung Dr. F. Santschi Kairouan; Perú, Huacapistana, Rio Tarma, 1.2. June 1920, J.C.B. #821, cotypes, Wm. M. Wheeler, M.C.Z. Cotype 9-12, 20934 (5 ♀♀ MCZC). *S. novemmaculata*, Bolivia, Mojos, N. Holmgren, (Cotype, Wm. M. Wheeler, M.C.Z. Cotype 1, 20943, 3 ♀♀ MCZC, Huacapistana, Rio Tarma, Perú, 1.2. June 1920, J.C.B. #821, cotype, Wm. M. Wheeler, M.C.Z. Cotype 2-4, 20943

118 *basalis*

molesta species complex

Compare with
clytemnestra, *decipiens*

MCZC; Cotypus, 1 ♀, La Plata, les Bruch, 10.9.12, det. Forel, M.C.Z. Cotype 29400 MCZC).

Material examined. Type series and **BOLIVIA**, Cochabamba, 109K E Cochabamba at Lagunitas, 01-ii-1999, R. Anderson #18637, 17°06'22"S 65°40'57"W (10 ♀♀ CWEM), 82K E Cochabamba, 06-ii-1999, R. Anderson #18603, 17°11'50"S 85°50'42"W (1 ♀ CWEM). **COLOMBIA**, Chocó, ZIV Manual, Many Roit #16121 (2 ♀♀ CWEM). **TRINIDAD**, Arina Forest Reserve, S. of Arina, 12.xii-34, N. A. Weber, (No. 2, 3 ♀♀ USNM, 1 ♀ CWEM).

basilis – Colombia, Trinidad, Brazil, Bolivia, Argentina, St. Vincent

Compare with
altinodis, *iheringi*

wasmannii complex

bicolor 119

***Solenopsis bicolor* Emery (new combination)**

Figs. 10, 37-38; Map 7

wasmannii species complex

Carebarella bicolor Emery, 1906: 138 (♀) ARGENTINA: Misiones, Santa Ana.
Borgmeier, 1948: 465 (♀ ♂) [listed below]

Carebarella bicolor var. *punctatorugosa* Emery, 1906: 139, Fig. 18 (♀) ARGENTINA: Eidmann, 1936: 43-44 (♀, 1); raised to species, Ettershank, 1966: 115; junior synonym of *bicolor* (Kempf, 1969: 281)

Solenopsis spei Forel, 1912: 11 (♀) COLOMBIA: Guajira, **NEW SYNONYM**

Diagnosis.

Worker. This is a bicolored species with a golden-yellow body and brown gaster. The defining character of this species is that the lateral and extralateral clypeal teeth are completely absent. The clypeal carinae extend from the anterior border of the clypeus posteriorly between the antennal insertions and turn medially back around to the anterior border of the clypeus, forming a relatively large socket. The petiole and postpetiole are robust. This species has long erect hairs, especially on the head and mesosoma.

Workers are dimorphic, with the total length of the minor being about 1 mm, the major worker about 2 mm. The minor looks like a smaller version of the major.

Female. Specimens are relatively small (Total Length 2.8-3.6 mm) bicolored (head and mesosoma red, gaster dark brown or black), with the clypeus in the same form as in the worker. The clypeal teeth are completely absent and the anterior border of the clypeus is defined by a raised flange. Specimens have long hairs as in the worker.

Male. Not seen.

Major Worker Description.

Measurements (n=6). TL 1.98-2.04 (2.03); HL 0.534-0.570 (0.549); HW 0.420-0.480 (0.451); EL 0.048; ED 0.036; SL 0.324-0.360 (0.344); FSL 0.126-0.138 (0.133); CI 78.7-84.2 (82.0); SI 56.2-63.2 (60.9); PL 0.096; PW 0.156-0.186 (0.169); PI 51.6-61.5 (57.0); PPL 0.15; PPW 0.180-0.186 (0.185); PPI 80.7-83.3 (81.2); WL 0.390-0.420 (0.403).

Minor Worker Description.

bicolor – Belize south to Bolivia, Bahamas

Measurements (n=2). TL 1.14-1.20; HL 0.306-0.450; HW 0.300-0.390; EL 0.036-0.042; ED 0.030-0.036; SL 0.186-0.258; FSL 0.078-0.108; CI 87-98; SI 57-61; PSL 0.036-0.042, PSW 0.030-0.036, PL 0.084-0.090; PW 0.126-0.132; PI 67-68; PPL 0.096-0.102; PPW 0.120-0.138; PPI 74-80; WL 0.366-0.474.

Worker description (major and minor). Bicolored, golden-yellow body, brown gaster; lateral and extralateral teeth absent; clypeal carinae extend from anterior border of clypeus between antennal insertions, turn medially back around to anterior border of clypeus forming elongated socket; scape reaches $\frac{3}{4}$ length of head, not reaching posterior border; funicular segments 2-4 slightly swollen; head nearly quadrate with posterior border straight; eyes small, approximately 3 to 5 ommatidia; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; punctures present on mesosoma; propodeum has angular posterior edge dorsally; mesopleuron, metapleuron with horizontal striae; petiole, postpetiole thick, with roughened sculpturing, with petiole slightly wider when viewed laterally.

Long erect hairs present throughout body surfaces; approximately 30 hairs present on scape; seven hairs on anterior border of clypeus; approximately 14 suberect hairs line posterior border of head; when viewed in profile, pronotum has eight erect hairs (nearly 0.240 mm in length); propodeum nearly absent of pilosity; three to four hairs on petiole and postpetiole; first tergite of gaster has seven long suberect hairs.

Female Description.

Measurements (n=2). TL 2.75-3.66; HL 0.510-0.516; HW 0.498-0.546; EL 0.174-0.180; ED 0.150-0.156; SL 0.270-0.288; FSL 0.108-0.132; CI 98-106; SI 53-56; PSL 0.054-0.060, PSW 0.048-0.051, PL 0.150; PW 0.234-0.246; PI 112-164; PPL 0.168-0.180; PPW 0.282-0.288; PPI 157-172; WL 0.504-0.510.

Bicolored, head, mesosoma, petiole, and postpetiole red, gaster mostly dark brown to black; mandible with four teeth; anterior border of clypeus without teeth, although slightly angulate latterly; anterior border with small upturned flange; eyes extending well past sides of head, scape extending $\frac{2}{3}$ length to posterior lateral corner of head; ocelli well developed; sides of head broadly rounded, posterior border nearly straight; most surfaces of head smooth and glossy; mesosoma robust with evidence of wings; propodeal spiracle nearly circular in shape; anterior face of petiole concave, apex broadly rounded, posterior face concave, subpeduncular process developed into flange; dorsum of postpetiole broadly rounded; sides of petiole and postpetiole mostly punctae; surface of gaster finely coriaceous, mostly glossy and shining.

Compare with
altinodis, *iheringi*

wasmannii complex

bicolor 121

Erect and suberect hairs covering nearly all surfaces, including mandibles, clypeus, dorsum of head, sides of head, posterior border, antennae, mesosoma, legs, petiole, postpetiole and gaster; appressed hairs sparse, few on dorsum of head and dorsum of gaster.

Biology and habitat. This species was collected among a nest of *Atta cephalotes* in Sierra Nevada de Santa Maria, Colombia (Forel 1912). Eidmann (1936) states that Forel (1912) found colonies in the nests of *Nasutitermes* (*Diversitermes*) sp. and *Acromyrmex subterraneus* from (Ettershank 1966). Mark Deyrup collected specimens in the Bahamas in a garden in a pile of old coconuts (pers. comm.). *Solenopsis bicolor* was also found nesting in the wall of a residence in Colombia. It has been collected with surface bait in rain forest and in forest leaf litter in Venezuela, foraging on a road in Belize, at 200 m in Perú and in Berlese leaf litter old growth dry tropical forest in Costa Rica at 300 m.

Distribution. Belize, Costa Rica, Panamá, Colombia, Perú, Venezuela, Bolivia, Bahamas.

Discussion. The workers of *Solenopsis spei* are identical in form and size to those of *Carebarella bicolor*. Both species are monomorphic and are thus recognized here as the same species. *Carebarella bicolor* is included in this monograph as it is apparently actually a species of *Solenopsis*, but a formal synonymy of *Carebarella* won't be done at this time although it is the type species of *Carebarella*.

The workers of *C. bicolor* are similar to those of *S. altinodis* which overlaps it in distribution, but can be differentiated from *S. altinodis* as this species has a conspicuously high, thick petiolar node (wider than high in profile). The minor workers of *S. iheringi* are nearly identical to those of *S. bicolor* and a subtle difference in the clypeal carinae distinguishes them if no major workers are collected in a series. The carinae reach the anterior border of the clypeus in *S. bicolor*, but do not touch the anterior border in minor workers of *S. iheringi* (see *S. iheringi* Fig. 141). Additionally, *S. bicolor* has longer setae on all body surfaces (especially on the head and mesosoma), as compared to *S. iheringi* (southern South America).

Type series. *Solenopsis spei* Forel, Colombia, Guajira, Dibulla, (lectotype ♀ and 5 paralectotype ♀ ♀ [here designated] Forel coll. MHNG).

Material examined. Type series and **BAHAMAS**, Nassau, New Providence, 24-ix-1995, M. Deyrup (20 ♀, 1 dealate ♀ MCZC). **BELIZE**, Orange Walk Dist., Rio Bravo Conservation Area, 30-iv-1996, #17703, 071 Fit007-8 CE

bicolor – Belize south to Bolivia, Bahamas

122 *bicolor*

wasmannii species complex

Compare with
altinodis, *iheringi*

Carlton, Road to Archeological site, (10 ♂ ♀ CWEM). **BOLIVIA, Cochabamba**, 109 k E Cochabamba at Lagunitas, 1-ii-1999, R. Anderson #'s 18640, 18644, 18647, 18648 (7 ♂ ♀ CWEM), 67.5 k E Villa Tunari, Valle Salta, 7-ii-1999, R. Anderson # 18628 (11 ♂ ♀ CWEM). **COSTA RICA, Guanacaste Prov.**, Santa Rosa N. P. nr HQ 300M 4-v-1995 R. Anderson #17717, 17719 (16 ♂ ♀ CWEM). **COLOMBIA, Cauca**, Isla Gorgona, 23-x-89 M. Baena #GAP-Hii8, 23-x-89 #GAP-01, 23-x-89 #GAP-Hii6, 23-x-89 #GAP-Eii6, 12-xii-89 #GAP-Hii4, #GAP-GQA-04, # GAP11 (44 ♂ ♀ CWEM); **Huila**, Neiva, various dates (numerous ♂ ♀ CWEM). **PANAMA, Cerro Campana**, 5-vi-1995, R. Anderson # 17837 (7 ♂ ♀ CWEM). **PERÚ, Tambopata**, Cuzco Amazonico, 15 km NE Puerto Maldonado, 200 m, 6-xii-1989, S. Cover & J. Tobin # CA-102 (8 ♂ ♀ MCZC). **VENEZUELA, Bolivar**, Canaima, 16-x-1988 W. Mackay #11223-3 (12 ♂ ♀ CWEM); **Guarica**, 300 m Gratopo NP, S. border 24km N Altigracia, 10-vi-87, SBP 87-15 (4 ♂ ♀ MCZC).

bicolor – Belize south to Bolivia, Bahamas

Compare with
azteca, *terricola*

brevicornis complex

brevicornis 123

***Solenopsis brevicornis* Emery**

Figs. 39-40; Map 8

brevicornis species complex

Solenopsis brevicornis Emery, 1888: 356-357 (♂ ♀) BRAZIL: Rio Grande do Sul.

Solenopsis brevicornis var. *petropolitana* Borgmeier, 1928: 35-36, Figs. 1-3 (♂)

BRAZIL: Rio de Janeiro, Petrópolis, **NEW SYNONYM**

Solenopsis brevicornis var. *medioclara* Santschi, 1923: 254 (♂) BRAZIL: Minas Gerais, Pirapora, **NEW SYNONYM**

Diagnosis.

Worker. This is a small concolorous yellow or brown species. It is easily recognized by the short scape and short minor segments of the funiculus. Additionally, it usually has roughened sculpturing on the mesopleuron, metapleuron and side of the petiole.

Female. Not seen.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.20-1.32 (1.25); HL 0.336-0.360 (0.346); HW 0.288-0.300 (0.293); EL 0.036-0.042 (0.037); ED 0.030; SL 0.186-0.216 (0.200); FSL 0.072; CI 81.7-87.5 (84.8); SI 51.7-60.7 (58.0); PL 0.078; PW 0.090-0.096 (0.091); PI 81.3-86.7 (85.6); PPL 0.096-0.102 (0.101); PPW 0.114-0.120 (0.118); PPI 80.0-89.5 (85.8); WL 0.240-0.288 (0.259); PSL 0.03; PSW 0.024-0.030 (0.026).

Small; yellow or brown, including legs; head subquadrate, longer than wide; lateral clypeal teeth angular, extralateral teeth absent; scape short; minor segments of funiculus short; cephalic punctures fine; eye small (4 ommatidia); punctures or roughened sculpturing at least on lower mesopleuron, metapleuron, side of petiole, postpetiole; petiole wider than postpetiole viewed laterally; petiolar peduncle lacking subpeduncular tooth.

Moderately hairy; suberect hairs of various lengths encompassing nearly all body surfaces.

Biology and habitat. *Solenopsis brevicornis* was collected in riparian tropical rain forest soil, tropical rain forest and disturbed tropical rain forest in clay soil using subterranean baits in Guatemala at elevation ranging from 11-1400 m. It has also been collected from extractions from forest litter.

brevicornis – México south to Brazil

Distribution. México south to Brazil.

Discussion. The varieties *petropolitana* and *medioclara* are identical in form to the nominal and we do not recognize them as valid taxa and thus propose synonymy.

Solenopsis brevicornis is similar to *S. azteca* (the distribution of the two species overlap and the color can often be identical), but can be distinguished by the punctures on the side of the mesopleuron and petiole (both completely smooth and polished in *S. azteca* or with weak sculpture along the lower, anterior border of mesopleuron). The similar *S. terricola* of lower Central America is dark, mahogany brown, with yellow antennae and legs. *Solenopsis terricola* can be further separated as it has vertically striated frontal lobes (difficult to see), a trait absent from *S. brevicornis*. Moreover, *S. terricola* has a rounded petiolar node while *S. brevicornis* has a thinner, angulate node.

Type series. *Solenopsis brevicornis* Emery, Brazil, Rio Grande do Sul, Guianas, (lectotype ♀ [here designated], Ihering (MCSN), female not found). *Solenopsis brevicornis* Mayr v. *medioclara* Santschi, Brazil, Minas Gerais, Pirapora (Luja) 30, E Layin, (4 ♀♀, M.C.Z. Type 14 20918 MCZC). *Solenopsis brevicornis* var. *medioclara*, Brazil, Riachibó Luja, (cotype 2 ♀♀ LACM).

Material examined. BRAZIL, Pará, Beebe, Wm. M. Wheeler, (4 ♀♀ MCZC). COLOMBIA, Cauca, Isla Gorgona, 2-i-1990, M. Baena # GGHI-8 (38 ♀♀ CWEM). COSTA RICA, Guanacaste, Pitilla Field Station, 1000m, 14-ii-1996, R. Anderson # 17679 (1 ♀ CWEM); Puntarenas, Osa Peninsula, Fundación Neotrópica, 23-vi-1997, R. Anderson #'s 18686, 18687 (1 ♀ CWEM), Las Cruces, 4 k S San Vito, 19-vi-1998, R. Anderson # 18662 (1 ♀ CWEM). GUATEMALA, Cobán, Parque Nacional Laguna Lachua 43.68 km E Chisec, 15°57'10.9"N 90°40'28.2"W, 17-vii-2004, 177m, J. Pacheco GCR-16-33, (13 ♀♀ CWEM), Quiché, 16.48 km SW Pantan Finca El Recuerdo, 16-vii-2004, 1399m, 15°27'12.7"N 90°45'52.9" W, J. Pacheco GCR 14-9 (6 ♀♀ CWEM); Itzal Biotope, Chocon Machacas, 23.17 km E Fronteras, 26-vii-2004, 11m, J. Pacheco GCR 45-16, (11 ♀♀ CWEM). MÉXICO, Chiapas, 10 k S Palenque, 31-v-1988, W&E Mackay # 10633 (6 ♀♀ CWEM). PANAMÁ, Chiriquí, Cerro Campana, 950m, 5-vi-1995, R. Anderson # 17836 (3 ♀♀ CWEM).

Compare with
globularia, loreтана

globularia complex

bucki 125

***Solenopsis bucki* Kempf**

Figs. 15, 41-43; Map 9

globularia species complex

Solenopsis bucki Kempf, 1973: 29-32 (♀) BRAZIL: Rio Grande do Sul

Diagnosis. (Based on Kempf 1973)

Worker. The worker is easily recognized by its greatly dilated postpetiole, which is 0.220 mm in length, 0.220 mm in height and 0.300 mm in width. The eye is moderately large with 20 ommatidia. The mandible has two teeth and unique to this species within the members of the *globularia* species complex and within the New World *Solenopsis*.

Female and Male. Unknown.

Worker Description.

Measurements (n=1) [may not correspond to our definitions]. TL 2.60; HL 0.580; HW 0.460; SL 0.380; CI 80.0; SI 65.0; PL 0.200; PW 0.170; PPL 0.220; PPW 0.300.

Moderately large; chestnut red head, postpetiole and first gastral tergum, with lighter appendages; head quadrate, longer than wide; mandible straight, oblique, masticatory margin bidentate; lateral clypeal teeth well developed, extra-lateral teeth reduced, angulate, medial tooth absent; clypeal carinae well defined; scape long, does not reach posterior border of head; minor funicular segments moderately long; eyes large, 20 ommatidia; pronotum and mesopleuron smooth and shiny, lacking sculpturing; notopropodeal suture well depressed, notch-like, groove breaks sculpture of mesosoma; metapleuron horizontally striated; thorax 0.650 mm in length, 0.320 mm in width; length of posterior femur 0.320 mm; petiolar node much smaller than postpetiole viewed laterally and dorsally; petiole height, 0.250 mm, lacking tooth or flange ventrally; postpetiolar node globose, dilated, postpetiolar height 0.220 mm, lacking tooth or flange ventrally; gaster length, 0.790 mm, width 0.500 mm.

Moderately pilose; erect hairs of nearly equal length on most body surfaces; short dense hairs on mandibles and antennae, not thicker than maximum diameter of scape.

Biology and habitat. *Solenopsis bucki* was collected in leaf litter.

bucki –Brazil: Rio Grande do Sul

Distribution. Brazil.

Discussion. The greatly dilated postpetiole places *S. bucki* into the *globularia* species complex. *Solenopsis bucki* can be separated from *Solenopsis globularia* by the narrow, straight mandibles that only have two teeth on the masticatory margin. *Solenopsis bucki* does not have a medial tooth on the clypeal margin, a feature found in other species of the *globularia* species complex. Moreover, *S. bucki* is missing horizontal striae on the mesopleuron, a trait found in *S. globularia*.

Solenopsis bucki is similar to *S. loretana* as well and occurs in the same general area, but can be separated as *S. bucki* has an eye of 20 ommatidia and *S. loretana* has at the most five ommatidia.

Type series. Single holotype ♀ sifted from leaf litter, Brazil, Erechim, Rio Grande do Sul, vii-1960, F. Plaumann col. (holotype WWK no, 8098, not available).

Compare with
abdita, *texana*, *zeteki*

molesta complex

carolinensis 127

***Solenopsis carolinensis* Forel**

Figs. 44-50; Map 10

molesta species complex, *pollux* subgroup

Solenopsis texana carolinensis Forel, 1901a: 345-346 (♀ ♀ ♂) USA: North Carolina; combination in *S. (Diplorhoptrum)*, raised to species, Creighton, 1950: 236.

Solenopsis texana r. *truncorum* Forel, 1901a: 346 (♀ ♀) USA: North Carolina; raised to species and senior synonym of *castanea*, Creighton, 1950: 239, **NEW SYNONYM**

Solenopsis molesta var. *castanea* W. M. Wheeler, 1908e: 430 (♀) USA: Colorado, Woodland Park (junior synonym of *truncorum* by Creighton, 1950)

Diagnosis.

Worker. The workers are nearly always small and yellow, but can be brown. The lateral clypeal teeth are angulate with the extralateral teeth absent. The mesosoma is smooth and shiny. This species is abundantly hairy and hairs on the posterior tibia are usually suberect.

Female. The female is yellow, with large eyes. The head is coarsely punctate. The ocelli are darkly pigmented. The petiolar peduncle has a well-developed flange.

Male. The male is slightly bicolored with a brown head and gaster and yellowish mesosoma, petiole and postpetiole. The head is mostly smooth and shiny and the clypeus is lacking any tooth or bump. The petiolar peduncle has a small flange ventrally.

Worker Description.

Measurements (n=6). TL 1.32-1.48 (1.42); HL 0.402-0.420 (0.412); HW 0.324-0.360 (0.337); EL 0.036-0.042 (0.041); ED 0.030-0.036 (0.031); SL 0.270-0.300 (0.279); FSL 0.102-0.120 (0.108); CI 78.6-85.7 (81.8); SI 64.3-71.4 (67.7); PL 0.060-0.072 (0.065); PW 0.090-0.102 (0.094); PI 58.8-75.0 (69.4); PPL 0.066-0.084 (0.076); PPW 0.120-0.126 (0.122); PPI 55.0-70.0 (62.3); WL 0.300-0.330 (0.305); PSL 0.024-0.030 (0.029); PSW 0.024.

Small, concolorous yellow; head subquadrate, longer than wide, posterior border straight; lateral clypeal teeth angulate, extralateral teeth absent; clypeal carinae well defined; scape reaches $\frac{3}{4}$ length of head; minor funicular segments 3-8 short; eyes small, 3-5 ommatidia; mesosoma smooth and shiny; metapleuron with

carolinensis – USA: Arkansas, Maryland, New Jersey, North Carolina, Tennessee, Texas, Virginia

faint horizontal striae; posterior propodeal margin rounded; petiole wider than postpetiole viewed laterally; petiolar node rounded, subtriangular, with tooth ventrally; postpetiolar node rounded, globose, sculpture of petiole and postpetiole smooth and shiny.

Abundantly hairy; erect and suberect hairs of various lengths on all body surfaces; hairs on posterior tibia usually at least suberect.

Female Description.

Measurements (n=2). TL 4.08-4.20 (4.14); HL 0.648; HW 0.600; EL 0.240; ED 0.180-0.192 (0.186); MOL 0.078-0.090 (0.084); MOD 0.084-0.096 (0.090); SL 0.450-0.462 (0.456); FSL 0.222-0.240 (0.231); CI 92.6; SI 69.4-71.3 (70.4); PSL 0.066; PSW 0.048-0.060 (0.054); PL 0.132; PW 0.246-0.270 (0.258); PI 48.9-53.7 (51.3); PPL 0.198; PPW 0.282-0.288 (0.285); PPI 68.8-70.2 (69.5); WL 0.900.

Moderately large; concolorous yellow; head subquadrate, longer than wide, coarsely punctate, posterior margin straight; lateral clypeal teeth angulate, extralateral teeth absent; clypeal carinae poorly defined; frontal lobes vertically striated; eye black, large; ocelli darkly pigmented, medial ocellus large; pronotum coarsely punctate, smooth and shiny between punctures, mesopleuron without sculpturing, lower metapleuron with horizontal striae; petiole wider than postpetiole viewed laterally; petiolar peduncle with well-developed flange ventrally.

Abundantly hairy; erect and suberect hairs of various lengths covering all body surfaces; most hairs on petiole and postpetiole curve posteriorly.

Male Description.

Measurements (n=4). TL 2.88-3.00 (2.91); HL 0.432-0.450 (0.441); HW 0.402-0.480 (0.446); EL 0.282-0.300 (0.291); ED 0.240; MOL 0.084-0.090 (0.087); MOD 0.132-0.150 (0.141); SL 0.144-0.168 (0.155); FSL 0.900-0.960 (0.945); CI 93.1-107 (101); SI 33.3-37.3 (35.0); PSL 0.072; PSW 0.060-0.066 (0.064); PL 0.138-0.144 (0.139); PW 0.198-0.216 (0.209); PI 63.9-69.7 (66.9); PPL 0.144-0.162 (0.153); PPW 0.228; PPI 63.2-71.1 (67.1); WL 0.720-0.840 (0.780).

Bicolored, brown head and gaster, yellow mesosoma, petiole and postpetiole, antennae yellow; head wider than long, smooth, shiny; clypeus convex, lacking tooth or bump; frontal lobes widely separated, 0.096 mm in greatest width; mesosoma smooth, shiny; petiole wider than postpetiole viewed laterally; petiolar peduncle with small flange ventrally; postpetiole wider than petiole viewed dorsally, lacking tooth or flange ventrally.

carolinensis – USA: Arkansas, Maryland, New Jersey, North Carolina, Tennessee, Texas, Virginia

Compare with
abdita, *texana*, *zeteki*

molesta complex

carolinensis 129

Abundantly hairy, with erect and suberect hairs of various lengths covering all body surfaces; most hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. *Solenopsis carolinensis* has been collected in underground nests, among other ant nests, in termite nests, as well as in the trunks of rotten trees in North Carolina (Forel, 1901a). Both workers and alate males and females were collected by berlese extraction of hardwood leaf litter in Arkansas. *Solenopsis carolinensis* was collected under the bark of a dead tree and in a stump in Tennessee. *Solenopsis carolinensis* has also been collected by black light (July), in log litter and under rocks in various localities in Texas. Brood and sexuals were in nests in June. This species was collected in a *Pinus taeda*, mixed hardwood forest. *Solenopsis carolinensis* was also collected at 8500 ft. (about 2591 m) in Woodland Park Colorado. It is also found in grasslands and shrublands.

Distribution. USA (Arkansas, Maryland, New Jersey, North Carolina, Tennessee, Texas, Virginia).

Discussion. *Solenopsis carolinensis* is difficult to separate from *S. zeteki*. It is usually slightly larger than the latter, but they can be approximately equal in size. The lateral clypeal teeth of *S. carolinensis* are well developed and the extralateral processes are developed at least into an angle. The lateral teeth are usually absent in *S. zeteki*, but may be developed into small angles. The extralateral angles of *S. zeteki* are absent or developed into a wide, slightly expanded area. Moreover, these two species can be separated by geography as *S. carolinensis* is found in the USA and *S. zeteki* is from Central and South America.

Solenopsis carolinensis could be confused with *S. texana* and with *S. abdita*. The workers of these two species have appressed hairs present on the posterior tibiae, whereas *S. carolinensis* has suberect pilosity. When females are available, *S. carolinensis* is easily distinguished by the large diameter of the eye. Females and workers can be separated from those of *S. abdita* by the longer scapes (scape length of two type workers 0.240 and 0.279 mm, respectively) and the relatively narrower petiole (petiolar width of two type workers 0.083 and 0.094 mm, respectively). Forel (1901) separated the workers *S. texana* race *truncorum* from the *S. texana* race *carolinensis* by the lighter color, smaller size, shorter scapes and a narrower petiole. Direct comparison and measurement demonstrates that they are both similar in coloration, approximately equal in size, the scapes are actually slightly longer in *S. truncorum* and the petiole is equal in length. The females are apparently identical, although only the female from the type series of *S. truncorum* was available for study. Thus, *S. texana truncorum* is proposed as a junior synonym of *S. carolinensis*.

carolinensis – USA: Arkansas, Maryland, New Jersey, North Carolina, Tennessee, Texas, Virginia

Type series. *Solenopsis texana carolinensis* Forel, North Carolina, Faisons, (lectotype ♀ and 5 paralectotype ♀♀ [here designated], cotype #201786 USNM). *Solenopsis texanus truncorum*, (lectotype ♀ MHNG, 1 paralectotype ♀, 6 paralectotype ♀♀ [here designated] MHNG). *Solenopsis texana* Em ♀ r. *truncorum* type Forel, North Carolina, Faisons du tronc 28.VII.

Material examined. Type series and **UNITED STATES, Arkansas, Cross Co.**, Village Creek State Park, 14-vii-1988, R. Anderson (2 ♀♀ CWEM), **Pike Co.**, Center of Diamonds, 13-viii-1988, R. Anderson (22 ♀♀, 25 ♀♀, 1 ♂); **Tennessee, Lawrence Co.**, David Crockett State Park, 15-vi-1998, Mackay family #18374 (20 ♀♀ CWEM), **Lincoln Co.**, Stump Shoals, Elk River at Hwy. 64, 11-vi-1998, Mackay family # 18231 (12 ♀♀ CWEM), **McMinn Co.**, Rest Area 7K SW Athens, 12-vi-1998, W. Mackay #'s 18256, 18275, 18284 (21 ♀♀ CWEM); **Texas, Brazos Co.**, Allen Site, 03-vii-1999, K. Helms #'s 85-88 (4 ♀♀ CWEM), Peach Creek, 22-vii-1987, W. Mackay # 9349 (2 ♀♀ CWEM), 10 k N Kurten, 5-viii-1987, W. Mackay #'s 9654, 9658, 9659, 9660, 9661, 9663 (14 ♀♀ CWEM), Koppe's Bridge, 15-i-1989, R. Anderson (3 ♀♀ CWEM), **Brewster Co.**, Big Bend Nat. Park, 14-iii-1988, W. Mackay #10131 (29 ♀♀ CWEM), **Burnet Co.**, Inks Lake State Park, 3-v-1988, R. Anderson (23 ♀♀ CWEM), **Cameron Co.**, Sable Palm Grove, 12-x-1988, R. Anderson (24 ♀♀ CWEM), **Hidalgo Co.**, Anzalduas County Park, 15-x-1988, R. Anderson (38 ♀♀ CWEM), **Sabine Co.**, 14.5 km. E Hemphill 8-iii-1989, R. Anderson # 12761 (3 ♀♀ CWEM), **San Patricio Co.**, Welder Wildlife Refuge, 18-iv-1989, R. Anderson (5 ♀♀ CWEM), **Walker Co.**, Ellis Prison Unit, 22-vii-1980, Johnson Taylor (11 ♀ CWEM); **Virginia, Richmond Co.**, 28-ii-1938, W. F. Turner #T-926 (3 ♀♀ USNM).

carolinensis – USA: Arkansas, Maryland, New Jersey, North Carolina, Tennessee, Texas, Virginia

Compare with
nickersoni, *terricola*

molesta complex

castor 131

***Solenopsis castor* Forel**

Figs. 51-54; Map 11

molesta species complex, *tenuis* subgroup

Solenopsis castor Forel, 1893: 391-392 (♂ ♀) ANTILLES IS.: St. Vincent

Diagnosis.

Worker. This is a small (1.30-1.50 mm total length), dark brown (México and Central America) to medium brown (Caribbean) species. The funicular segments are short, the scape is long, nearly reaching the posterior lateral corner of the head.

Female. The female is dark brown. The lateral clypeal teeth are poorly developed and the clypeal carinae are weakly defined. The head is coarsely punctate. The scape is very long and nearly reaches the posterior border of the head. The pronotum is coarsely punctated. The metapleuron, petiole and postpetiole are horizontally striated.

Male. Unknown.

Worker Description.

Measurements (n=4). TL 1.32-1.50 (1.41); HL 0.420-0.462 (0.441); HW 0.360-0.390 (0.375); EL 0.042-0.048 (0.045); ED 0.030-0.036 (0.033); SL 0.294-0.300 (0.297); FSL 0.120; CI 84.4-85.7 (85.1); SI 63.6-71.4 (67.5); PL 0.072-0.096 (0.081); PW 0.090-0.132 (0.102); PI 72.7-86.7 (80.3); PPL 0.096-0.108 (0.102); PPW 0.120-0.150 (0.129); PPI 72.0-85.0 (79.5); WL 0.300-0.360 (0.315); PSL 0.030-0.036 (0.032); PSW 0.024-0.030 (0.027).

Small, concolorous brown, with yellowish appendages; head quadrate, longer than wide, posterior border nearly straight; lateral clypeal teeth angulate, extralateral bumps present; clypeal carinae well defined; eyes small, 3-5 ommatidia; scape long, nearly reaching posterior lateral corner of head; minor funicular segments moderately short; pronotum and mesopleuron smooth and shiny; metapleuron horizontally striated; posterior propodeal margin rounded; petiole wider than postpetiole viewed laterally; petiolar node thickened, without tooth or flange ventrally.

Abundantly hairy, most surfaces are covered with long (0.050-0.100 mm), erect hairs.

castor – México south to Bolivia, Caribbean

Female Description.

Measurements (n=6). TL 2.88-3.72 (3.22); HL 0.480-0.540 (0.514); HW 0.396-0.480 (0.432); EL 0.156-0.162 (0.159); ED 0.120-0.126 (0.123); MOL 0.036-0.042 (0.040); MOD 0.042-0.048 (0.046); SL 0.324-0.378 (0.346); FSL 0.168-0.180 (0.175); CI 78.8-89.9 (83.9); SI 60.7-70.0 (67.4); PSL 0.042-0.054 (0.050); PSW 0.042-0.048 (0.044); PL 0.102-0.138 (0.109); PW 0.180-0.198 (0.183); PI 54.5-76.7 (59.6); PPL 0.126-0.150 (0.142); PPW 0.192-0.240 (0.218); PPI 62.5-70.6 (65.3); WL 0.600-0.720 (0.630).

Small, concolorous dark brown, with lighter appendages; head subquadrate, longer than wide, coarsely punctate, posterior border straight; lateral clypeal teeth poorly developed, extralateral teeth absent; clypeal carinae weakly defined; eyes large; scape long, within one funicular segment from reaching posterior border of head; medial ocellus small; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; posterior propodeal margin rounded, propodeal spiracle small; metapleuron horizontally striated; petiole thick, wider than postpetiole viewed laterally; petiolar peduncle lacking tooth or flange ventrally; petiole and postpetiole horizontally striated.

Abundantly hairy; yellow erect and suberect hairs of various lengths covering all body surfaces (longest 0.015 mm in total length), hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. *Solenopsis castor* nests on the soil and under stones. Specimens were collected from the extraction of tropical forest litter

Distribution. México (Colima) south to Panamá (Chiriquí), Caribbean (Antilles St. Vincent, Grenada, Dominica) and Bolivia.

Discussion. The workers of *S. castor* are superficially similar to *S. terricola* (Central America and the Caribbean) in color (especially specimens from the Caribbean), but can be easily separated by the longer scape, the smooth and polished mesopleuron and the slender, completely polished petiole. The widely distributed *S. tenuis* is also similar, but is usually concolorous light brown.

Direct comparison of types, show no differences between the workers of *S. castor* and *S. nickersoni*. Thompson (1982) described *S. nickersoni* from Florida on the basis of the worker and then later (1989) described the female with specimens not associated with workers (Thompson, 1980, 1989). *Solenopsis nickersoni* will continue to be considered a separate species until females associated with workers can be compared with females of *S. castor*. It is likely the two taxa represent the same species-level taxon.

The workers of *S. castor* are easily confused with those of the widely distributed, common *S. picea*. The minor segments are usually shorter than 0.100 mm in total length (usually greater than 0.120 mm in *S. picea* and the color is usually dark mahogany brown with yellow legs (*S. picea* is usually medium brown with the legs nearly concolorous with the mesosoma).

The females of *S. castor* are relatively small (total length about 3.00 mm) versus the larger females of *S. picea* (usually greater than 4.00 mm total length). The females could be confused with those of the widely distributed *S. tenuis*. The punctures on the head are usually sparse and small in both species, although the punctures of *S. castor* are slightly larger. The eyes of *S. castor* are oblong in shape, with the anterior border convex and curved, the posterior border is nearly straight. The eye of *S. tenuis* is nearly circular in shape, with the posterior border being as rounded as the anterior border. Note, Although *S. castor* does not have a well-developed tooth or flange, a small bump is located at the subpeduncular process. This character can be used to separate from similar species.

Type series. *Solenopsis castor* worker Forel, Antilles Is., St. Vincent, (lectotype ♀, 4 paralectotype ♀♀, 1 paralectotype ♀ [here designated] (MHNG).

Material examined. Type series and **COSTA RICA**, **Guanacaste**, Cacao Field Station, 1350 - 1400m, 12,13,15, 20-ii-1996, #'s 17665, 17673, 17681, 17690, 81-2 J, 17725, 17728, 17731 (7 ♀♀, 2 ♀♀ CWEM), Estación Maritza, 875m, 10°58'N 85°30'W, 13-ii-1996, R. Anderson # 17736, 17678 (7 ♀♀, 1 dealate ♀ CWEM), Pitilla Field Station, 600m, 2-v-1995, 14-ii-1996, #'s 17671, 17722, 17737, 17739, 17741 (9 ♀♀, 1 ♀ CWEM), same locality, 1175m, 14-ii-1996, R. Anderson # 17739 (3 ♀♀ CWEM), Rincón La Vieja, Las Pailas, 400m, 10, 18-ii-1996, R. Anderson # 17675, 17677, 17686, 17747 (20 ♀♀, 7 dealate ♀♀ CWEM), Loma Barbudal, ii-1990, S. Vinson (1 ♀ CWEM); **Puntarenas**, Osa Peninsula., Fundación Neotrópica, 23-vi-1997, R. Anderson # 18687 (1 ♀ CWEM); **San José**, Pan. Hwy. Km. 117, 15-vi-1998, R. Anderson #'s 18657, 18660, 18663, 18665, 18678, 18680, 18683-18689 (29 ♀♀, 6 ♀♀ CWEM). **MÉXICO**, **Colima**, 19 k NE Comala, 1-viii-1988, R. Anderson # 88-19 (2 alate ♀♀ CWEM). **NICARAGUA**, **Jinotega**, Los Pinares, 25-vi-986 (MCZC). **PAN-AMÁ**, **Chiriquí**, Bocas del Toro, Continental Divide, 9-vi-1995, R. Anderson, #'s 40-48, 17841 (196 ♀♀, 5 ♀♀ CWEM), 5.7 k NE Boquete, 1500m, 19-vi-1995, R. Anderson # 17765, 17766 (4 ♀♀ CWEM), Fortuna area, Finca La Suisse, 12-vi-1995, R. Anderson # 17775 (22 ♀♀, 4 dealate ♀♀ CWEM), 20.4 k N San Félix, 950m, 8-vi-1995, R. Anderson, 17767 (3 ♀♀ CWEM); Cerro Campana, 05-vi-1995, R. Anderson # 18833 (2 ♀♀ CWEM), Fortuna Hydrological Trail, 1100 m, 9-vi-1995, R. Anderson #'s 17785, 17787-17791, 17793-17797

134 *castor*

molesta species complex

Compare with
nickersoni, *terricola*

(124 ♂♂, 9 ♀♀ CWEM), same locality, La Fortuna, Finca La Suisse, 10-11-vi-1995, R. Anderson #'s 17822-17832, 17839 (166 ♂♂, 29 ♀♀ CWEM), same locality, Volcán, Hartman's Finca, 14-16-vi-1995, R. Anderson #'s 17801, 17802, 17805, 17813-17815 (19 ♂♂, 2 ♀♀ CWEM), Pipeline Road, Rio Frijolito, 18-v-1995, R. Anderson # 17848 (1 alate ♀ CWEM). **SAINT VINCENT**, Dark Falls, 1-vii-2006, J. Wetterer # 620 (2 ♂♂ MCZC), La Soufriere Trail, 5-vii-2006, J. Wetterer #'s 699, 700, 701 (4 ♂♂ MCZC).

castor – México south to Bolivia, Caribbean

***Solenopsis clytemnestra* Emery**

Figs. 55-60; Map 12

molesta species complex, *molesta* subgroup

Solenopsis clytemnestra Emery, 1896: 87-88 (♀) BRAZIL: Rio Grande do Sul; Emery, 1906: 124 (♂)

Solenopsis clytemnestra r. *bruchi* Forel, 1912: 6-7 (♀ ♂) ARGENTINA: Buenos Aires, La Plata; Santschi, 1933e: 115 (♀), **NEW SYNONYM**

Solenopsis clytemnestra var. *leda* Forel, 1913: 221 (♀) BRAZIL: Guanabara, Rio de Janeiro, **NEW SYNONYM**

Solenopsis clytemnestra r. *strangulata* Forel, 1913: 221-222 (♀) BRAZIL: Minas Gerais, **NEW SYNONYM**

Solenopsis reichenspergeri Santschi, 1923: 256-257 (♀) BRAZIL: Rio de Janeiro. Borgmeier, 1929: 211 (♀), **NEW SYNONYM**

Solenopsis braziliana Santschi, 1925a: 235-236 (♀) BRAZIL: Bahia, **NEW SYNONYM**

Diagnosis.

Worker. The workers are moderate sized, concolorous yellow (nearly always) to dark brown (rarely). The clypeal carina in most specimens is well developed. The lateral clypeal teeth are small (nearly always) angulate to well developed (rarely), while the extralateral teeth are not developed and nearly absent. The eyes are small with 5-7 ommatidia present. The petiole, as seen from above, is roughly equal in width to the postpetiole and is pyramidal with a blunt node, while the postpetiole has a rounded node. The notopropodeal suture is deeply impressed, the propodeal spiracle is very large (0.040-0.050 mm maximum diameter). Most surfaces are smooth and glossy, including the mesopleuron and much of the side of the propodeum (lower half with fine striae). What is striking about this species is the large propodeal spiracle and the small clypeal teeth.

Female. The female is moderately large at 4.6 mm in total length and golden brown. The space between the lateral clypeal teeth is wide at 0.102 mm and the lateral clypeal teeth are angulate. The petiolar node is thickened and wider than the petiole viewed laterally. The petiolar peduncle is lacking a tooth or flange ventrally. The propodeal spiracle is large at 0.070-0.080 mm.

Male. The male is concolorous brown with pale yellow antennae. The eyes extend 0.120 mm past the lateral margin of the head and are located anteriorly on the head. The anterior lateral portion of the head between the eyes contains hori-

clytemnestra – Southern South America (Brazil, Argentina, Bolivia, Paraguay)

zontal striae that extend between the antennal insertions. The medial ocellus is large with a diameter of 0.090 mm and a height of 0.072 mm. The propodeal spiracle is large with a diameter of 0.090 mm and has depth within the sculpture of the propodeum. The petiole is wider than the postpetiole in profile.

Worker Description.

Measurements (n=9). TL 1.56-2.01 (1.84); HL 0.480-0.540 (0.507); HW 0.378-0.480 (0.428); EL 0.048-0.066 (0.058); ED 0.030-0.042 (0.035); SL 0.300-0.396 (0.345); FSL 0.102-0.150 (0.115); CI 75.9-92.9 (84.3); SI 62.5-77.4 (67.8); PL 0.090; PW 0.114-0.150 (0.128); PI 60.0-78.9 (70.7); PPL 0.114-0.120 (0.119); PPW 0.132-0.180 (0.151); PPI 66.7-86.9 (79.6); WL 0.360; PSL 0.036-0.048 (0.041); PSW 0.030-0.048 (0.035).

Moderately large; concolorous yellow to concolorous brown; head subquadrate, longer than wide, posterior border slightly concave, finely punctate; lateral clypeal teeth angulate to well developed, extralateral teeth angulate to absent; clypeal carinae weakly to well defined (both teeth and carinae vary with specimens); scapes long, extending $\sim \frac{3}{4}$ length of head to posterior lateral corner; eyes small, black with 5-7 ommatidia; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; pronotum and mesopleuron smooth and shiny; metapleuron (and occasionally katepisternum) horizontally striated; propodeal spiracle large; petiole roughly equal in width to postpetiole, pyramidal, blunt node viewed dorsally; postpetiolar node rounded.

Hairy; erect and suberect hairs present on all body surfaces; scape with numerous suberect hairs of various lengths; dorsum of head, dorsum of mesosoma, petiole and gaster have several erect hairs.

Female Description.

Measurements (n=1). TL 4.68; HL 0.648; HW 0.588; EL 0.198; ED 0.174; MOL 0.054; MOD 0.066; SL 0.450; FSL 0.180; CI 64.1; SI 49.0; PSL 0.078; PSW 0.072; PL 0.150; PW 0.240; PI 62.5; PPL 0.150; PPW 0.270; PPI 55.6; WL 0.960.

Moderately large, concolorous golden brown; head subquadrate, longer than wide, straight posterior border, finely punctate; lateral clypeal teeth angulate, extralateral teeth absent; clypeal carinae well defined; eyes large; scape does not reach posterior border of head; medial ocellus small; pronotum and mesopleuron smooth and shiny; metapleuron horizontally striated; posterior propodeal margin rounded, propodeal spiracle large; petiole thickened, wider than postpetiole viewed laterally; petiole lacking tooth or flange ventrally.

Moderately hairy, erect and suberect hairs of various lengths covering all body surfaces; suberect hairs on petiole and postpetiole curve posteriorly.

clytemnestra – Southern South America (Brazil, Argentina, Bolivia, Paraguay)

Male Description.

Measurements (n=3). TL 3.84-3.96 (3.92); HL 0.480-0.510 (0.498); HW 0.510-0.528 (0.520); EL 0.252-0.276 (0.266); ED 0.222-0.240 (0.234); MOL 0.084-0.096 (0.090); MOD 0.096-0.102 (0.098); SL 0.210-0.228 (0.216); FSL 0.900-0.960 (0.930); CI 102-106 (104); SI 41.2-47.5 (43.4); PSL 0.090-0.102 (0.094); PSW 0.096-0.108 (0.102); PL 0.138-0.144 (0.140); PW 0.252-0.258 (0.254); PI 53.5-57.1 (55.1); PPL 0.168-0.180 (0.176); PPW 0.300; PPI 56.0-60.0 (58.7); WL 1.08.

Moderately large, concolorous brown with yellow antennae; head wider than long, striated; eyes large, located anteriorly on head, extend 0.120 mm past lateral margin of the head; medial ocellus large; propodeal spiracle large; posterior propodeal margin rounded; petiole wider than postpetiole viewed laterally, both lacking tooth or flange ventrally.

Abundantly hairy; erect and suberect hairs of various lengths on all body surfaces; hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. Workers were collected in litter samples. *Solenopsis clytemnestra* has been collected in wet subtropical forest between 750 - 900 m in Tucumán, Argentina. This species in Paraguay is known from shaded lawns, pasture on *Fious* sp. nesting in twig, grazed secondary growth on low vegetation and nesting in twig, humid subtropical medium forest on low vegetation at 500 m, humid subtropical tall forest nesting in a stick, campo cerrado edge/lagoon nesting in a stick and campo cerrado nesting in a twig. This species was collected in leaf litter in Bolivia in yungas forest, montane evergreen forest and cloud forest.

Distribution. Bolivia (Santa Cruz, Cochabamba); (From Kempf, 1972) Brazil (Rio Grande do Sul), Ceará, Rio de Janeiro, Rio de Janeiro, Minas Gerais; Paraguay; Argentina (Buenos Aires, La Plata, Entre Rios, Misiones, Rio Negro, Tucumán).

Discussion. This is a highly variable species. *Solenopsis clytemnestra* can be concolorous yellow to a concolorous dark brown (specimens from Brazil, *S. braziliana* and *S. reichenspergeri* are in our view only dark color variants). The variety *leda* has well developed lateral clypeal teeth compared to the nominal form; however, the degree of development of these teeth is highly variable overall populations assigned to *S. clytemnestra* and thus is also not recognized as a distinct taxon. *Solenopsis clytemnestra strangulata* is slightly darker (more reddish/orange instead of being yellow to dark brown) and is also perceived to be a color variant because it falls within the size range of *clytemnestra* proper and has similar clypeal teeth. Diagnostic for this species concept of *S. clytemnestra* is the

clytemnestra – Southern South America (Brazil, Argentina, Bolivia, Paraguay)

large propodeal spiracle, shared by all specimens of putative varieties and subspecies.

This species is also similar to *S. helena* and *S. major* whose distributions overlap that of *S. clytemnestra*, but can be separated from these by the large propodeal spiracle and more robust petiolar node (the latter which is completely lacking in *S. helena* and *S. major*).

Type series. *Solenopsis clytemnestra* Emery, Brazil, Rio Grande do Sul, (lectotype ♀ MCSN, 1 paralectotype ♀ [here designated], Ihering MCSN). *Solenopsis clytemnestra bruchi*, Argentina, La Plata, (3 paralectotype ♂♂ (Dr Bruch), Forel Coll. MHNG). *Solenopsis clytemnestra* var. *leda* Forel, Brazil, Rio de Janeiro, (lectotype ♀ and 5 paralectotype ♀♀, 1 paralectotype ♀, Forel coll. MHNG). *Solenopsis clytemnestra* r. *strangulata* Forel, Brazil, Minas Gerais, lectotype ♀ and 2 paralectotype ♀♀, Coll. A. Forel MHNG). *Solenopsis reichenpergeri* Santschi, BRAZIL, Rio de Janeiro, (lectotype ♀ and 3 paralectotype ♀♀ NHMB). *Solenopsis bbraziliana* Santschi, Brazil, Bahia, (lectotype ♀ [here designated] Somet. M.C.Z.C. 1, 20945. Wm. M. Wheeler MCZC).

Material examined. Type series and ARGENTINA, **Tucumán**, Quebrada de la Sosa, N. Kusnezov, (3 ♀♀ MCZC); vic. HorcoMolle, 19-22 Jan., W.L. Brown, (11 ♀♀ MCZC). BOLIVIA, **Santa Cruz**, 32.8 k NW Compara Kara Huasi, 27-i-1999, R. Anderson # 18570, 18572, 1 8573 (33 workers CWEM); **Cochabamba**, 106 k E Cochabamba at Rio Carmen, R. Anderson # 18622, 18626 (2 workers CWEM), 109 k E Cochabamba at Lagunitas, 1-ii-199, R. Anderson # 18636, 18640, 18644 (11 workers CWEM). PARAGUAY, **Canindeyú**, Res. Nat. Bosque Mbraracayú Lagunita, 24°08'S 55°26'W, 4.xii.1996, A. Wild #AW0358 (1 ♀, 1 ♂ and 2 ♀♀ CWEM); 24°08'S 55°26'W, 16.vii.1996, A. Wild #AW0221 (3 ♀♀ CWEM); Jejuimi 24°06'W 55°30'W, 28.i.1997 A. Wild #AW0386 (3 ♀♀ CWEM) Res. Mbaracayú, Karapá 500 m 24°00'S 055°19'W, 24.xi.2002 A. L. Wild #AW1713 (1 ♀ CWEM) Col. "11 de Setiembre" 24°03'S 55°34'W, 2.i.1997, A. Wild #AW0389 (3 ♀♀ CWEM). **Caaguazú**, Alemán Kué, 25°13'S 56°10'W, 29.vi.1997, A. Wild #AW0528 (1 ♀ and 2 ♀♀ CWEM); **Central**, Guarambaré, 25°29'S 57°27'W, 25.iv.1997, A. Wild #AW0514 (1 ♀ CWEM), Areguá, CHP center, 25°18'S 57°20'W, 2.x.1995, A. Wild #AW0067 (3 ♀♀ CWEM); **Concepción**, Entre Las Flores, 23°21'S 57°20'W, 6.ii.1998, A. Wild #AW0597 (1 ♀ CWEM).

clytemnestra – Southern South America (Brazil, Argentina, Bolivia, Paraguay)

Compare with
corticalis, tenuis, texana

molesta complex

conjurata 139

***Solenopsis conjurata* Wheeler**

Figs. 61-65; Map 13

molesta species complex, *tenuis* subgroup

Solenopsis conjurata W. M. Wheeler, 1925b: 178-180, Fig. 4 (♀) PANAMÁ: Isla Barro Colorado

Diagnosis.

Worker. This is a small, yellow species with circular eyes (infrequently the eyes are elongate). It is moderately hairy with appressed hairs on the posterior tibiae. The minor funicular segments are at least 0.120 mm in length.

Female. The gyne is relatively large at 4.50 mm in total length and is concolorous golden yellow. The head is covered in coarse punctures resembling members of the *fugax* complex, however only two well-developed clypeal teeth are present. The space between the lateral teeth is relatively long at 0.120 mm. The mesosoma is smooth and shiny, but the petiole and postpetiole have thin striae basally on each node.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.50-1.62 (1.55); HL 0.408-0.438 (0.431); HW 0.330-0.360 (0.343); EL 0.030-0.036 (0.031); ED 0.024-0.030 (0.029); SL 0.282-0.288 (0.286); FSL 0.120; CI 76.7-83.3 (79.7); SI 64.4-69.1 (66.3); PL 0.084-0.096 (0.090); PW 0.102-0.108 (0.104); PI 77.8-88.9 (86.3); PPL 0.108; PPW 0.120-0.126 (0.121); PPI 85.7-90.0 (89.1); WL 0.300; PSL 0.024-0.030 (0.028); PSW 0.024-0.030 (0.025).

Small, concolorous yellow; head subquadrate, longer than wide; lateral clypeal teeth angular (well developed in some specimens), extralateral teeth absent, but the anterior margin is slightly swollen in the region; clypeal carinae well developed; eyes small, circular; scape short, does not reach posterior margin of head; minor segments 3-8 of funiculus moderately short 0.120 mm; notopropodeal suture weakly depressed, groove breaks sculpture of mesosoma; mesopleuron and metapleuron smooth and shiny; posterior propodeal margin rounded; petiole wider than postpetiole viewed laterally; petiolar node forming rounded triangle, lacking tooth or flange ventrally; postpetiole rounded, node oval viewed laterally.

conjurata – México to Panamá

Moderately hairy, without suberect hairs on posterior tibia (most appressed); erect and suberect hairs of various lengths present on most body surfaces, suberect hairs on petiole and postpetiole curve posteriorly.

Female Description.

Measurements (n=1). TL 4.56; HL 0.690; HW 0.642; EL 0.216; ED 0.18; MOL 0.066; MOD 0.090; SL 0.480; FSL 0.240; CI 93.0; SI 69.6; PSL 0.060; PSW 0.050; PL 0.140; PW 0.300; PI 46.0; PPL 0.270; PPW 0.330; PPI 81.8; WL 0.960.

Moderately large, concolorous golden yellow; head large, subquadrate, wider than long, cephalic punctures coarse, numerous; lateral clypeal teeth well developed; extralateral teeth slightly angulate; clypeal carinae well developed; frontal lobes with vertical striae; scape long, does not reach posterior border of head; minor funicular segments 3-8 long; eyes large, black; medial ocellus large; pronotum with coarse punctures; metapleuron mostly smooth and shiny, faint horizontal striae on metapleuron; posterior propodeal margin with angular ridge; petiole wider than postpetiole viewed laterally; petiole and postpetiole with thin striae present basally on nodes, lacking teeth or flange ventrally.

Hairy; head with numerous suberect and erect hairs originating from coarse punctures; long erect and suberect hairs of various lengths covering all body surfaces, hairs on pronotum, petiole and postpetiole curve posteriorly.

Biology and habitat. *Solenopsis conjurata* has been collected at 1700 m in wet cloud forest litter in Costa Rica. It is also found in tropical rain forest and in riparian oak/cottonwood forest in México. *Solenopsis conjurata* was also collected on *Cordia alliodora* on Barro Colorado Island in Panamá. Many workers were collected in subterranean Vienna sausage baits.

Distribution. México (Baja California, Chiapas and Nuevo León) to Panamá (Canal Zone).

Discussion. *Solenopsis conjurata* is the only species of thief ant in the *molesta* species complex that has circular-shaped eyes. This character state will separate it from similar species, such as *S. corticalis*, *S. tenuis* and *S. texana* (the first two species which overlap *S. conjurata* in distribution).

Compare with
corticalis, temuis, texana

molesta complex

conjurata 141

Type series. *Solenopsis conjurata* Wheeler, Panamá, Colorado Island, 29-vii-1924, W. M. Wheeler, (lectotype ♀ and 7 paralectotype ♀♀ [here designated], cotype #23232 MCZC). *Solenopsis conjurata* Wheeler, Panamá, Barro Colorado Island, Canal Zone, No. 782, 29-vii-1924, W. M. Wheeler, (3 cotype ♀♀ LACM).

Material examined. Type series and **COSTA RICA**, Guanacaste, Cacao Field Station, 1700m, 20-ii-1996, R. Anderson # 17684 (1 ♀ CWEM). **MÉXICO**, Baja California, Sierra San Borja, 9.9 mi N San Borja, 1970', 28°52.54'N 113°47.48'W, 11-iii-1998, R. Johnson # BC 1316 (11 ♀♀ Johnson collection); Baja California Sur, west base Mesa Tecolote @ N of P. Abreojos, 27°0'N 113°27'W, 16-ii-1993, R. Johnson # BCS 131 (15 ♀♀, 1 dealate ♀ Johnson collection), Rancho Santa Gertrudis, 1300', 23°32'N 110°4'W, 2-ii-1996, R. Johnson # BCS 1202 (11 ♀♀ Johnson collection), 8.3 mi W San Ignacio, 27°17'30"N 113°3'30"W, 16-ii-1993, R. Johnson #'s BCS 116, 117 (34 ♀♀, 1 dealate ♀ Johnson collection); Chiapas, 10K S Palenque, 30-31-v-1988, W. Mackay #'s 10565, 10630 (24 ♀♀ CWEM); Nuevo León, El Salto (Zaragosa), 10-vi-1988, W. Mackay #'s 11011-6, 11011-8, 11015-10 (30 ♀♀ CWEM).

***Solenopsis corticalis* Forel**

Figs. 66-71; Map 14

molesta species complex, *tenuis* subgroup*Solenopsis corticalis* Forel, 1881: 13-15 (♂ ♀) ANTILLES IS: St. Thomas*Solenopsis corticalis* var. *virgula* Forel, 1904a: 172 (♂) CUBA: Menozzi, 1929a:
2 (♀), **NEW SYNONYM***Solenopsis corticalis* r. *amazonensis* Forel, 1904b: 680-681 (♂ ♀) PERÚ: Cerro de
Escaler, **NEW SYNONYM***Solenopsis corticalis* subsp. *margotae* Forel, 1908a: 364 (♂ ♀) BRAZIL: São
Paulo, **NEW SYNONYM***Solenopsis corticalis* var. *binotata* Mann, 1920: 428 (♂) CUBA: San Antonio del
Sur, **NEW SYNONYM****Diagnosis.**

Worker. The workers are small and yellow to golden yellow with the minor funicular segment length less than 0.120 mm in length. The lateral teeth are well developed while the extralateral teeth are absent. The clypeal carinae are well defined. It is a moderately hairy species with small eyes of 3-5 ommatidia. The petiole is robust and much wider than the postpetiole viewed laterally.

Female. The female is small (less than 4.00 mm Total Length) and golden brown in color. The head is quadrate, smooth and shiny. What is striking about the gyne is the well-defined clypeal carinae. The petiolar peduncle has a thin ventral flange.

Male. The male is small (less than 3.00 mm TL) and is concolorous dark brown. The head is smooth and shiny and the medial ocellus is small. The mesosoma is smooth and shiny, but thin striae cover the propodeum. The petiolar node is angulate and is lacking a tooth or flange ventrally.

Worker Description.

Measurements (n=20). TL 1.02-1.56 (1.29); HL 0.300-0.420 (0.378); HW 0.276-0.348 (0.313); EL 0.030-0.048 (0.038); ED 0.024-0.030 (0.028); SL 0.222-0.294 (0.258); FSL 0.078-0.120 (0.102); CI 78.1-92.0 (82.9); SI 61.5-80.0 (68.4); PL 0.054-0.078 (0.066); PW 0.078-0.090 (0.085); PI 64.3-92.9 (77.1); PPL 0.066-0.096 (0.084); PPW 0.102-0.108 (0.105); PPI 64.7-88.9 (80.5); WL 0.240-0.330 (0.268); PSL 0.018-0.030 (0.025); PSW 0.018-0.030 (0.021).

corticalis – México to Brazil, Caribbean

Small, concolorous pale yellow to golden yellow; head subquadrate, longer than wide; lateral clypeal teeth angulate, extralateral teeth absent; clypeal carinae well defined; eye small, 3-5 ommatidia; scape does not reach posterior lateral corner of head; minor funicular segments 3-8 short; pronotum and mesopleuron smooth and shiny, metapleuron horizontally striated; posterior propodeal margin rounded, propodeal spiracle small; petiole robust, wider than postpetiole viewed laterally; petiolar peduncle lacking tooth or flange ventrally.

Moderately hairy; erect and suberect hairs of various lengths covering all body surfaces; hairs on head short, longest 0.090 mm; hairs on petiole and postpetiole curve posteriorly.

Female Description.

Measurements (n=6). TL 2.64-4.08 (3.34); HL 0.480-0.630 (0.560); HW 0.390-0.528 (0.453); EL 0.138-0.192 (0.167); ED 0.114-0.156 (0.137); MOL 0.042-0.066 (0.046); MOD 0.042-0.060 (0.055); SL 0.282-0.421 (0.357); FSL 0.120-0.210 (0.175); CI 76.5-83.8 (80.8); SI 58.8-66.8 (63.4); PSL 0.042-0.066 (0.057); PSW 0.030-0.054 (0.048); PL 0.102-0.132 (0.113); PW 0.156-0.240 (0.201); PI 50.0-65.4 (57.3); PPL 0.132-0.180 (0.157); PPW 0.150-0.264 (0.211); PPI 63.6-92.0 (76.8); WL 0.600-0.840 (0.715).

Medium sized, concolorous golden brown; head subquadrate, longer than wide, finely punctate, smooth and shiny between punctures; lateral clypeal teeth angulate, extralateral positions with bumps; clypeal carinae well defined; pronotum, mesopleuron smooth and shiny; metapleuron horizontally striated; posterior propodeal margin with slight angle; petiole wider than postpetiole viewed laterally; petiolar node forming rounded triangle, with thin flange ventrally; postpetiole globose, lacking tooth or flange ventrally.

Abundantly hairy; erect and suberect hairs cover all body surfaces; most hairs on mesosoma, petiole and postpetiole curve posteriorly.

Male Description.

Measurements (n=4). TL 2.40-2.76 (2.55); HL 0.378-0.390 (0.384); HW 0.390; EL 0.180; ED 0.150-0.156 (0.153); MOL 0.054-0.060 (0.057); MOD 0.066; SL 0.168-0.174 (0.169); FSL 0.720; CI 100-103 (102); SI 43.1-45.3 (44.1); PSL 0.054-0.065 (0.058); PSW 0.060; PL 0.078; PW 0.150-0.162 (0.159); PI 48.1-52.0 (49.1); PPL 0.150-0.156 (0.152); PPW 0.180; PPI 83.3-86.7 (84.2); WL 0.720.

Small, concolorous dark brown; head wider than long, without sculpturing; clypeus convex, lacking tooth or angles; eyes large; medial ocellus small; pronotum, mesopleuron smooth, shiny; propodeum finely striate; posterior propodeal margin rounded; petiole wider than postpetiole viewed laterally; petiolar node angulate, lacking tooth or flange ventrally; postpetiolar node rounded.

Abundantly hairy, long (0.015 mm) erect and suberect hairs cover all body surfaces; hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. These ants nest in logs, under logs, in stumps, in forest litter and in the soil. Two nests were in the abandoned mounds of *Solenopsis geminata*, one in the abandoned mound of *Solenopsis invicta*. Sexu- als are found in nests in June. *Solenopsis corticalis* was collected via surface, subterranean and vegetational traps (Vienna sausage, tuna fish), pitfall traps in a primary crown area and an in open area in México and in wet montane cloud forest and oak forest in Panamá. This species was collected in litter from wet cloud forest in Costa Rica and dry shrubland in México. Moreover, *S. corticalis* was collected in litter from oak ridge forest, wet mountain cloud forest litter, montane/hardwood forest, pine forest and subterranean baits in Panamá. *Solenopsis corticalis* was also collected at 1300 m in Perú.

Distribution. México (Chiapas, Tabasco, Veracruz) south to Panamá (Chiriquí), western Perú and southeastern Brazil, Caribbean Region (Puerto Rico and Cuba).

Discussion. The subspecies *virgula* and *amazonensis* of *Solenopsis corticalis* are color variants, with varying shades of yellow and are thus not recognized. We did not find the type of *S. corticalis binotata*, but Mann (1920) states that this variety differs from the nominal in being clear yellow and sparsely pilose. These differences do not appear to be significant and synonymy is proposed.

Solenopsis corticalis is similar to *S. zeteki*, which is found in many of the same areas. If females are available, the female of the former can be separated from the female of *S. zeteki* as the eye is small (maximum diameter about 0.16 mm and 0.18 mm respectively). If females are not present, the clypeal teeth of the workers of *S. corticalis* are more developed than those of *S. zeteki*.

Solenopsis corticalis is similar to *S. tenuis* (their distributions overlap) as well, but the clypeal teeth are more developed than *S. tenuis*. *Solenopsis tenuis* can be distinguished by its darker brown color. If females are available, the female of *S. corticalis* is yellow to golden brown, while that of *S. tenuis* is dark brown.

Type series. *Solenopsis corticalis* Forel, Antilles Is., St. Thomas, (lectotype ♀, 5 paralectotype ♀♀ and paralectotype ♀ [here designated] MHNG). *Solenopsis corticalis* var. *virgula* Forel, Cuba, Coll. Ballion, ex. coll. Puls., Forel coll. (lectotype ♀ [here designated] and 1 paralectotype ♀, MHNG). *Solenopsis corticalis* r. *amazonensis* Forel, Perú, Cerro de Escaler, 1300m, Nov. 1902, Til-

corticalis – México to Brazil, Caribbean

Compare with
tenuis, *zeteki*

molesta complex

corticalis 145

landria 6602, Forel Coll. (lectotype ♀ [here designated] and 5 paralectotype ♀♀ MHNG). *Solenopsis corticalis* subsp. *margotae* Forel, Brazil, São Paulo, (v. Ihering), Forel coll. (lectotype ♀ [here designated], 2 paralectotype ♀♀, 3 paralectotype ♀♀ MHNG).

Material examined. **COSTA RICA**, Guanacaste, Loma Barbudal, 3-vi-1989, ii-1990, S. Vinson #'s 12047, 12143, 12242, 13227, 13232 (12 ♀♀ CWEM), Maritza Field Station, 3-v-1995, R. Anderson #17716 (4 ♀♀ CWEM); Puntarenas, 4k S. Las Cruces, 19-vi-1998, R. Anderson #18680 (2 ♀♀ CWEM), same locality, 5k SW Estación Biológica Las Cruces, 22-vi-1998, R. Anderson #18665 (6 ♀♀ CWEM). **MÉXICO**, Chiapas, 10k S Palenque, 30-31-v-1988, W. Mackay #'s 10606, 10637 (3 ♀♀ CWEM), same locality, 24K Cintalpa, 02-vi-1988, W. Mackay #'s 10717J, 10718G, 10723H, 10726B, 10726F, 10726H (31 ♀♀ CWEM); Tabasco, 5K N Cárdenas, 28-v-1988, W. Mackay #'s 10496, 10501, 10519 (10 ♀♀ CWEM); Veracruz, 6.5 K N Tierra Blanca, 28-v-1988, W. Mackay #'s 10454, 10455, 10457, 10458, 10459, 10460, 10463, 10466, 10472, 10497, 10483, 10486, 10485, 10496, 10832 (90 ♀♀ CWEM), Tontoyuca, 08-vi-1988, W. Mackay # 10894 (10 ♀♀, 18 ♀♀, 2 ♂♂ CWEM). **NICARAGUA**, Izapa, Nobarasca, 16-vi-1986, J. Palacios (6 ♀♀ CWEM). **PANAMÁ**, Chiriquí, Bocas del Toro, Continental Divide, 9-vi-1995, R. Anderson #'s 17844, 17845 (8 ♀♀ CWEM), same locality, La Fortuna, Finca La Suisse, 10-vi-1995, R. Anderson #17789, 17823 (12 ♀♀ CWEM), same locality, 11-vi-1995, #'s 17827, 17830 (7 ♀♀ CWEM), La Fortuna, Hydrological Trail, 1100m, 09-vi-1995, R. Anderson #17785 (2 ♀♀ CWEM).

corticalis – México to Brazil, Caribbean

***Solenopsis decipiens* Emery**

Figs. 72-74; Map 15

molesta species complex, *molesta* subgroup*Solenopsis decipiens* Emery, 1906: 126-128, Fig. 8 (♀ ♀ ♂) ARGENTINA: Buenos Aires, La Plata, La Telas*Solenopsis decipiens* subsp. *abjecta* Emery, 1906: 128, Fig. 10 (♀) ARGENTINA: Buenos Aires, Nunez; Forel, 1912: 8 (♀), **NEW SYNONYM***Solenopsis decipiens* var. *scelesta* Forel, 1908a: 364 (♀) BRAZIL: São Paulo, **NEW SYNONYM***Solenopsis decipiens* r. *abjecta* var. *ignobilis* Forel, 1913: 220-221 (♀) BRAZIL: Santa Catarina [unavailable name], **material referred here****Diagnosis.**

Worker. This species is concolorous golden yellow with a smooth sculpture. The head is nearly quadrate, with relatively long scapes that extend $\frac{3}{4}$ the length of the head to the posterior lateral corner. The anterior clypeal margin is slightly concave and the space between the tips of the lateral teeth is relatively wide at 0.096 mm. The lateral clypeal teeth are present and angular and the extralateral teeth are absent with a swollen area in their place. The eyes have about six ommatidia and are slightly kidney-shaped. The petiole and postpetiole are roughly equal in width when seen in profile. The petiole has a rounded node, the postpetiole is oval when viewed from above.

Female and Male. Not found.

Worker Description.

Measurements (n=11). TL 1.44-1.68 (1.59); HL 0.438-0.504 (0.470); HW 0.330-0.408 (0.364); EL 0.042-0.060 (0.051); ED 0.030-0.048 (0.039); SL 0.276-0.333 (0.302); FSL 0.120-0.144 (0.127); CI 75.0-81.9 (77.6); SI 62.5-66.9 (64.2); PL 0.084-0.090 (0.089); PW 0.096-0.120 (0.106); PI 70.0-93.8 (84.6); PPL 0.102-0.120 (0.111); PPW 0.114-0.138 (0.127); PPI 75.8-94.7 (84.6); WL 0.330-0.378 (0.359); PSL 0.042-0.048 (0.044); PSW 0.030-0.036 (0.034).

Small, concolorous golden yellow; head nearly quadrate; scape relatively long, extends $\sim \frac{3}{4}$ length of head to posterior lateral corner; clypeal carinae weakly developed; lateral clypeal teeth angular, space between lateral teeth wide, extralateral teeth absent; eyes moderately small with six ommatidia, slightly kidney-shaped; notopropodeal suture well depressed, groove breaks sculpture of meso-

decipiens – Colombia, Argentina and Brazil

Compare with
hayemi, parva, stricta

molesta complex

decipiens 147

soma; pronotum and mesopleuron smooth and shiny; posterior propodeal margin rounded; propodeal spiracle large; metapleuron with horizontal striae; petiole and postpetiole roughly equal in width viewed laterally; petiolar node rounded; post-petiolar node oval viewed dorsally.

Moderately hairy; erect and suberect hairs of various lengths present on all body surfaces; scape with numerous suberect hairs; suberect hairs on mesosoma, petiole, postpetiole and gaster, hairs on petiole curve posteriorly.

Biology and habitat. *Solenopsis decipiens* has been collected in a cafetal (coffee plantation) at 1405 m as well as from leaf litter gathered in Colombia.

Distribution. Argentina, Brazil, Colombia.

Discussion. The types of *S. decipiens abjecta* var. *ignobilis* are nearly identical to those of the nominal, *S. decipiens*. Forel (1908) stated the types of *S. decipiens* variety *scelesta* are slightly darker (honey colored) than are the types of *S. decipiens* (yellowish), a variable trait. The mesosomata do not differ, the scapes are about the same length and the eyes are identical in size, thus this variety is not recognized. Forel (1912) stated that *ignobilis* is lighter in color than *S. decipiens abjecta*, with a longer head, however, they are the same color and the shape of the head is nearly identical.

Solenopsis decipiens is similar to *S. stricta* and *S. hayemi* which overlap in distributions (southern South America). It can be separated from both species as its petiole is not as enlarged and wide (viewed laterally). Additionally, *S. decipiens* has weakly developed clypeal carinae, a rare character within the thief ants. *Solenopsis decipiens* could be confused with *S. parva* based on the kidney-shaped eye, but the eye of *S. parva* is much larger with up to eight ommatidia and the mesopleuron of *S. parva* is striated while that of *S. decipiens* is not.

Type series. *Solenopsis decipiens* Emery, Argentina, Las Talas, La Plata, M.C.Z.C. 1-3 22614, Silverstri (lectotype ♀ (farthest to the left) and 2 paralectotype ♀♀ [here designated], MCZC). *Solenopsis decipiens* Em. var. *scelesta*, Brazil, São Paulo, (v. Ihering). Forel coll. (5 ♀♀ types MHNG).

Solenopsis decipiens Em. r. *abjecta* Em v. *ignobilis*, Brazil, Santa Catharina, (von Ihering) Forel coll. (3 ♀♀ types MHNG).

Material examined. COLOMBIA, Risaralda, Apia. La Maria, Cafetal de Sol (S-111), 5°08 N 75°57' W 1405 m, hojarasca 22.x.2001, G. Alvarez (3 ♀♀ CWEM).

decipiens – Colombia, Argentina and Brazil

***Solenopsis desecheoensis* Mann**

Figs. 75-76; Map 16

globularia species complex*Solenopsis globularia* var. *desecheoensis* Mann, 1920: 428 (♀) ANTILLES:
Desecheo Island, near Puerto Rico, **NEW STATUS****Diagnosis.**

Worker. The worker is easily recognized as a member of the *globularia* species complex, based on its greatly dilated postpetiole. It can be identified based on its dark brown coloration (appears to have faded in time for Mann 1920 states they are jet black) with yellowish-brown appendages. Based on the material examined, it appears to be monomorphic with the medial clypeal tooth is well developed and the mesopleuron and metapleuron are horizontally striated.

Female and Male. Unknown.

Worker Description.

Measurements (n=3). TL 2.10-2.16 (2.14); HL 0.582-0.600 (0.594); HW 0.480; EL 0.090-0.096 (0.094); ED 0.066-0.072 (0.070); SL 0.408-0.420 (0.416); FSL 0.180; CI 80.0-82.5 (80.8); SI 70.0; PL 0.120; PW 0.198-0.210 (0.204); PI 57.1-60.6 (58.9); PPL 0.240; PPW 0.288-0.318 (0.302); PPI 75.5-83.3 (79.6); WL 0.420; PSL 0.036; PSW 0.030.

Moderately large; concolorous dark brown (jet black in original description Mann 1920), yellowish-brown appendages; head subquadrate, side convex, posterior border straight, finely punctate; five clypeal teeth present, angulate, including medial tooth; clypeal carinae well defined; eyes large, 22-25 ommatidia; scape long, reaching $\frac{3}{4}$ length to posterior lateral corner of head; minor funicular segments 3-8 long (0.180 mm in total length); pronotum smooth and shiny; metapleuron horizontally striated; notopropodeal suture well depressed, notch-like, groove breaks sculpture of mesosoma; posterior edge of propodeum angulate; propodeal spiracle small, circular; metapleuron horizontally striated; petiolar peduncle long (0.072 mm); anterior and posterior face of petiole nearly straight, petiolar peduncle lacking tooth or flange ventrally; postpetiole greatly dilated, globose, larger than petiole viewed laterally and dorsally, lacking tooth or flange ventrally.

desecheoensis – Caribbean (Antilles Is., Desecheo Is.)

Compare with
globularia

molesta complex

desecheoensis 149

Abundantly hairy, pilosity yellow; head with erect hairs of various lengths (0.030-0.120 mm); numerous hairs of various lengths on dorsum of mesosoma (0.030-0.120 mm) pointed in different directions; hairs on petiole, postpetiole and gaster curve posteriorly.

Biology and habitat. Unknown.

Distribution. Antilles Is., Desecheo Island near Puerto Rico.

Discussion. *Solenopsis desecheoensis* is different from the widely distributed *S. globularia* in that it is a dark piceous brown with yellow-brown appendages, has a more developed medial clypeal tooth and an eye of 22-25 ommatidia. Based on the material examined (only three workers), it appears to be monomorphic, opposed to the polymorphic members of the rest of the *globularia* species group. We will be conservative and recognize *S. desecheoensis* as a valid species. However, further collection in Puerto Rico or the adjacent Antilles Islands, may show this species to be a color variant and synonym of *S. globularia*.

Type series. *Solenopsis globularia desecheoensis* Mann, Antilles Is., Desecheo Is., W. I. Feb. 18-20 '14, M.C.Z. Cotype 1-3 20928, Wm. M. Wheeler, F3505D (lectotype ♀ [here designated] and 2 paralectotype ♀ ♀ MCZC).

Material examined. Type series.

desecheoensis – Caribbean (Antilles Is., Desecheo Is.)

***Solenopsis dysderces* Snelling**

Figs. 77-78; Map 17

pygmaea species complex

Solenopsis dysderces Snelling, 1975: 84-85 (♀) CHILE: Aconcagua, ca. 3 km North of Zapallar

Diagnosis.

Worker. The worker is concolorous pale yellow. The head is elongate, sparsely punctate, yet thickened when viewed laterally from the dorsum to the ventral surface. The clypeal carinae are weakly defined. The eye consists of one ommatidium without pigment.

Female and Male. Unknown.

Worker Description.

Measurements (n=3). TL 1.26-1.32 (1.28); HL 0.420-0.426 (0.422); HW 0.312; EL 0.024; ED 0.018; SL 0.300-0.306 (0.302); FSL 0.108-0.114 (0.110); CI 73.2-74.3 (73.9); SI 70.4-72.9 (71.6); PL 0.072-0.078 (0.076); PW 0.096; PI 75.0-81.3 (79.2); PPL 0.096-0.102 (0.100); PPW 0.102; PPI 94.1-100 (98.0); WL 0.270-0.288 (0.282); PSL 0.018; PSW 0.024-0.030 (0.028).

Small; concolorous pale yellow; head elongated, longer than wide, finely punctate, punctures sparse, posterior border slightly concave; anterior clypeal margin between lateral teeth concave; lateral clypeal teeth well developed; bumps present at extralateral position; clypeal carinae weakly defined; scape relatively long, minor funicular segments relatively long; eye with one ommatidium, lacking pigment; pronotum finely punctate, punctures sparse; mesopleuron smooth and shiny, lacking sculpturing; propodeal posterior margin rounded; mesopleuron horizontally striated; petiole node rounded, wider than postpetiole viewed laterally, lacking tooth or flange ventrally, but with little bump; postpetiolar node circular viewed dorsally, lacking tooth or flange ventrally.

Moderately hairy, pilosity pale yellow; scape with appressed and suberect hairs; head, mesosoma, petiole, postpetiole and gaster with short (0.030-0.066 mm) suberect hairs of various lengths.

Biology and habitat. This species was collected while excavating a colony of *Araucomyrmex* from a small cell approximately 15 cm below the ground (Snelling, 1975).

dysderces – Chile: Aconcagua

Compare with
leptanilloides, minutissima

pygmaea complex

dysderces 151

Locality. Chile, Aconcagua (known only from type locality).

Discussion. *Solenopsis dysderces* is similar to *S. leptanilloides* (Argentina) as both species have noticeably elongate heads, similar forms of the clypeus and a lack of well-defined clypeal carinae. Close comparison reveals that *S. dysderces* has a larger head, in length, width and when measured from the dorsal to ventral surface. *Solenopsis leptanilloides* has a noticeably slender body compared to the more robust *S. dysderces*. *Solenopsis dysderces* is only known from the mountains of Chile, while *S. leptanilloides* is found in Northeastern Argentina.

Solenopsis dysderces is also similar to *S. minutissima* (from northeastern Argentina). *Solenopsis minutissima* can be separated as it has a quadrate shaped head, coarse cephalic punctures and a shorter scape.

Type series. *Solenopsis dysderces* Snelling, Chile, Aconcagua, ca. 3 km N of Zapallar, 28-x-1972, J. H. Hunt # 958 (holotype and 5 paratype ♀♀, LACM, 3 paratypes seen).

Material examined. Type series.

***Solenopsis emiliae* Santschi NEW STATUS**

Figs. 6, 79-83; Map 18

nigella species complex, *metanotalis* subgroup*Solenopsis metanotalis* var. *emiliae* Santschi, 1912: 526-527 (♂) URUGUAY: Colonia Helvetia, **NEW STATUS***Solenopsis metanotalis* var. *pelotana* Forel, 1912: 5 (♂ ♀) BRAZIL: Rio Grande do Sul, Pelotas; subspecies of *metanotalis*, Creighton, 1930, 127, **NEW SYNONYM****Diagnosis.**

Worker. This is a bicolored species with a golden brown/reddish head and mesosoma and a dark brown gaster. The posterior border of the head is nearly straight. The anterior border of the clypeus is very concave. The lateral clypeal teeth are well developed and extend 0.054 mm past the anterior clypeal border. The extralateral teeth are absent, but small angles are present in their positions that break the clypeal border sculpture. The eye is 0.120 mm in length and 0.081 mm in diameter and contains approximately 50 ommatidia. The entire mesosoma is covered with longitudinal striae. The propodeal spiracle is small with a diameter of ≈ 0.030 mm. The petiole and postpetiole have roughened sculpturing whose striae are bubbled in appearance.

Female. The female is large at 6 mm total length and concolorous red orange. The head is coarsely punctated. The mesosoma is horizontally striated, most evident around the sutures. The propodeum, petiole and postpetiole have roughened sculpturing. The petiolar peduncle has a large flange ventrally.

Male. Unknown.

Worker Description.

Measurements (n=11). TL 1.92-2.16 (2.02); HL 0.600-0.642 (0.611); HW 0.540-0.600 (0.567); EL 0.120; ED 0.072-0.090 (0.081); SL 0.402-0.444 (0.423); FSL 0.180-0.210 (0.197); CI 90.0-95.0 (92.7); SI 66.7-70.5 (69.3); PL 0.078-0.096 (0.084); PW 0.120-0.150 (0.134); PI 60.0-65.0 (63.1); PPL 0.120-0.150 (0.134); PPW 0.174-0.198 (0.185); PPI 64.5-83.3 (72.2); WL 0.420-0.480 (0.451); PSL 0.018-0.036 (0.028); PSW 0.018-0.036 (0.026).

Moderately small; bicolored, golden brown/reddish or yellow head and mesosoma, dark brown gaster; posterior border of head straight, finely punctate; anterior clypeal margin between lateral teeth concave; lateral clypeal teeth well developed, extend 0.054 mm past anterior clypeal border, extralateral teeth ab-

emiliae – Argentina, Brazil, Uruguay

sent, but small angle present in their position that breaks clypeal border sculpture; clypeal carinae well defined; scapes do not reach posterior border of head; minor segments of funiculus 3-8 long; eye large, approximately 50 ommatidia; mesosoma completely horizontally striated; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; propodeal spiracle small; propodeal posterior margin angular viewed laterally; petiole and postpetiole with roughened sculpturing; petiole wider than postpetiole viewed laterally; petiolar node smaller than postpetiole viewed dorsally; petiolar peduncle with well-developed tooth ventrally.

Sparsely hairy, pilosity reddish orange; scape with abundant appressed pilosity; head, mesosoma, petiole, postpetiole and gaster with few erect and suberect hairs of various lengths.

Female Description.

Measurements (n=1). TL 6.12; HL 0.912; HW 0.900; EL 0.216; ED 0.156; MOL 0.060; MOD 0.060; SL 0.570; FSL 0.330; CI 98.7; SI 62.5; PSL 0.060; PSW 0.054; PL 0.132; PW 0.348; PI 37.9; PPL 0.300; PPW 0.600; PPI 50.0; WL 1.20.

Large; concolorous red-orange; head rectangular, coarsely punctate; lateral clypeal teeth well developed, medial and extralateral teeth absent; frontal lobes vertically striated; scape thick, 0.084 mm at widest diameter, eye large; medial ocellus small; mesosoma covered in horizontal striae, most evident near sutures; propodeum with roughened sculpturing above spiracle in addition to striae; petiole and postpetiole with roughened sculpturing in addition to striae; petiolar peduncle with well-developed flange ventrally.

Abundantly hairy, pilosity yellow and reddish orange; erect and suberect hairs covering all body surfaces; hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. Unknown.

Distribution. Argentina (Kempf, 1972), Brazil, Uruguay.

Discussion. *Solenopsis emiliae* is obviously a member of the *metanotalis* subgroup, however it is unique in that the eye has consistently 50 ommatidia (across the geographic range of this species), separating it from other members within the *nigella* complex. It can be further separated from similar species, as the head has a rectangular appearance and the mesosoma is completely covered in horizontal striae with the petiole and postpetiole having roughened sculpturing.

The variety *pelotana* (Forel 1912) is identical to *S. emiliae*.

154 *emiliae*

nigella species complex

Compare with
metanotalis, *nigella*

Solenopsis emiliae may be confused with *S. metanotalis* (which occurs in the same area), but can be separated as *S. metanotalis* has striae present below the eye while *S. emiliae* does not.

Type series. *Solenopsis metanotalis* v. *emiliae* Santschi, Uruguay, Colonia Helvetia, (v. Steiger), Sammlung Dr. F. Santschi, Kairouan (lectotype ♀ and 5 paralectotype ♀♀ [here designated] NHMB). *Solenopsis metanotalis* Em. v. *pelotana* Forel, Brazil, Pelotas, (Gensterblum) (lectotype ♀, 4 paralectotype ♀♀ and 1 paralectotype ♀ [here designated] MHNG).

Material examined. Type series.

emiliae – Argentina, Brazil, Uruguay

Compare with
decipiens, *hayemi*

molesta complex

franki 155

***Solenopsis franki* Forel**

Figs. 13, 84-87; Map 19

molesta species complex, *molesta* subgroup

Solenopsis franki Forel, 1908a: 364-365 (♀) BRAZIL: São Paulo, São Paulo, Ipiranga; Forel, 1909a: 259 (♀)

Diagnosis.

Worker. This is a concolorous golden-yellow species. The lateral clypeal teeth are present, but not well developed. The extralateral teeth are present as bumps. The clypeus is slightly concave medially. The head is longer than wide and is nearly rectangular, with the posterior border nearly straight. The eyes are typically black and contain about 3-5 ommatidia. The scape is long and extends nearly the length of the head. The petiole is thicker than the postpetiole when viewed in profile.

Female. The female is small and golden yellow in color. The clypeus is concave medially with the lateral teeth well developed, while the extralateral teeth are present as bumps. What is striking about the female is that the three ocelli are clear but very small (smaller than the propodeal spiracle). There are small, fine punctures present on the head, the pronotum and the first tergum of the gaster. The posterior propodeal margin is slightly angled. There are vertical striae present on the lower half of the propodeum which end before they reach the spiracle. The postpetiole is much smaller than the petiole when viewed in profile, but is much wider when viewed from above.

Male. Unknown.

Worker Description.

Measurements (n=7). TL 1.47-1.68 (1.55); HL 0.426-0.468 (0.456); HW 0.372-0.402 (0.384); EL 0.036-0.048 (0.044); ED 0.030-0.036 (0.032); SL 0.306-0.330 (0.321); FSL 0.132-0.144 (0.137); CI 79.5-90.1 (84.3); SI 66.7-73.3 (70.4); PL 0.096-0.108 (0.100); PW 0.096-0.114 (0.105); PI 89.5-100 (96.2); PPL 0.096-0.114 (0.103); PPW 0.126-0.138 (0.130); PPI 72.7-90.5 (79.3); WL 0.360-0.390 (0.364); PSL 0.030-0.042 (0.036); PSW 0.030.

Small, concolorous golden yellow; head rectangular, longer than wide, posterior border straight; lateral clypeal teeth angulate, extralateral teeth are bumps; anterior clypeal margin concave; clypeal carinae well developed; eyes contain 3-5 ommatidia; scape long, extends nearly to posterior border of head; no-

franki – Colombia, Guyana, Brazil

topropodeal suture well depressed, groove breaks sculpture of mesosoma; petiole thicker than postpetiole viewed laterally.

Moderately hairy, with erect and suberect hair of various lengths present on all body surfaces; mesosoma, petiole, postpetiole and gaster with erect and suberect hairs; petiole and postpetiole with hairs that curve posteriorly.

Female Description.

Measurements (n=1). TL 3.00; HL 0.546; HW 0.510; EL 0.150; ED 0.120; MOL 0.048; MOD 0.054; SL 0.348; FSL 0.162; CI 93.4; SI 63.7; PSL 0.050; PSW 0.060; PL 0.120; PW 0.210; PI 57.1; PPL 0.120; PPW 0.138; PPI 86.9; WL 0.450.

Small, concolorous golden-yellow; head rectangular, longer than wide, cephalic punctures fine; anterior clypeal margin concave with space between lateral teeth wide at 0.108 mm; lateral clypeal teeth well developed, extralateral teeth are bumps; clypeal carinae well developed; eyes black, moderately large; ocelli small, clear; scape long, nearly reaching posterior border of head; pronotum finely punctate; mesopleuron smooth and shiny; metapleuron finely striate; posterior propodeal margin angulate; petiole wider than postpetiole viewed laterally; petiole and postpetiole striolate; first tergum of gaster finely punctate.

Abundantly hairy on all body surfaces, with erect and suberect hairs of various lengths; nearly all punctures have a suberect hair.

Biology and habitat. The specimens from Risaralda were collected in dry forest at 950 m as well as in leaf litter from a coffee plantation at 1405m. The specimen from Valle del Cauca was collected in a pitfall trap in wet rainforest, with dark clay soils.

Distribution. Brazil, Guyana and Colombia.

Discussion. This workers of this species are similar to those of *S. hayemi* (distributions overlap) but can be separated by size. *Solenopsis hayemi* is consistently larger in size (2.00-2.10 mm) compared to *S. franki* (1.47-1.68 mm). The distinguishing feature between the two is that *S. franki* does not have such a wide petiole viewed laterally when compared to that of *S. hayemi*.

Solenopsis franki is similar to *S. decipiens* (South America) but can be separated as *S. decipiens* has a kidney-shaped eye, less developed clypeal carinae and a less robust petiole when viewed laterally.

Type series. *Solenopsis franki* Forel, Brazil, São Paulo (v. Ihering) (lectotype ♀ [here designated], 3 paralectotype ♀♀ and 1 paralectotype ♀ MHNG).

franki – Colombia, Guyana, Brazil

Compare with
decipiens, *hayemi*

molesta complex

franki 157

Material examined. Type series and **COLOMBIA**, Risaralda, La Virginia Carmelita, 950m, 21-v-1997, P. Chacón # MYR-02 (18 ♀♀ CWEM); Valle del Cauca, Bosque Yotoco, 23-vi-1989, W. Mackay # 11695 (1 ♀ CWEM). **GUYANA**, Kartabo, Point B.C., A. Emerson, 14-vi-1993, Wm. M. Wheeler (3 ♀♀ MCZC).

franki – Colombia, Guyana, Brazil

***Solenopsis gensterblumi* Forel, NEW STATUS**

Figs. 88-90; Map 20

nigella species complex, *nigella* subgroup

Solenopsis picta r. *gensterblumi* Forel, 1901b: 298 (♀) BRAZIL: Rio Grande do Sul, Pelotas [misspelled as *gerstenblumi* by Emery, 1922: 200]; subspecies of *nigella* and senior synonym of *prevalens*, Creighton, 1930: 132, **NEW STATUS**

Solenopsis angulata r. *carettei* Forel, 1913: 223 (♀) ARGENTINA: Mendoza, **NEW SYNONYM**

Solenopsis nigella st. *prevalens* Santschi, 1923: 257 (♀) ARGENTINA; Santschi, 1929: 297 (♂) (Junior synonym of *gensterblumi*, Creighton, 1930)

Diagnosis.

Worker. The worker ranges in color from concolorous golden yellow to brown. What is striking about this species are the large eyes (20-25 ommatidia). It is nearly devoid of pilosity and sculpturing and is smooth and shiny on all body surfaces. The petiolar peduncle has a well-developed ventral tooth.

Female. Unknown.

Male. Not seen.

Worker Description.

Measurements (n=14). TL 1.37-1.62 (1.53); HL 0.408-0.528 (0.483); HW 0.300-0.468 (0.410); EL 0.042-0.090 (0.079); ED 0.030-0.060 (0.053); SL 0.282-0.360 (0.308); FSL 0.090-0.144 (0.126); CI 71.4-92.6 (85.0); SI 58.1-72.3 (64.0); PL 0.066-0.078 (0.073); PW 0.078-0.102 (0.091); PI 70.6-92.3 (80.2); PPL 0.090-0.120 (0.102); PPW 0.120-0.138 (0.128); PPI 68.2-95.2 (79.6); WL 0.300-0.360 (0.309); PSL 0.024; PSW 0.018-0.024 (0.020).

Small, concolorous golden yellow to dark brown; head quadrate, longer than wide, with posterior border slightly concave; lateral clypeal teeth angulate; extralateral teeth absent; clypeal carinae well defined; scape does not reach posterior border of head; eyes large, oval shaped, approximately 20-25 ommatidia; pronotum and mesopleuron smooth and shiny; notopropodeal suture weakly depressed, groove breaks sculpture of mesosoma; metapleuron horizontally striated; posterior propodeal edge angulate, with ridge; petiolar node wider than postpetiole viewed laterally, petiole triangular shaped with sharp anterior and posterior faces; well defined tooth present ventrally on subpeduncular process.

gensterblumi – Argentina, Brazil

Not very pilose; few hairs present on all body surfaces; neither head nor scape heavily pilose, with only small suberect hairs present that are roughly 0.018 mm in length; mesosoma, petiole, postpetiole and gaster have very few hairs that range from 0.018 to 0.024 mm in length.

Distribution. Argentina, Brazil.

Discussion. We agree with the synonymy of *S. prevalens* (Creighton 1930). Apparently *S. gensterblumi* is a minor worker and *Solenopsis nigella* is the major of the same species-level taxon. It appears that *S. nigella* is dimorphic, but with the little evidence (no complete series), we will recognize *S. gensterblumi* as a valid species. However, if and when a complete series is collected, *S. gensterblumi* will probably be synonymized with *S. nigella*.

Solenopsis carettei is dissimilar to *S. parva* (= *S. angulata* and found throughout southern Brazil and Argentina) and can be separated based on its much larger eye (which has only 10-15 ommatidia as compared to 20-25 ommatidia in *S. carettei*). *Solenopsis carettei* is nearly identical to *S. gensterblumi*, the only difference is that *S. carettei* is lighter in coloration, a highly variable trait and thus the taxon is proposed for synonymy.

Type series. *Solenopsis nigella* Em. v. *gensterblumi* Forel, Argentina, Buenos Aires, Serra de la Ventana, Sierra Ventana, (460, Bruch) Forel Coll. (lectotype ♀ [here designated] and 4 paralectotype ♀ ♀ MHNG). *Solenopsis nigella* r. *prevalens* Santschi, Argentina, Alta Gracia, (Bruch) M.C.Z.C. 1-5, 20931 (5 ♀ ♀ cotypes MCZC). *Solenopsis angulata* r. *carettei* Forel, (1 lectotype ♀ [here designated] and 4 paralectotype ♀ ♀ MHNG).

Material examined. Type series.

160 *germaini*

fugax complex

Compare with
patagonica, *tetracantha*

***Solenopsis germaini* Emery**

Figs. 14, 91-97; Map 21

fugax species complex

Solenopsis germaini Emery, 1895a: 12, figs. a, b (♀) CHILE: Cordillera de Chillán

Solenopsis germaini schedingi Forel, 1907a: 4-5 (♀ ♀ ♂) (Snelling & Hunt, 1976: 84)

Diagnosis.

Worker. This is a relatively large robust golden-brown species. The head is heavily punctated and nearly quadrate. Both the lateral and extralateral clypeal teeth are well developed. The scape does not reach the posterior border of the head. The eye is moderately small with 5-8 ommatidia. There are coarse punctures present on the mesosoma. The notopropodeal suture is depressed and breaks the sculpture of the mesosoma. Striae are present on the basal portion of the propodeum. The petiole is thicker than the postpetiole when viewed in profile. The petiolar peduncle has a ventral tooth.

Female. The female is large and concolorous dark brown. Both lateral and extralateral teeth are present and well developed. The head is triangular in shape and wider than long. Both rugulae and punctures are present on the head. The rugulae are thin and the punctures are coarse with long suberect hairs protruding from each. The scape is golden brown and extends nearly to the posterior border of the head. The eye is moderately large and extends past the profile of the head when the head is in frontal view. The legs have a reddish brown hue. Both the petiole and postpetiole are very thick when viewed in profile.

Male. The male is bicolored with a black head and mesosoma and a brown gaster. The head is quadrate. The clypeal teeth are absent, except for small bumps present where the lateral teeth should exist. Thin rugulae are present on the head. The eye is large and begins at the anterior portion of the head near the mandibles and ends at the midpoint of the side of the head. The antennae and legs are golden brown in color. The antennae are very long. The propodeum is covered with rugulae. The postpetiole is twice as large as the petiole and both nodes are heavily covered in rugulae.

germaini – Chile, Argentina

Worker Description.

Measurements (n=5). TL 1.80-2.48 (2.21); HL 0.522-0.708 (0.579); HW 0.408-0.510 (0.458); EL 0.036-0.060 (0.045); ED 0.030-0.042 (0.035); SL 0.360-0.522 (0.407); FSL 0.144-0.180 (0.158); CI 72.0-88.2 (79.5); SI 68.2-73.7 (69.9); PL 0.120-0.144 (0.125); PW 0.150-0.240 (0.182); PI 60.0-80.0 (69.4); PPL 0.090-0.138 (0.126); PPW 0.126-0.192 (0.169); PPI 71.4-84.6 (74.6); WL 0.300-0.480 (0.382); PSL 0.042-0.054 (0.048); PSW 0.036-0.048 (0.042).

Relatively large, concolorous golden brown; head, longer than wide, posterior border straight, coarsely punctate; lateral clypeal teeth well developed, extralateral teeth well developed; clypeal carinae well defined; eyes relatively small, 5-8 ommatidia; scape reaches $\frac{3}{4}$ length to posterior lateral corner of head; pronotum coarsely punctate; notopropodeal suture deeply impressed, groove breaks sculpture of mesosoma; pronotum and mesopleuron smooth and shiny between punctures; metapleuron horizontally striate; petiole thicker than postpetiole viewed laterally; petiolar peduncle with well-developed ventral tooth.

Hairy; erect and suberect hairs present on all body surfaces; every puncture on head with single hair; mesosoma heavily pilose with many erect hairs; hairs of petiole and postpetiole curve posteriorly; first tergite of gaster heavily pilose with suberect hairs.

Female Description.

Measurements (n=2). TL 5.75-6.24 (5.99); HL 0.870-0.978 (0.924); HW 0.960-1.090 (1.030); EL 0.270-0.300 (0.285); ED 0.240; MOL 0.084-0.090 (0.087); MOD 0.078-0.084 (0.081); SL 0.462-0.630 (0.546); FSL 0.300-0.360 (0.330); CI 110-112 (111); SI 47.2-72.4 (59.8); PSL 0.102-0.120 (0.111); PSW 0.096; PL 0.240; PW 0.522-0.600 (0.561); PI 40.0-45.9 (42.9); PPL 0.300-0.360 (0.330); PPW 0.516-0.600 (0.558); PPI 58.1-60.0 (59.1); WL 1.56-1.68 (1.62).

Large, concolorous dark brown; head triangular, wider than long, coarsely punctate with thin rugulae; lateral clypeal teeth and extralateral teeth well developed; clypeal carinae well defined; scape golden brown, extends nearly to posterior lateral corner of head; medial ocellus small; eye moderately large; extends past profile of head in frontal view; legs reddish brown; pronotum coarsely punctate, smooth and shiny between punctures, mesopleuron smooth and shiny; metapleuron horizontally striated; petiolar and postpetiolar nodes robust viewed laterally; both nodes horizontally striate.

Abundantly hairy, erect and suberect hair present on all body surfaces; erect and suberect hairs emitting from coarse punctures throughout head and mesosoma; long erect hairs (0.024 mm) on pronotum; most hairs on mesosoma, petiole and postpetiole curve posteriorly.

Male Description.

Measurements (n=4). TL 5.16-5.28 (5.24); HL 0.660-0.720 (0.696); HW 0.720-0.810 (0.764); EL 0.300-0.420 (0.345); ED 0.222-0.300 (0.261); MOL 0.084; MOD 0.084-0.120 (0.102); SL 0.240-0.252 (0.246); FSL 1.32; CI 107-113 (110); SI 33.3-38.2 (35.4); PSL 0.096-0.108 (0.100); PSW 0.078-0.102 (0.088); PL 0.180; PW 0.522; PI 34.5; PPL 0.300; PPW 0.480-0.570 (0.525); PPI 52.6-62.5 (57.6); WL 1.68-1.80 (1.72).

Bicolored, head and mesosoma black, gaster brown; head rectangular, wider than long, fully covered in rugulae; small bump present medially on clypeus; eye large, begins at anterior portion of head and ends half-length of head; antennae very long, antennae and legs golden brown; propodeum, petiole and postpetiole covered in rugulae; postpetiole twice as long as petiole viewed laterally.

Abundantly hairy; erect and suberect hairs present on all body surfaces; punctures present on mesosoma with long erect (0.036 mm) hairs extending from each.

Biology and habitat. *Solenopsis germaini* was collected in a ground nest in shrub steppe at 1050 m in Argentina. Other workers were collected under a log in an *Araucaria* forest at the same elevation in Argentina. This species was also collected under a stone in coastal scrub at 10 m in Chile. It is very common in Chile (Snelling and Hunt, 1975).

Distribution. Argentina and Chile.

Discussion. The worker of *S. germaini* is similar to *S. tetracantha* (eastern Argentina) and *S. patagonica* (Argentina and southern Brazil), based on the coarse cephalic punctures and well-developed lateral and extralateral teeth, but can be distinguished as *S. germaini* is larger in size and compared to *S. tetracantha* and *S. patagonica*, *S. germaini* is darker in coloration (*S. tetracantha* and *S. patagonica* are concolorous yellow). In addition, *S. patagonica* is dimorphic, while *S. germaini* and *S. tetracantha* are monomorphic (based on available material).

Type series. *Solenopsis germaini* Emery r. *schedingi* Forel, Chile, Puerto de Corral, C. Scheduling Ig 111.04 ded 10.v.1905, Forel Coll. (lectotype ♀ [here designated], 1 paralectotype ♀ and 4 paralectotype ♂♂ MHNG).

Material examined. Type series and ARGENTINA, Neuquén, Lago Tromen, 39°34'S, 71°26'W 1050m 9.i.1995, P. S. Ward #12727 (8 ♀♀, 1 ♀ MCZC). CHILE, Puerto Veras, 8-ix-1920, J.C.B. #1664, (6 ♀♀ MCZC); Cor-

germaini – Chile, Argentina

Compare with
patagonica, tetracantha

fugax complex

germaini 163

ral, Dec. 1905, R. Thaxter, (2 ♀♀ MCZC); **Chiolé**, 30km SW Ancud 42°07'S,
74°03'W 10m 13.i.1995, P.S. Ward #12735, (9 ♀♀ MCZC). Snelling and Hunt
(1975) list many other Chilean localities).

germaini – Chile, Argentina

***Solenopsis globularia* (Smith)**

Figs. 8, 98-105; Map 22

globularia species complex

Myrmica globularia F. Smith, 1858: 131 (♂ ♀ ♂) BRAZIL; combination in *Solenopsis*, Roger, 1863b: 32; in *S. (Euopthalma)*, Creighton, 1930: 110

Solenopsis steinheili Forel, 1881: 11 (♂) ANTILLES IS.: St. Thomas; junior synonym of *globularia*, W. M. Wheeler, 1908a: 130; Emery, 1922e: 199; revived from synonymy as subspecies of *globularia* and senior synonym of *borinquenensis* and *cubaensis*, Creighton, 1930: 116, **RETURNED TO SYNONYMY**

Solenopsis globularia var. *borinquenensis* W. M. Wheeler, 1908a: 131, Plate 11, Figure 7 (♂) PUERTO RICO; junior synonym of *S. globularia steinheili*, Creighton, 1930: 116

Solenopsis globularia r. *lucayensis* var. *curta* Forel, 1912: 4 (♂) COLOMBIA; unavailable name; material referred to *S. globularia* by Creighton, 1930: 110

Solenopsis globularia var. *cubaensis* W. M. Wheeler, 1913: 493-494 (♂) CUBA; junior synonym of *S. globularia steinheili*, Creighton, 1930: 116

Solenopsis globularia subsp. *pacifica* W. M. Wheeler, 1919: 273 (♂ ♂) GALAPAGOS IS.: Isabela Is., W. M. Wheeler, 1924a: 108 (♀), **NEW SYNONYM**

Solenopsis (Euopthalma) globularia subsp. *littoralis* Creighton, 1930: 113, Plate 6, Fig. 3 (♂ ♀ ♂) USA: Alabama, Baldwin County; G. C. Wheeler, & J. Wheeler, 1960b: 22 (I); senior synonym of *S. globularia mobilensis*, M. R. Smith, 1951: 813, **NEW SYNONYM**

Solenopsis globularia subsp. *mobilensis* M. R. Smith, 1931: 20 (♂) USA; (attributed to Creighton); junior synonym of *S. globularia littoralis*, M. R. Smith, 1951: 813

Diagnosis.

Worker. The workers are polymorphic with the largest workers moderately large in total length (≈ 2 mm). All the workers can be distinguished by their greatly dilated/enlarged postpetiole. The carinae are well developed on the clypeus. There are five teeth present on the anterior clypeal margin. The eye is large, ranging from 15-25 ommatidia. It has horizontal striae present on the mesopleu-

globularia – USA south to Brazil, Caribbean

ron as well as the metapleuron and ranges in color from light to dark brown. Both the petiolar peduncle and postpetiole are lacking a tooth or flange ventrally.

Female. The gyne is moderately large (total length \approx 4 mm) and medium brown in color. The clypeal carinae are well defined. The propodeum is entirely striated. The petiolar peduncle and enlarged postpetiole lack a teeth or flanges ventrally.

Male. The male is moderately large (total length \approx 3 mm) and concolorous dark brown with lighter brown appendages. The head is smooth and shiny, lacking sculpturing. The anterior clypeal margin is nearly straight and a single, medial carina is present on the clypeus and it lacks teeth on the anterior margin. The propodeum is striated and the petiole and postpetiole are weakly striated, both lacking a tooth or flange ventrally.

Worker Description.

Measurements (n=16). TL 1.86-2.16 (2.00); HL 0.528-0.600 (0.563); HW 0.450-0.516 (0.481); EL 0.078-0.102 (0.087); ED 0.054-0.072 (0.064); SL 0.360-0.420 (0.394); FSL 0.162-0.210 (0.185); CI 82.6-88.9 (85.4); SI 66.7-73.7 (69.9); PL 0.090-0.120 (0.111); PW 0.150-0.210 (0.187); PI 53.3-80.0 (59.8); PPL 0.222-0.250 (0.239); PPW 0.240-0.330 (0.281); PPI 72.7-100 (85.9); WL 0.360-0.480 (0.428); PSL 0.030-0.036 (0.032); PSW 0.024-0.036 (0.029).

Polymorphic, major worker moderately large; concolorous light to dark brown; head quadrate, longer than wide, finely punctate; five clypeal teeth present, lateral teeth well developed, extralateral teeth angulate, medial tooth occasionally reduced; clypeal carinae well defined; frontal lobes weakly vertically striated; eyes large, 15-25 ommatidia; scape lighter brown, long, reaching $\frac{3}{4}$ length of head; minor funicular segments 3-8 long (average length 0.185 mm); pronotum finely punctate, smooth and shiny between punctures; mesopleuron entirely horizontally striated; posterior edge of propodeum angulate; propodeal spiracle small (average 0.030 mm), circular; metapleuron horizontally striated, remainder of propodeum occasionally fully striated; peduncle relatively long at 0.060 mm; anterior and posterior faces of petiole nearly straight, peduncle lacking tooth or flange ventrally; postpetiole greatly dilated, globose, much larger than petiole viewed laterally and dorsally, lacking tooth or flange ventrally.

Moderately hairy; pilosity yellow to light brown; erect and suberect hairs of various lengths (0.060-0.120 mm) on dorsum of head and mesosoma; petiole and postpetiole with long erect and suberect hairs (0.120-0.150 mm), several curve posteriorly.

Female Description.

Measurements (n=2). TL 3.96; HL 0.744; HW 0.660; EL 0.222; ED 0.168; MOL 0.060; MOD 0.066; SL 0.528; FSL 0.300; CI 88.7; SI 70.9; PSL 0.060-

globularia – USA south to Brazil, Caribbean

0.072 (0.066); PSW 0.060; PL 0.120; PW 0.330-0.360 (0.345); PI 33.3-36.4 (34.8); PPL 0.300; PPW 0.462; PPI 64.9; WL 0.960-1.08 (1.02).

Moderately large; concolorous medium brown; head quadrate, longer than wide; finely punctate; lateral clypeal teeth well developed, extralateral teeth angulate, medial occasionally absent; clypeal carinae well defined; frontal lobes weakly vertically striated; eyes large, extend 0.540 mm past sides of head; medial ocellus small, without pigment; scape long, extends $\frac{3}{4}$ length of head, 0.072 mm diameter at maximum thickness; minor funicular segments 3-8 long (0.300 mm in total length); finely punctate, smooth and shiny between punctures; posterior edge of propodeum angulate; entire propodeum striated; propodeal spiracle small, circular; anterior and posterior faces of petiole nearly straight, peduncle lacking tooth or flange ventrally; postpetiole enlarged, dilated, globose, much larger than petiole viewed laterally and dorsally; lacking tooth or flange ventrally.

Abundantly hairy; pilosity yellow to light brown; erect and suberect hairs of various lengths (0.090-0.180 mm) on dorsum of head and mesosoma; long suberect hairs (0.180-0.240 mm) on petiole and postpetiole, curve posteriorly.

Male Description.

Measurements (n=2). TL 2.88-3.12 (3.00); HL 0.432-0.480 (0.456); HW 0.450-0.510 (0.480); EL 0.240; ED 0.198; MOL 0.066; MOD 0.078-0.084 (0.081); SL 0.168; FSL 0.900-0.960 (0.930); CI 104-106 (105); SI 35.0-38.9 (36.9); PSL 0.078; PSW 0.060-0.066 (0.063); PL 0.090-0.096 (0.093); PW 0.192-0.210 (0.201); PI 42.9-50.0 (46.4); PPL 0.180; PPW 0.288; PPI 62.5; WL 0.720-0.840 (0.780).

Moderately large; concolorous dark brown, light brown appendages; head wider than long, smooth and shiny, lacking cephalic striae; anterior clypeal margin nearly straight, with single medial carina; eyes large, extend 0.084 mm past sides of head; medial ocellus moderately large, without pigment; pronotum finely punctate, smooth and shiny between punctures; posterior propodeal margin rounded; propodeal spiracle large, oval; entire propodeum striate; petiole weakly striate, peduncle short, lacking tooth or flange ventrally; postpetiole weakly striate, node globose, not greatly dilated, lacking tooth or flange ventrally.

Moderately hairy, pilosity pale yellow to light brown; erect and suberect hairs of various lengths (0.060-0.120 mm) on dorsum of head and mesosoma; hairs on petiole and postpetiole long (0.150-0.180 mm), several curve posteriorly.

Biology and habitat. This species is found predominantly in coastal areas, although it has been found at 35 m at a plantation/parkland in Guatemala and at 50 m and 710 m in México. Most often colonies are discovered under rocks and especially in driftwood and rotten logs on beaches. Workers in large nests can be

Compare with
bucki, *loretana*

globularia complex

globularia 167

aggressive. Sexualls were found in nests in June. Occasionally, *S. globularia* can be collected foraging on the ground, loose on vegetation, with bait (surface wiener and tuna, subterranean Vienna sausage). It is occasionally collected in pitfall traps. This species has also been found in the Yucatán of México in rocky arid thorn scrub as well as in a slash and burned area in Chiapas. Additionally, a *S. globularia* male was collected in cow dung in Florida. *Solenopsis globularia* has also been collected in various situations in the Caribbean such as at a destroyed church, a suburban bus stop, wooded yard, beach and in a sugarcane field. They occur in a variety of habitats ranging from grassland and weedy area, to forests.

Distribution. Ranging throughout the Caribbean to the gulf coast of the USA to Central and Northern part of South America (Brazil, Ecuador, Guiana) and Galapagos Is.

Discussion. *Solenopsis globularia* is a widely distributed, highly variable species with different colors and sizes. It is one of few of the smaller *Solenopsis* that is polymorphic. Several synonymies are proposed based on the following traits, five clypeal teeth, with the medial clypeal tooth occasionally reduced and eye of 15-25 ommatidia with the worker, horizontal striae present on the mesopleuron and metapleuron and the greatly dilated postpetiole, all of which makes this species easily recognizable. Additionally, this species seems to be consistently found on the coastline on beaches under rocks or most often in logs; a consistent nesting site throughout the Caribbean, Gulf coastline of the USA as well as in Ecuador and the Galapagos Islands. Consequently, *S. steinheili*, *S. globularia pacifica* and *S. globularia littoralis* fall within the variation of this taxon and are considered synonyms.

Solenopsis globularia is very similar to *S. bucki* (southern Brazil) and *S. loretana* (southern Brazil and Paraguay), which also have greatly dilated postpetioles. *Solenopsis bucki* is easily separated by having a mandible with only three teeth that is elongate and nearly straight, while *S. globularia* has a mandible with four teeth on the masticatory border. *Solenopsis loretana* is easily differentiated from *S. globularia* as it has a small eye with only 3-5 ommatidia; *S. globularia* nearly always has 15-25 ommatidia.

Type series. *Solenopsis globularia* subsp. *littoralis* Creighton, USA Alabama, Baldwin County, Mobile, Bay Shore, X-24-26, M.C.Z. Cotype 1-9, 20927 (lectotype ♀ [here designated], 8 paralectotype ♀♀, 1 paralectotype ♀ MCZC). *Solenopsis globularia* subsp. *steinheili* Forel, Cuba, Cogimar, W. M. Wheeler (type 4 ♀♀ MCZC); Cuba, Cienaga de Zapata, W. M. Wheeler (M.C.Z. Cotype 30-32 8893, 3 ♀♀ MCZC); Culebra Island, W. M. Wheeler, M.C.Z. (Cotype 23178, 18 ♀♀ MCZC).

globularia – USA south to Brazil, Caribbean

Material examined. Type series and **USA**, **Alabama**, Mobile, Dauphin Island, 25 August 87, W&E Mackay #9870, (38 ♀♀ CWEM); **Florida**, Big Pine Key, vi (19-20)-58, E. O. Wilson K-57, vi-15-58 K-18 (7 ♀♀, 2 ♀♀ MCZC); Alachua Co. Hawthorne. 12-iv-1983, leg. J. Trager (21 ♀♀, 1 ♂ (MCZC); Dade Co. Miami, Matheson St. Park, iv.1980, E. O. Wilson (2 ♀♀ MCZC). **BARBADOS**, Bath, 13.185°N 59.480°W, 21-vi-2006, J. Wetterer # 442 (1 ♀ CWEM). **BRAZIL**, **Rio Grande do Norte** Natal. W. M. Mann (2 ♀♀, 1 ♂ MCZC); **Mato Grosso do Sul**, Rio Ivinhema, 16-19 Oct 1989, S. Porter #'s 12865, 12867, 12868, 12872, 12874, 12880, (6 ♀♀ CWEM), 50 km W Miranda, 18 Oct 1989 W. P. Mackay #12646, (4 ♀♀ CWEM), 48 km Transpantaneira 18 Oct 1989 S. Porter #12988 (1 ♀ CWEM). **COLOMBIA**, **Valle**, Isla El Aji, 9-xii-1988, Marta Baena AJ102 (4 ♀♀ CWEM); **Meta**, 1km Villavieja, 2-July-1989, W. Mackay #11909, (1 ♀ CWEM). **COSTA RICA**, **Guanacaste**, Loma Barbudal, 3 June 1989, S. B. Vinson #'s 12115, 12206, 12213, 12218, 12226, , 12229, 12232, 12234, 12300, 12301, 12306, (44 ♀♀ CWEM), Feb. 1990, S. B. Vinson #'s 13184, 13186, 13197, 13200, 13201 (9 ♀♀ CWEM). **CUBA**, **Soledad**, Cienfuegos, 4- xi-1927, Creighton (2 ♀♀ MCZC). **ECUADOR**, **Galapagos Islands**, Santa Cruz, Tortuga Bay, 10-2-35, W. Von Hagen, No. 136 (4 ♀♀ MCZC), Santa Cruz Is., Seymour Bay, Williams Expedition, Wm. M. Wheeler (6 ♀♀ MCZC), Daphne Is. Williams Expedition, Wm. M. Wheeler (2 ♀♀, 1 ♀ MCZC), Tower Is. Williams Expedition, Wm. M. Wheeler (2 ♀♀ MCZC). **GRENADA**, Grenville, 12.118°N 61.627°W, 29-vi-2006, J. Wetterer #572 (1 ♀ CWEM), Grand Anise, 12.025°N 61.762°W, 24-vi-2006, J. Wetterer # 497 (1 ♀ CWEM), Mount d' Or, 12.106°N 61.736° W, 23-vi-2006, J. Wetterer # 468 (1 ♀ CWEM), Parade, 12.050°N 61.737°W, 27-vi-2006, J. Wetterer # 550 (2 ♀♀ CWEM), Petit Bacaye, 12.021°N 61.695°W, 28-vi-2006, J. Wetterer # 562 (1 ♀ CWEM), Sauteurs Bay, 12.229°N 61.651°W, 25-vi-2006, J. Wetterer # 505 (2 ♀♀ CWEM), True Blue, 12.004°N 61.773°W, 26-vi-2006, J. Wetterer # 531 (1 ♀ CWEM), True Blue, 11.998°N 61.768°W, 26-vi-2006, J. Wetterer # 536 (3 ♀♀ CWEM), Wobum, 12.023°N 61.735°W, 26-vi-2006, J. Wetterer # 537 (1 ♀ CWEM). **GUATEMALA**, **Escuintla**, Escuintla, Parque Auto Safari Chapín, 14°06'N 90°38'W, 14-xi-2003, A. L. Wild #AW2038 (2 ♀♀ MCZC). **HAITI**, **Mannville**, W. M. Mann, Wm. M. Wheeler (2 ♀♀, 1 ♂ MCZC). **MÉXICO**, **Chiapas**, 24K SW Cintalpa, 22-vi-1988, W. Mackay 10717C, 10720A, 10720D (5 ♀♀ CWEM); **Nuevo León**, Finca El Noreno, 7-ix-1993, A. Banmert (1 ♀ CWEM); **Veracruz**, 6.5K N Tierra Blanca, 28-v-1988, W. Mackay #10488 (1 ♀ CWEM); **Yucatán**, 11km S. Progreso, vii-25-53, E. O. Wilson #113 (2 ♀♀ MCZC). **NICARAGUA**, **León**, Las

globularia – USA south to Brazil, Caribbean

Compare with
bucki, loretana

globularia complex

globularia 169

Delicias, 5-viii-1986, S. Matus/R. Lopez (1 ♀ CWEM). **PARAGUAY**, **Boquerón**, Filadelfia, 22°21'S 60°02'W, 6-xii-1993, B. Garcete #1bn 194 (1 ♀ ALW-02 CWEM), **Pte. Hayes**, Monte Lindo, 15-xi-1993, 23°52'S 58°27'W, B. Garcete # IBN 176, (1 ♀ CWEM); **Central**, Capiata, 25°21'S 57°25'W, 22-ii-1994, B. Garcete # IBN 197 (1 ♀ CWEM). **PUERTO RICO**, **Culebra Is.**, W. M. Wheeler (7 ♀ ♀ MCZC). **ST. LUCIA**, Gastries, 10-22 Sept. 19, J. C. Bradley, Cornell University Expedition Lot 569 (1 ♀ MCZC). **SAINT CROIX**, Bethlehem NW, 66; 0.5 k NE of 64, 17.710°N 64.784°W, 12-iii-2006, J. Wetterer # 279 (1 ♀ CWEM), Cane Estate coast, 17.682°N 64.833°W, 11-iii-2006, J. Wetterer # 273 (1 ♀ CWEM), Krause Lagune Boat Pier, 17.696°N 64.763°W, 5-xi-2005, J. Wetterer # 243 (1 ♀ CWEM). **SAINT VINCENT**, Belmont, 13.165°N 61.180°W, 30-vi-2006, J. Wetterer # 594 (1 ♀ CWEM), Callaiqua, 13.129°N 61.191°W, 10-vi-2006, J. Wetterer # 155 (2 ♀ ♀ CWEM), Coulis Corner, 13.277°N 61.256°W, 1-vii-2006, J. Wetterer # 623 (1 ♀ CWEM), Georgetown, 13.279°N 61.117°W, 5-vii-2006, J. Wetterer # 688 (1 ♀ CWEM), Henrys Vale, 13.319°N 61.145°W, 30-vi-2006, J. Wetterer # 585 (1 ♀ CWEM), Kingston, 13.155°N 61.223°W, 3-vii-2006, J. Wetterer # 664 (2 ♀ ♀ CWEM), Orange Hill, 13.322°N 61.124°W, 2-vii-2006, J. Wetterer # 649 (1 ♀ CWEM), 13.165°N 61.180°W, 30-vi-2006, J. Wetterer # 594 (1 ♀ CWEM), Porter Point, 13.380°N 61.166°W, 2-vii-2006, J. Wetterer # 626 (1 ♀ CWEM), Prospect, 13.124°N 61.182°W, 4-vii-2006, J. Wetterer #'s 686, 687 (4 ♀ ♀ CWEM), Rabacca, 13.299°N 61.117°W, 6-vii-2006, J. Wetterer # 725 (1 ♀ CWEM), Sandy Bay, 13.364°N 61.136°W, 2-vii-2006, J. Wetterer # 645 (2 ♀ ♀ CWEM), Sans Souci, 13.296°N 61.126°W, 6-vii-2006, J. Wetterer # 721 (1 ♀ CWEM), Spring, 13.185°N 61.142°W, 30-vi-2006, J. Wetterer # 582 (1 ♀ CWEM). **SANTA LUCIA**, Beausejour, 7-vii-2006, J. Wetterer # 766 (1 ♀ CWEM), Canaries, 9-vii-2006, J. Wetterer # 811 (2 ♀ ♀ CWEM), Cap Estate, 12-vii-2006, J. Wetterer # 893 (2 ♀ ♀ CWEM), Dauphin waterfront, 12-vii-2006, J. Wetterer # 873 (1 ♀ CWEM), Dennery, 11-vii-2006, J. Wetterer #'s 842, 843 (3 ♀ ♀ CWEM), Dubrassay, 17-xi-2003, J. Wetterer # 59 (2 ♀ ♀ CWEM), Gros Islet, 12-vii-2006, J. Wetterer # 890 (1 ♀ CWEM), Marigot, 17-xi-2003, J. Wetterer # 62 (3 ♀ ♀ CWEM), Morne Caillandre, 10-vii-2006, J. Wetterer # 831 (1 ♀ CWEM), St. Urbain, 10-vii-2006, J. Wetterer # 827 (1 ♀ CWEM), Canaries, 9-vii-2006, J. Wetterer # 811 (2 ♀ ♀ CWEM), Union Nature trail, 7-vii-2006, J. Wetterer # 738 (3 ♀ ♀ CWEM). **VENEZUELA**, Bird I., West of Lesser Antilles, 13.v.66, Col. I. Proj. Staff (6 ♀ ♀ MCZC).

globularia – USA south to Brazil, Caribbean

***Solenopsis gnoma* Pacheco, Herrera & Mackay**

Figs. 106-110, Map 23

molesta species complex, *tenuis* subgroup*Solenopsis gnoma* Pacheco, Herrera & Mackay, 2007: 1075-1086 (♂ ♀) ECUADOR: Galapagos Islands**Diagnosis** (Modified from Pacheco et al. 2007).

Worker. The worker is bicolored, with a golden-brown body and brown gaster. The head is rectangular and is semi-coarsely punctated. The lateral clypeal teeth are well-developed and the extralateral teeth are angulate. The frontal lobes are weakly, vertically striated. The pronotum has semi-coarse punctation. The propodeal margin is rounded, lacking a defined dorsopropodeum. The petiole forms a triangular node viewed laterally.

Female. The female is minute (2 mm in total length) and is concolorous dark brown, with golden-brown appendages. The clypeal carinae are well defined and converge posteriorly. The frontal lobes are vertically striated. The medial ocellus is very small (0.03 mm). The metapleuron is horizontally striated. The petiole and postpetiole have roughened sculpturing.

Male. Unknown.

Worker Description.

Measurements (n=7). TL 1.08-1.20 (1.16); HL 0.330-0.360 (0.353); HW 0.300; EL 0.036; ED 0.030; SL 0.250-0.258 (0.255); FSL 0.102; CI 83.3-90.9 (85.2); SI 70.0-75.8 (72.3); PL 0.060-0.066 (0.061); PW 0.078-0.084 (0.081); PI 71.4-78.6 (75.9); PPL 0.084-0.090 (0.086); PPW 0.108-0.114 (0.109); PPI 77.9-78.9 (78.1); WL 0.240-0.270 (0.259); PSL 0.030; PSW 0.030.

Small, bicolored, golden-brown head, brown gaster; head rectangular, longer than wide, semi-coarsely punctated; lateral clypeal teeth well developed, extralateral teeth angulate; clypeal carinae well defined, converge posteriorly on clypeus; frontal lobes vertically striated (difficult to see); scapes reach $\frac{3}{4}$ length to posterior lateral corner of head, semi-coarsely punctate; minor funicular segments 3-8 short; eye small, black, 3-5 ommatidia; pronotum semi-coarsely punctate, mesopleuron smooth and shiny; metapleuron horizontally striated; propodeal spiracle small; posterior propodeal margin rounded, lacking defined dorsopropodeum; petiole forming triangular node, anterior and posterior face approximately 50 degree angles, lacking subpeduncular tooth; postpetiolar node semicircular viewed

Compare with
subtilis, sulfurea, tenuis

molesta complex

gnoma 171

laterally, wider than petiole and oval-shaped when viewed dorsally, lacking tooth ventrally; gaster semi-coarsely punctated.

Abundantly hairy, pilosity yellow; erect and suberect hairs of various lengths (0.03-0.09 mm) covering all body surfaces; long (0.072-0.09 mm) suberect hairs on first gastral tergum, curve posteriorly.

Female Description.

Measurements (n=3). TL 1.92-2.16 (2.08); HL 0.408-0.432 (0.420); HW 0.360; EL 0.120; ED 0.090-0.096 (0.094); MOL 0.030-0.036 (0.032); MOD 0.030-0.036 (0.032); SL 0.300; FSL 0.132; CI 83.3-88.2 (85.8); SI 69.4-73.5 (71.5); PSL 0.036-0.042 (0.038); PSW 0.030; PL 0.096-0.120 (0.108); PW 0.150; PI 64.0-80.0 (72.0); PPL 0.120-0.150 (0.130); PPW 0.174-0.180 (0.178); PPI 66.7-83.3 (72.9); WL 0.460-0.480 (0.473).

Small; concolorous dark brown with golden-brown appendages; head rectangular, longer than wide, sides nearly straight, posterior border nearly straight, semi-coarsely punctated; lateral clypeal teeth well developed, extralateral teeth angulate; clypeal carinae well defined; frontal lobes vertically striated; scape extends past medial ocellus; eyes small, black, extend 0.036 mm past lateral margin of head; ocelli minute, without pigment; mesosoma smooth and shiny; metapleuron horizontally striated; petiole and postpetiole with roughened sculpturing, both lacking tooth or flange ventrally, but with minute angle; first gastral tergum semi-coarsely punctated.

Abundantly hairy, pilosity light brown and yellow; erect and suberect hairs of various lengths (0.03-0.12 mm) covering all body surfaces; hairs on petiole and postpetiole longer (0.132 mm) than those on mesosoma, curve posteriorly; first tergum of gaster abundantly hairy with subsequent tergum nearly without any pilosity.

Biology and habitat. Females and workers of the type series were collected among a nest of *Tetramorium bicarinatum* in a rotten trunk. This species has also been found from as low as 170 m to 864 m at the top of Cerro Crocker (Crocker Hill) on Santa Cruz Island, between the Transition Zone and Humid Zone. It is common to find it foraging on rocks and on litter. It is most commonly found in humid places; nevertheless it has been found in dry localities like Albany, Bowditch South and Española Island.

Etymology. From Latin, *gnomus*, meaning diminutive fabled being, referring to the minute size of the worker and female of this species (a noun in apposition).

gnoma – Galápagos Islands

Distribution. Ecuador, Galápagos Islands, Albany; Bowditch South; Española; Floreana; Isabela and Santa Cruz, Bellavista (type locality).

Discussion (Modified from Pacheco et al. 2007). *Solenopsis gnoma* is one of three species of *Solenopsis* present on the Galápagos Islands and is apparently endemic. The other two species are *S. globularia*, a member of the former subgenus *Euophthalma* and *S. geminata*, a fire ant from the *geminata* species complex. Queens and workers of *S. gnoma* are small even within the minute thief ants of the genus and its small size easily distinguishes it. *Solenopsis gnoma* is monomorphic while *S. globularia* and *S. geminata* are both polymorphic. However, both the major and minor workers of both *S. globularia* and *S. geminata* are easily distinguished from *S. gnoma*.

Solenopsis globularia is distinguished by its greatly dilated, globose postpetiole. Additionally, the clypeal carinae are well developed with five teeth present on the anterior clypeal margin. The extralateral teeth are present as angles, the lateral teeth are well developed and a medial tooth is present as well. The workers have horizontal striae present on the mesopleuron as well as the metapleuron and this species varies in color from light to dark brown. The eyes are large, with 15-25 ommatidia. *Solenopsis globularia* is most often found on beaches under rocks or in logs.

Solenopsis geminata workers are considerably larger than both *S. gnoma* and *S. globularia*, with a head length ranging from 1.06-2.20 mm, a length often larger than the total length of the workers of *S. gnoma* and *S. globularia*. *Solenopsis geminata* is distinguished as both the minors and majors lack horizontal striae on the mesopleuron and metapleuron. The petiolar peduncle of the workers have a thin flange ventrally, a character lacking in both *S. globularia* and *S. gnoma*. Color is also variable within this species ranging from red-orange to dark brown (occasionally bicolored) (Trager 1991).

Trager (1991) states that the *S. geminata* found on the Galápagos is morphological identical to populations on the mainland, but are only smaller in size, similar to the western populations found in Colombia and Perú. *Solenopsis gnoma*'s size may be attributed to its insular isolation as seen with *S. geminata*.

Solenopsis gnoma is similar to *S. tenuis*, a species found in Colombia and Ecuador, but it is markedly smaller in total length in both the worker and female castes. *Solenopsis tenuis* has smaller cephalic punctures and less developed lateral clypeal teeth. *Solenopsis gnoma* is also similar to the mainland species *S. subtilis* and *S. sulfurea*. *Solenopsis gnoma* can be distinguished from *S. subtilis* (eastern part of South America) as it has an elongated clypeus while *S. subtilis* has a more compact clypeus. If a female is present in the series, the petiole and postpetiole are horizontally striated when viewed laterally for *S. subtilis* and with roughened

sculpturing for *S. gnoma*. *Solenopsis sulfurea* (also eastern part of South America) has an elongated clypeus as does *S. gnoma* but has weakly defined clypeal carinae; well-defined with *S. gnoma*. Additionally, *S. gnoma* has angulate extralateral teeth, while the extralateral teeth are absent with *S. sulfurea*. If a female of *S. sulfurea* is collected, it can be distinguished as it has a conspicuously elongated head with four well developed clypeal teeth.

Type series. Holotype ♀ (CDRS), Puerto Ayora, Santa Cruz-Galápagos (CASC # 104994), ECUADOR, Galápagos, Santa Cruz, Bellavista, 00°38'18.4" S, 090°25'44.6" W, 20-vii-2005, Colecta Manual, H. Herrera # HWH 137 (2 paratype ♂♂ CDRS and 1 ♀ CASC # 104995, 1 paratype ♀ and 2 paratype ♂♂ MCZC; 1 paratype ♀ and 2 paratype ♂♂ CWEM).

Material examined. ECUADOR, Galápagos, ALBANY, 17-21-viii-2000, A. Mieles (1 ♂ CDRS); BOWDITCH SOUTH, 27-vi-1999, M. Johnson (1 ♂ CDRS); ESPAÑOLA, 10-i-1998, Anónimo (1 ♂ CDRS); FLOREANA, Zona Agrícola, S01.1784020 W090.2663530, v-2003, tuna bait, L. Von Aesch (15 ♂♂ CDRS); ISABELA, S[ierra] N[egra], Pampa, ii-1986, Barrido, S. A[bedrabbo] (1 ♂ CDRS), SN, xii-1986, A. S. Barrido (104 ♂♂ CDRS), SN, Pampa, 06-12-ii-1987, P[itfall] T[rap], AS (19 ♂♂ CDRS), SN, Pampa, 16-18-ii-1987, Barrido, AS (8 ♂♂ CDRS), SN, Pampa, vi-1987, PT, AS. (8 ♂♂ CDRS), SN, Pampa, 13-25-vi-1987, PT, AS (7 ♂♂ CDRS), SN, Pampa, 23-ix-1987-04-x-1987, PT, AS (109 ♂♂ CDRS), SN, Pampa, 08-20-ix-1988, PT, AS (40 ♂♂ CDRS), SN, Pampa, 16-18-ix-1990, PT, AS (50 ♂♂, 1 ♀ CDRS); V[olcán] A[lcedo], 570m, 03-vi-1997, cebo mantequilla de maní, L. R[oque] (1 ♂ CDRS); VA, 850m, 06-vi-1997, cebo mantequilla de maní, RL (14 ♂♂ CDRS), VA, 900m, 13-v-2000, Litter, RL (46 ♂♂ CDRS), VA, 850m, cebo atún, RL (24 ♂♂ CDRS), VA, 1100m, 06-vi-1997, ex colectado en madera, RL (1 ♂, 1 ♀ CDRS), Zona Agrícola, 05-08-iv-2006, PT, B. Stoa (2 ♂♂ CDRS); SANTA CRUZ, Bellavista, Finca R. Mora, 150m, 12-xi-1992-22-i-1993, PT, M. Lasso (4 ♂♂ CDRS), Bellavista, Zona de transición, 180m, 00°38'18.4"S, 090°25'44.6"W, 02-i-2007, colecta manual, H. Herrera #HWH178 (1 ♂♂ CDRS); Cerro Crocker, cumbre, 16-vii-15-viii-1993, PT, SA (1 ♂ CDRS), L[os] G[emelos], 27-viii-1997, RL (1 ♂ CDRS); LG, 03-xi-1997, P. V[iteri] (13 ♂♂, 1 ♀ CDRS), LG, 04-xi-1997, ex in ferns, RL (4 ♂♂, 5 ♀ CDRS), LG, 04-xi-1997, ex in wood, RL (42 ♂♂ CDRS), LG, 04-xi-1997, ex in soil, RL (25 ♂♂ CDRS), LG, 08-xi-1997, VP. (5 ♂♂ CDRS); LG, Zona de Scalecia, 17-20-iv-2006, PT, B. S[toa] (13 ♂♂ CDRS); LG, Anónimo (5 ♀ CDRS); M[edia] L[una], 21-vi-1992, Berlese, J. P[alacios] (3 ♂♂ CDRS), ML, 630m, xii-1992, PT, PJ #369 (54 ♂♂, 1 ♀ CDRS); ML, Zona de Helechos, 19-v-

174 *gnoma*

molesta species complex

Compare with
subtilis, *sulfurea*, *tenuis*

2006, PT, SB (18 ♂♂ CDRS); Mirador, 11-vi-1992, Berlese, PJ #6.6. (1 ♂ CDRS); Picachos, 670m, vi-1992, PT, PJ (18 ♂♂, 1 ♀ CDRS); Transect Pto Ayora-Itabaca Z-Flank, 350m, 15-ii-01-iii-1986, PT, Baert L #'86-102pf (1 ♀ CDRS); 24-ii-1998, RL. Winkler (14 ♂♂ CDRS), Finca M. Arias, 16-vi-2005, Colecta Manual, H. Herrera #HWH137 (10 ♂♂ CDRS).

Compare with
westwoodi

pygmaea complex

goeldii 175

***Solenopsis goeldii* Forel**

Figs. 11, 111-115; Map 24

pygmaea species complex

Solenopsis goeldii Forel, 1912: 9-10 (♀ ♂) BRAZIL: Rio de Janeiro.

Diagnosis.

Worker. This is a tiny, pale yellow ant. It has coarse punctures on its head with hairs extended from each one giving it a speckled appearance. The lateral teeth are well developed and the extralateral teeth are absent. The head is quadrate and is longer than wide. The notopropodeal suture is weakly depressed and does not break the sculpture of the mesosoma.

Female. Unknown.

Male. The male is small and brown. The head is as wide as long. There are coarse punctures present on the medial and dorsal parts of the head. The anterior border of the clypeus is nearly straight and absent of teeth. The funicular segments are elongated.

Worker Description.

Measurements (n=3). TL 1.44; HL 0.390-0.402 (0.396); HW 0.306; EL 0.030; ED 0.024-0.030 (0.028); SL 0.245-0.270 (0.256); FSL 0.096; CI 76.1-78.5 (77.3); SI 62.8-67.2 (64.5); PL 0.090-0.096 (0.092); PW 0.108; PI 83.3-88.9 (85.2); PPL 0.090-0.096 (0.092); PPW 0.120-0.126 (0.124); PPI 71.4-76.2 (74.2); WL 0.300; PSL 0.024-0.030 (0.028); PSW 0.024-0.030 (0.026).

Small, concolorous yellow; cephalic punctures coarse; lateral clypeal teeth well developed, extralateral teeth absent; head rectangular, longer than wide; scape extends $\frac{3}{4}$ distance to posterior lateral corner of head; minor funicular segments 2-4 swollen, large; eyes small, contain 1-3 ommatidia; notopropodeal suture weakly depressed, does not break sculpture of mesosoma; petiole wider than postpetiole when seen in profile, rectangular in shape, petiole and postpetiole roughly equal in size when viewed dorsally, but petiole longer, postpetiole wider.

Hairs present on all body surfaces; head abundantly pilose, pilosity on head directed toward middle, hair missing in middle of head; scape abundantly hairy; all other body surfaces covered with pubescence and suberect hairs.

Male Description.

Measurements (n=1). TL 3.12; HL 0.420; HW 0.420; EL 0.240; ED 0.180; MOL 0.066; MOD 0.090; SL 0.120; FSL 0.960; CI 100; SI 28.57; PSL 0.066;

goeldii – Brazil: Rio de Janeiro

176 *goeldii*

pygmaea species complex

Compare with
westwoodi

PSW 0.072; PL 0.180; PW 0.210; PI 85.7; PPL 0.162; PPW 0.222; PPI 73.0; WL 0.480.

Small, concolorous brown; head as wide as long; coarse punctures present on medial and dorsal parts of head; anterior margin of clypeus nearly straight, absent of teeth; eyes large, extend past sides of head, from medial portion of head to ventral side towards mandibles; ocelli clear from coloration; antennae long, pale yellow in color; coarse punctures present on pronotum; notopropodeal suture well depressed, breaks sculpture of mesosoma; horizontal costulae present on propodeum; petiole wider than postpetiole when viewed laterally.

Hair present on all body surfaces; long, suberect hairs extend out of coarse punctures present on head and pronotum.

Biology and habitat. Unknown.

Locality. Brazil (Rio de Janeiro).

Discussion. The workers of *S. goeldii* may be confused with those of *S. westwoodi* (southeastern South America) based on the coarse cephalic punctures present in both species. However, *S. westwoodi* is a medium dark brown ant while *S. goeldii* pale yellow in coloration. Additionally, the extralateral teeth on *S. goeldii* are absent while *S. westwoodi* has conspicuous bumps present in their location.

Type series. *Solenopsis goeldii* Forel, Brazil, Rio de Janeiro, (lectotype ♀ (bottom specimen) [here designated], 2 paralectotype ♀♀ and 1 paralectotype ♂ MHNG).

Material examined. Type series.

goeldii – Brazil: Rio de Janeiro

Compare with
decipiens, *stricta*

stricta complex

hayemi 177

***Solenopsis hayemi* Forel**

Figs. 5, 116-117; Map 25

stricta species complex

Solenopsis hayemi Forel, 1908b: 45-46 (♀) COSTA RICA: El Hiquito near San Mateo

Solenopsis franki subsp. *idae* Forel, 1908a: 365-366 (♀) BRAZIL: São Paulo, São Paulo, Ipiranga, **NEW SYNONYM**

Diagnosis.

Worker. The worker of this relatively large species varies in coloration, from concolorous yellow to bicolored red and black. The sides of the head are convex with the posterior border nearly straight. The clypeal lateral teeth are poorly developed. It is easily recognized by the widely arched petiole (viewed laterally).

Female and Male. Unknown.

Worker Description.

Measurements (n=16). TL 1.74-2.28 (1.96); HL 0.480-0.570 (0.525); HW 0.390-0.522 (0.442); EL 0.048-0.066 (0.052); ED 0.033-0.048 (0.038); SL 0.330-0.420 (0.370); FSL 0.150-0.180 (0.164); CI 75.0-91.6 (84.1); SI 67.4-73.7 (70.5); PL 0.090-0.150 (0.120); PW 0.102-0.192 (0.119); PI 68.8-132.0 (103.0); PPL 0.090-0.132 (0.122); PPW 0.126-0.198 (0.146); PPI 60.6-95.7 (83.7); WL 0.360-0.480 (0.405); PSL 0.036-0.048 (0.041); PSW 0.030-0.042 (0.033).

Relatively large; bicolored, dark reddish-brown and black species (head and mesosoma red, gaster black) to concolorous yellow; eyes moderate sized with 3-4 ommatidia; lateral clypeal teeth poorly developed, extralateral teeth absent; sides of head convex and rounded, posterior border nearly straight; scape reaches approximately $\frac{3}{4}$ distance to posterior lateral corner of head; notopropodeal suture well depressed; petiole wide laterally, petiole and postpetiole about same height, petiole thickened yet less wide than postpetiole as viewed dorsally.

Hair fine, dispersed all over body surfaces, including gaster; second segment of club with few or no hairs; few erect long (up to 0.150 mm) hairs on mesosoma.

Biology and habitat. *Solenopsis hayemi* nests underground and was collected on the Pacific Coast in Costa Rica. This species was collected by surface and vegetation traps baited with Vienna sausage in a primary growth area in

hayemi – México south to Paraguay and Brazil

México and at tuna bait in Colombia. *Solenopsis hayemi* was also collected at 150 m by a malaise trap and at 900 m in the El Vintulo Forest in Colombia. This species was collected in humid subtropical medium forest foraging on low vegetation in Paraguay.

Distribution. México (Chiapas and Veracruz) south to Brazil (São Paulo) and Paraguay (Canindeyú).

Discussion. The worker of *S. hayemi* is very similar to the widely distributed *S. stricta*; the main difference between these two species is the form and size of the petiole viewed from above. The petiole of *S. hayemi* is consistently wider than that of *S. stricta* viewed from above. *Solenopsis hayemi* (Central and South America) can be confused with *S. decipiens* (South America) as well, but this latter species has more developed lateral clypeal teeth, with straighter lateral edges of the head and a narrower petiole compared to those features on *S. hayemi*. Upon comparison, *Solenopsis franki* r. *idae* is of similar form and coloration to *S. hayemi* and is considered a synonym.

Type series. *Solenopsis hayemi* Forel, Costa Rica, El Hiquito, S. Matto, Broffey (lectotype ♀ [here designated] #22615 MCZC). *Solenopsis franki* r. *idae* Forel, Brazil, São Paulo, Type (v. Ihering), #5578 (lectotype ♀ [here designated] and 5 paralectotype ♀♀ MHNG).

Material examined. Type series and **COLOMBIA**, Amazonas, PNN, Amacayacu, 3°41'S 70°15'W, 1-10-iii-2004, T. Pape & D. Arias M. 4324 (1 ♀ CWEM); Mpio Zarzal, El Vintulo Forest, 17-ix-1994, Rosa C. Aldena #17195 (6 ♀♀ CWEM). **MÉXICO**, Chiapas, 10 Km. S Palenque, 31-v-1988, W. Mackay #'s 10605, 10635, 10642 (9 ♀♀ CWEM); Veracruz, 13 Km. WNW El Potrero, 16-xii-1988, W. Mackay #17381 (8 ♀♀ CWEM). **PANAMÁ**, Panamá, Gatuncillo Canal Zone, Wheeler (4 ♀♀ MCZC). **PARAGUAY**, Canindeyú, Res. Mbaracayú, Karapá, 24.xi.2002, A. L. Wild #AW1713 (1 ♀ CWEM).

Compare with
picea

molesta complex

helena 179

***Solenopsis helena* Emery**

Figs. 118-121; Map 26

molesta species complex, *molesta* subgroup

Solenopsis helena Emery, 1895a: 14-15, figs. a, b (♂ ♀) CHILE: Santiago, Santa Rita

Solenopsis schmalzi Forel, 1901b: 297 (♀) BRAZIL: Santa Catarina, Joinville, **NEW SYNONYM**

Solenopsis schmalzi st. *flaveolens* Forel, 1901b: 298 (♂ ♂) BRAZIL: Santa Catarina, Joinville; Santschi, 1923: 255 (♀), **NEW SYNONYM**

Solenopsis hammari Mayr, 1903: 400-401 (♂ ♀) BRAZIL: São Paulo, São Paulo, Serra da Cantareira, **NEW SYNONYM**

Solenopsis hammari var. *carhuensis* Forel, 1912: 8 (♂) ARGENTINA: Buenos Aires, Carhué, **NEW SYNONYM**

Solenopsis helena subsp. *hermione* M. W. Wheeler, 1921: 157 (♂ ♀) GUIANA: Kartabo, **NEW SYNONYM**

Solenopsis helena subsp. *ultrix* W. M. Wheeler, 1921: 157 (♂ ♀) GUIANA: Kartabo, **NEW SYNONYM**

Diagnosis.

Worker. Workers are small specimens (total length ~1.6 mm), but with the minor segments of the antenna being 0.12 mm in length. The head is relatively elongated, with the sides convex. The eye is small (0.045 mm maximum diameter) and apparently composed of 3-5 ommatidia. The propodeal spiracle is nearly the same width as the eye (maximum diameter 0.042 mm). The color ranges from pale brown to yellow.

Female. The female is a moderately large, yellowish-brown specimen. The sides of the head are convex, the posterior margin is concave, the eyes are large (maximum diameter 0.180 mm), the scape nearly reaches the posterior margin (length 0.450 mm). The ocelli are small (maximum diameter of the median and lateral ocelli 0.060 mm), the distance between the median ocellus and the lateral ocellus is 0.070 mm. The propodeal spiracle is large at 0.102 mm in width. The petiole is narrow as seen in profile, with both the anterior and posterior faces being slightly concave.

Male. Not found.

helena – Panamá, Guiana, Chile, Argentina, Brazil

Worker Description.

Measurements (n=9). TL 1.44-1.68 (1.57); HL 0.402-0.462 (0.428); HW 0.348-0.402 (0.376); EL 0.030-0.048 (0.045); ED 0.024-0.036 (0.031); SL 0.288-0.372 (0.318); FSL 0.120-0.144 (0.129); CI 82.9-95.7 (88.9); SI 68.6-80.9 (74.2); PL 0.060-0.090 (0.079); PW 0.090-0.126 (0.109); PI 62.5-100 (73.4); PPL 0.072-0.150 (0.091); PPW 0.120-0.186 (0.145); PPI 54.2-80.7 (62.2); WL 0.300-0.390 (0.335); PSL 0.042; PSW 0.042.

Small; concolorous yellow; head longer than wide, sides convex, finely punctate; lateral clypeal teeth developed, extralateral teeth reduced to angles; scapes long, nearly reaching posterior lateral border of head, thin (0.036 mm at widest diameter); minor funicular segments 3-8 long; eye small, 3-5 ommatidia; pronotum finely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; notopropodeal suture well depressed, notch-shaped, groove breaks sculpture of mesosoma; propodeal spiracle large, nearly as large as eye; metapleuron horizontally striated; petiole wider than postpetiole when viewed laterally; anterior and posterior faces of petiolar node nearly straight, peduncle with small bump present ventrally; postpetiolar node thin, oval, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hair present on all body surfaces; head covered in erect and suberect hairs that protrude from small punctures; hairs on petiole and postpetiole curve posteriorly; gaster with abundant suberect hairs.

Female Description.

Measurements (n=1). TL 4.56; HL 0.660; HW 0.600; EL 0.234; ED 0.180; MOL 0.054; MOD 0.060; SL 0.450; FSL 0.240; CI 90.9; SI 68.2; PSL 0.102; PSW 0.102; PL 0.132; PW 0.252; PI 52.4; PPL 0.210; PPW 0.276; PPI 76.1; WL 1.02.

Moderately large; concolorous yellowish brown; head quadrate, longer than wide, sides convex, finely punctate; lateral clypeal teeth well developed, short, extralateral clypeal teeth represented by insignificant angles; eyes large; scape long, nearly reaches posterior margin; minor funicular segments 3-8 long; ocelli moderately small, distance between medial ocellus and lateral ocelli 0.070 mm; pronotum semi-coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; posterior propodeal margin rounded; propodeal spiracle large, round; metapleuron horizontally striated; petiole narrow viewed laterally, with both anterior and posterior faces being slightly concave; postpetiolar node semicircular.

Abundantly hairy, pilosity yellow; erect and suberect hairs abundant on most surfaces, many hairs long (0.050-0.100 mm).

Biology and habitat. Wheeler (1921) reported that numerous specimens of *S. helena hermione* were collected from several colonies found in petioles of young *Tachigalia* along the Cuyuni trail at Kartabo. He also stated that this species nests in hollow twigs of various other plants (not specified).

Distribution. Argentina, Brazil, Chile, Guiana, Panamá.

Discussion. *Solenopsis helena* is a widely dispersed, highly variable taxon and we are proposing many synonymies. *Solenopsis helena hermione* (both workers and females) differs only in being yellow, instead of the apparently “normal” pale brown color of this species and is synonymized. *Solenopsis hammari* is also proposed for synonymy as the females of both species are nearly identical in dimensions. The only differences are that the female of *S. hammari* is slightly darker brown in color and slightly smaller. *Solenopsis helena* var. *carhuensis* is a synonym of *S. hammari* and thus a synonym of *S. helena*. It is only more orange in color compared to the brownish yellow color of this ant. *Solenopsis schmalzi* is identical to *S. helena* and the variety *S. schmalzi flaveolens* is only slightly more yellow in coloration than the nominal form and both are synonymized. Wheeler (1921) mentions several characteristics for separating workers of *S. helena hermione* from those of *S. helena*, including a larger size, shorter head, with more rounded sides, the minor funicular segments are slightly longer, the propodeum is evenly convex and the apex of the petiole is not as thick in profile. He described the female as being yellow in color, like the worker, instead of pale brown, with darker areas near the ocelli and on each gastral segment. The characteristics listed for the worker are either insignificant or are not consistent and a comparison of the female types show them to differ only slightly in color, with the only major difference being that those of *S. hermione* are slightly smaller. There is little doubt that they are conspecific.

The female of *S. helena* is very similar to the females of *S. ultrix* and *S. hermione*. The only difference is the shape of the petiole, with both faces being concave in the nominal and the posterior faces of the petioles of the other two species convex. These characters are poor and offer further support for synonymy. The female of *S. helena* is larger than that of *S. hermione* (total length 2.75 mm) and smaller than that of *S. ultrix* (total length 4.84 mm). *Solenopsis helena hermione* differs in that the female is slightly smaller and lighter in color, but appears to be conspecific. Wheeler (1921) also compared *S. helena ultrix* to *S. helena*. The workers are described as having a broader head with more rounded sides and posterior corners, with the posterior margin being straight or even slightly convex. The antennal scapes are distinguished as being longer and the overall color darker. The female is described as being larger and darker than that of *S. helena hermione*. The propodeum is described as being more rounded than in the typical *S.*

helena – Panamá, Guiana, Chile, Argentina, Brazil

helena. The workers are darker than that of the typical *S. helena*, but color appears to be variable in this species and many other specimens are nearly as dark. The shape of the head appears to be a little significance. The scape of the worker is slightly longer (0.30 mm, vs. 0.28 mm in most other workers), but does not appear to be sufficient to separate *S. helena ultrix* from the others. The female of *S. helena ultrix* is larger than that of *S. helena hermione*, but the paralectotype is approximately the same size as the types of *S. helena*. Thus this subspecies is not recognized and is also proposed as a synonym.

Solenopsis helena could be easily confused with the widely distributed *S. picea*, but can be separated on the basis of color (much lighter in color than *S. picea*) and by having a smaller propodeal spiracle (propodeal spiracle of *S. picea* is larger in diameter than the diameter of the eye).

Type series. *Solenopsis hammari* Mayr, Sta Rita 25, 17-i-95, Latasti Chili. Cantarera, b. São Paulo Coll. G. Mayr (lectotype ♀, 3 paralectotype ♀♀ MCSN). *Solenopsis hammari* Mayr v. *carhuensis* Forel, Argentina, Buenos Aires, (Coll. A. Forel (There are four specimens mounted together, the third is the lectotype ♀, the top two are paralectotype ♀♀ and the fourth is an arachnid MHNG). *Solenopsis helena hermione* Wheeler, Guiana, Kartabo (lectotype ♀, 4 paralectotype ♀♀ and 1 paralectotype ♀ MCZC). *Solenopsis helena ultrix* Wheeler, Guiana, Kartabo, B.G. Jul, Aug. 1920, W.M. Wheeler Collection, M.C.Z. Cotype 23318, Typus 11 L (1 ♀ and 5 ♀♀ cotypes MCZC).

Material examined. Type series and PANAMÁ, Panamá, Frijoles Canal Zone (3 ♀♀ MCZC). PARAGUAY, Itapua, San Benito, 29-x-1982, V. Manhart, (2 ♀♀ MCZC). Snelling and Hunt (1975) list additional localities from Chile.

Compare with
bicolor, *wasmannii*

wasmannii complex

iheringi 183

***Solenopsis iheringi* Forel**

Figs. 4, 122-125; Map 27

wasmannii species complex

Solenopsis iheringi Forel, 1908a: 362-363 (♀ ♂) BRAZIL: São Paulo, Raiz da Serra [Sometimes misspelled as *jheringi*, for example Kempf, 1972: 237]

Diagnosis.

Minor worker. This is a bicolored species with a brownish-yellow body and a brown gaster. The lateral and extralateral clypeal teeth are absent. The clypeal carinae extend from the anterior border up around the scape insertion and bend medially back toward the clypeal border, forming a large socket, which does not touch the clypeal margin.

Major worker. The major is extremely similar to that of *Solenopsis wasmannii*. It is a fairly large ant with a reddish-brown body and a yellowish gaster. There are five defined teeth on the anterior margin of the clypeus (with a medial tooth present). The clypeal carinae extend posteriorly between the antennal sockets. The frontal lobes contain vertical striae and cover the antennal insertion. The eyes are moderately large with about ten ommatidia. The mesosoma is coarsely punctated.

Female. Unknown.

Male. Not seen.

Minor Worker Description.

Measurements (n=5). TL 1.98-2.16 (2.09); HL 0.528-0.600 (0.571); HW 0.480-0.528 (0.500); EL 0.054-0.060 (0.058); ED 0.048-0.540 (0.148); SL 0.318-0.378 (0.343); FSL 0.126-0.156 (0.143); CI 83.7-90.9 (87.7); SI 56.7-63.0 (60.1); PL 0.078-0.108 (0.102); PW 0.150-0.210 (0.189); PI 51.4-58.1 (53.8); PPL 0.150-0.162 (0.152); PPW 0.174-0.222 (0.206); PPI 67.6-86.2 (74.5); WL 0.390-0.480 (0.451); PSL 0.054; PSW 0.048.

Bicolored, brownish-yellow body, brown gaster; all clypeal teeth absent; clypeal carinae extend from anterior border posteriorly to scape insertion and bend medially back toward anterior clypeal border, forming socket, but do not touch anterior clypeal margin; scape does not reach posterior lateral border of head; minor funicular segments 2-4 slightly swollen; head nearly quadrate; eyes moderately large (approximately seven ommatidia); notopropodeal suture well depressed, groove breaks sculpture of mesosoma; propodeum quadrate, posterior

iheringi – Brazil, Paraguay

propodeal margin angular; petiole and postpetiole thick, with later being slightly thinner when viewed laterally.

Hairy, long erect and suberect hairs present on most body surfaces.

Major Worker Description.

Measurements (n=1). TL 3.24; HL 0.900; HW 0.900; EL 0.108; ED 0.06; SL 0.48; FSL 0.234; CI 100; SI 53.33; PL 0.132; PW 0.348; PI 37.9; PPL 0.240; PPW 0.366; PPI 65.6; WL 0.720; PSL 0.078; PSW 0.060.

Large; bicolored, reddish-brown body, yellowish gaster; five well defined clypeal teeth (with medial tooth present); clypeal carinae extend posteriorly, end between antennal sockets; frontal lobes contain vertical striae and cover antennal insertions; head subquadrate, rounded posteriorly, coarsely punctate, with medial emargination; scapes short, thick, only reach halfway to posterior of head; eyes moderately large with approximately ten ommatidia; mesosoma coarsely punctate, especially pronotum; notopropodeal suture depressed; groove breaks sculpture of mesosoma giving well defined separation between mesonotum and propodeum; fine horizontal striae just below propodeal spiracle, which is large and circular; propodeum angulate posteriorly; petiole, postpetiole coarsely punctate with postpetiole slightly wider in profile; anterior and posterior faces of petiole nearly parallel forming slender node; subpeduncular process lacks tooth, but bump present; postpetiole circular in profile; petiole and postpetiole nearly equal in width in dorsal view; first tergite of gaster coarsely punctate.

Abundant hair on all body surfaces; majority of body hair erect to suberect and nearly uniform in length on all body structures; most pilosity arising from coarse punctures present from head to first tergite of gaster.

Biology and habitat. This species was collected in a humid sub-tropical tall forest edge foraging on the ground in Paraguay.

Distribution. Brazil, Paraguay.

Discussion. *Solenopsis iheringi* is one of few species of thief ant that is dimorphic. The minor of *S. iheringi* may be confused with the workers of *S. bicolor* (Central and South America), but can be distinguished as the clypeal carinae do not reach the anterior clypeal margin in *S. iheringi*, but do so in *S. bicolor*. Moreover, *S. bicolor* has longer hairs on the dorsum of the head and mesosoma. The major worker is very similar to that of *S. wasmannii* (southern half of South America), especially the intermediate workers of the polymorphic species *S. wasmannii*. If one has a complete series, this species is easily identified based on

Compare with
picea

molesta complex

helena 185

the lack of teeth on the anterior clypeal borders of the minors of *S. iheringi*, which are present in minors of *S. wasmannii*.

Type series. *Solenopsis iheringi* Forel, Brazil, São Paulo, Typus, 2306 (Ihering) (lectotype ♀ and 1 paralectotype ♂ [here designated] top one pinned, MHNG).

Material examined. Type series and **PARAGUAY, Canindeyú**, Res. Nat. Bosque Mbaracayu Jejuimi, 24°06'S 55°30'W, 19-ix-1996, A. Wild #AW0302 (1 ♀ CWEM); **Concepción**, Puerto Max, 19-ix-1979 (3 ♀ ♀ CWEM), J-L-Perret. Isla Real, 20-x-1979 (3 ♀, CWEM), J. Mahnert. Misiones, San Juan Bautista, 14-x-1982 (3 ♀ ♀ CWEM), MCD Desset. Neembucu Pilar, 18-x-1982 (3 ♀ ♀ CWEM), J-L-Perret. Paraguari 15 km E Cerrito, 12-x-1982, J-L-Perret (3 ♀ ♀ CWEM).

iheringi –Brazil, Paraguay

***Solenopsis impolita* Moreno, Mackay & Pacheco,
NEW SPECIES**

Figs. 126-127; Map 28

pygmaea species complex

Diagnosis.

Worker. The workers are small and concolorous pale yellow in color. The head is coarsely punctate with an eye of one ommatidium. The lateral clypeal teeth are short, but well developed and the extralateral teeth are absent. The scape is short at 0.240 mm in total length. The sculpture of this ant is smooth and it has little pilosity on body surfaces.

Female and Male. Unknown.

Worker Description.

Measurements (n=2). TL 1.26; HL 0.384-0.390 (0.387); HW 0.300-0.330 (0.315); EL 0.012; ED 0.012; SL 0.240; FSL 0.090; CI 76.9-85.9 (81.4); SI 61.5-62.5 (62.0); PL 0.060-0.066 (0.063); PW 0.090; PI 66.7-73.3 (70.0); PPL 0.078-0.084 (0.081); PPW 0.102; PPI 76.5-82.4 (79.4); WL 0.240-0.288 (0.264); PSL 0.018; PSW 0.018.

Small; concolorous pale yellow, translucent throughout body; head quadrate, longer than wide, coarsely punctate, sides of head convex; lateral clypeal teeth short, well developed; extralateral teeth absent; clypeal carinae weakly defined; eyes small, one ommatidium; scape short, extends slightly more than $\frac{2}{3}$ distance to posterior lateral corner of head; minor funicular segments 3-8 short; mesosoma smooth and shiny; posterior propodeal margin rounded viewed laterally; propodeal spiracle small, round; petiole wider than postpetiole viewed laterally; petiolar node triangular, round, petiolar peduncle lacking tooth or flange ventrally; postpetiolar node small, semicircular, lacking tooth or flange ventrally.

Nearly devoid of pilosity, with few hairs present throughout body.

Biology and habitat. Unknown.

Etymology. From Latin, *impolitus*, meaning rough or unpolished referring to the milky, translucent appearance of the cuticle.

Locality. Known from the type locality in Texas, USA.

impolita – USA: Texas

Compare with
tennesseensis

pygmaea complex

impolita 187

Discussion. *Solenopsis impolita* is unique in the *pygmaea* species complex. It is easily recognized in that the workers have only one ommatidium and are nearly devoid of pilosity. Additionally, it is one of few species that is completely smooth, lacking even horizontal striae on the metapleuron; a trait found in nearly all species.

Type series. *Solenopsis impolita* (holotype ♀ MCZC and 1 paratype ♀ CWEM), USA, Texas, Bandera Co., W. Bandera, 30-vii-1963, B. Pullen.

impolita – USA: Texas

***Solenopsis isopilis* Pacheco & Mackay, NEW SPECIES**

Figs. 128-129; Map 29

pygmaea species complex**Diagnosis.**

Worker. The workers are small and yellowish-brown with an elongate head, which is covered with coarse punctures. The erect hairs on the dorsum of the head and dorsum of the gaster are about equal in length and are usually very dense, especially on the dorsum of the gaster. The eye is small and the same color as the remainder of the head, but is well defined, although individual ommatidia cannot be distinguished. The minor segments of the funiculus are short, in total only slightly longer than the shortest segment of the antennal club. The gaster is noticeably long compared to the mesosoma.

Female and Male. Unknown.

Worker Description.

Measurements (n=6). TL 0.960-1.08 (1.05); HL 0.300-0.318 (0.312); HW 0.228-0.240 (0.232); EL 0.012-0.018 (0.017); ED 0.012-0.018 (0.017); SL 0.156-0.174 (0.165); FSL 0.060-0.066 (0.061); CI 71.7-78.4 (74.4); SI 50.9-56.0 (52.9); PL 0.060-0.072 (0.065); PW 0.066-0.078 (0.071); PI 90.9-92.3 (91.5); PPL 0.072-0.078 (0.075); PPW 0.078-0.084 (0.081); PPI 92.3-92.9 (92.6); WL 0.204-0.210 (0.209); PSL 0.012; PSW 0.012.

Small, concolorous yellowish-brown; all surfaces with glossy appearance, head and mesosoma with scattered, coarse punctures; head elongate, posterior margin slightly concave, covered with coarse punctures; clypeal carinae and lateral teeth well developed; eye small, same color as remainder of head, but well defined; minor segments of funiculus short, only slightly longer than shortest segment of antennal club; scape extends slightly more than half distance to posterior lateral corners of head; mesopleuron and metapleuron smooth and glossy; posterior propodeal margin rounded, spiracle small; petiole wider than postpetiole when viewed laterally; gaster elongated.

Erect hairs on dorsum of head and gaster approximately equal in length, usually very dense, especially on dorsum of gaster; erect hairs on dorsum of head abundant (0.020 mm in length), nearly equal in length, pronotum with approximately 10 erect hairs (0.030 mm in length), hairs on remainder of mesosoma, petiole and postpetiole similar, erect hairs on dorsum of gaster approximately equal in length (0.020 mm).

isopilis – México: Veracruz

Compare with *pygmaea* complex
pygmaea, *minutissima*, *subterranea*

isopilis 189

Biology and habitat. The type series was collected in a selva mediana subperennifolia (medium, sub perennial rain forest) in a subterranean trap at 0 meters in elevation.

Etymology. From Greek, *isos*, meaning equal and *pilos* meaning hair, referring to the numerous hairs on the gaster, which are equal in length.

Locality. Known only from the type locality of Veracruz, México.

Discussion. The erect hairs of equal lengths on the dorsum of the gaster would separate this species from most of the others of the *pygmaea* complex, except for *S. minutissima* (Argentina), *S. pygmaea* (México and Caribbean) and *S. subterranea* (southern USA to northern South America). It can be easily separated from *S. pygmaea* and *S. subterranea* by having few erect hairs on the dorsum of the propodeum (when viewed in profile). The well-defined eyes would separate it from *S. minutissima*.

Type series. Holotype ♀ (MCZC) and 15 paratype ♀♀ (CWEM, IEMJ, LACM, MCZC, USNM), MÉXICO, Res. Ecol. “La Mancha”, junio 1991, Col. P. Rojas.

***Solenopsis joergenseni* Santschi**

Figs. 130-131; Map 30

molesta species complex, *molesta* subgroup*Solenopsis joergenseni* Santschi, 1919: 42 (♂) ARGENTINA: Formosa.*Solenopsis trihasta* Santschi, 1923: 252-253, Fig. 2 (♂) ARGENTINA: Córdoba, Alta Gracia, **NEW SYNONYM***Solenopsis joergenseni* var. *cuspsior* Santschi, 1923: 254 (♂) ARGENTINA: Córdoba, La Granja, **NEW SYNONYM***Solenopsis (Diplorhoptrum) joergenseni* var. *edentula* Santschi, 1933e: 115 (♂) ARGENTINA: Chaco, Charata, **NEW SYNONYM****Diagnosis.**

Worker. This is a moderately large concolorous yellow species. The head is rectangular-shaped and longer than wide. The anterior clypeal border generally has four teeth, with a medial bump present in some specimens giving the appearance of a 5th tooth. The eye is relatively large with 8-10 ommatidia. The basal portion of the mesopleuron and metapleuron have horizontal striae.

Female and Male. Unknown.

Worker Description.

Measurements (n=9). TL 1.80-2.16 (1.94); HL 0.528-0.576 (0.550); HW 0.420-0.480 (0.461); EL 0.060-0.072 (0.065); ED 0.042-0.048 (0.046); SL 0.318-0.390 (0.361); FSL 0.150-0.198 (0.175); CI 79.5-88.9 (83.9); SI 55.8-70.0 (65.6); PL 0.090-0.102 (0.101); PW 0.144-0.162 (0.155); PI 62.5-68.0 (64.9); PPL 0.120-0.150 (0.143); PPW 0.180-0.198 (0.187); PPI 66.7-83.3 (76.5); WL 0.360-0.438 (0.415); PSL 0.036-0.042 (0.039); PSW 0.036-0.042 (0.038).

Concolorous yellow species; head quadrate, longer than wide; anterior clypeal border with four teeth (some specimens with medial bump), lateral well developed, extralateral teeth present as angles or bumps; clypeal carinae well developed; cephalic punctures fine; eye relatively large with 8-10 ommatidia; scape reaches $\frac{3}{4}$ length to posterior lateral corner of head; funicular segments long; metanotal groove breaks sculpture of mesosoma; horizontal striae present basally on mesopleuron; horizontal striae present on metapleuron; propodeal spiracle small; petiole wider than postpetiole viewed laterally; postpetiole oval in profile.

Compare with
clytemnestra, *orestes*

molesta complex

joergenseni 191

Moderately hairy with setae on all body surfaces; long suberect hairs present basally on scape; erect and suberect hairs of various lengths present on mesosoma, petiole, postpetiole and gaster.

Biology and habitat. *Solenopsis joergenseni* was collected under a rock as well as with surface baits (wieners) in Mato Grosso, Brazil. Additionally, this species was collected in leaf litter and foraging in the Humid Chaco in Paraguay.

Distribution. Known from Argentina, Paraguay and Brazil.

Discussion. Santschi (1923) states that *S. joergenseni* variety *cuspsior* differs from the nominal in that it has a median tooth between the lateral teeth on the anterior clypeal margin. The median tooth is present in some specimens of the type series of the nominal and this trait is insignificant. Additionally, Santschi (1923) states minute differences on the antennae and clypeus such as “longer last segments or more obtuse angle than the type,” that are variable traits within this species and not significant and thus the variety *cuspsior* is not recognized. Santschi (1923) described the species *S. trihastata*, which is identical in color, form and geography to *S. joergenseni*, which is simonized. Santschi (1933) states that the only difference the variety *edentula* has from the nominal is a more elongate and narrower head. Once again these are variable characters and this variety is not recognized.

Solenopsis joergenseni is similar to the widely distributed *S. clytemnestra* in coloration, form and both species have large propodeal spiracles. *Solenopsis joergenseni* can be separated in that it has horizontal striae present on both the meso- and metapleurae, a character only present on the metapleuron of *S. clytemnestra*. *Solenopsis joergenseni* may also be confused with *S. orestes* (Brazil and Argentina) as it is similar in pilosity and number of ommatidia, but can be distinguished from *S. orestes* as the head of this species is nearly quadrate while it is rectangular in *S. joergenseni*. Additionally, *S. orestes* lacks horizontal striae on the mesopleuron.

Type series. *Solenopsis joergenseni* Santschi, Argentina, Formosa, Santschi, 990, Sammlung, Dr. F. Santschi Kairouan (lectotype ♀ and 4 paralectotype ♀♀ [here designated], NHMB); *Solenopsis joergenseni* Santschi 1921, BRAZIL, ill. G. Pizefora (Pirapora?), M.C.Z. Type, 2-4 20946 (E. Gorbe) (3 ♀♀ MCZC); *Solenopsis joergenseni* Santschi, Wm. M. Wheeler, M.C.Z. Type, 1 20946. (MCZC). *Solenopsis trihastata* Santschi, Argentina, Córdoba, M.C.Z. 1-20948, Santschi 1928 (lectotype ♀ [here designated] MCZC). *Solenopsis joergenseni* var. *cuspsior* Santschi, Argentina, Córdoba, La Granja, Sammlung, Dr. F. Santschi Kairouan (lectotype ♀ [here designated], NHMB). *Solenopsis* (*Diplor-joergenseni* – Argentina, Paraguay and Brazil

192 *joergenseni*

molesta species complex

Compare with
clytemnestra, *orestes*

hoptrum) *joergenseni* var. *endentula* Santschi, Argentina, Charrata Chaco. Bosq., Sammlung, Dr. F. Santschi Kairouan (lectotype ♀ and 1 paralectotype ♀ [here designated], NHMB).

Material examined. Type series and **BRAZIL, Mato Grosso do Sul**, 50 K NW Miranda, 18-x-1989, W.P. Mackay #12639 (1 ♀ CWEM); 3 K W Terenos, 17-x-1989, W.P. Mackay #12580 (5 ♀♀ CWEM); Rio Varadouri, 19-x-1989, W.P. Mackay #12709 (2 ♀♀ CWEM). **PARAGUAY, Concepcion**, Puerto Max, 19-x-1979, J-L Perret (2 ♀♀ CWEM); **Pte. Hayes**, Montelindo, 23°52'S 58°28'W, 16-xi-1993, B. Garcete #AW0476, Ruta Trans Chaco, 24°55'S 057°38'W, 3-xii-2002, A. L. Wild & E. Chavez #AW1730A (1 ♀ CWEM).

joergenseni – Argentina, Paraguay and Brazil

Compare with
melina

fugax complex

johnsoni 193

***Solenopsis johnsoni* Pacheco, Mackay & Moreno,
NEW SPECIES**

Figs. 132-137; Map 31

fugax species complex

Diagnosis.

Minor and *major worker*. These ants are light yellow in color and are characterized by quadrate heads and with erect and suberect hairs on all body surfaces. The lateral clypeal teeth are well developed and the extralateral teeth are present, but not as sharp. The scapes are relatively long (0.370 mm in the major, 0.300 mm in the minor), the minor segments of the antennae are relatively long (total length 0.16 mm in the major, 0.12 mm in the minor).

Female. The gyne is a solid dark yellow color, large, very hairy and with very coarse punctures. The hairs are the same length (0.15 mm) throughout the body. It has medium sized eyes (maximum diameter 0.12 mm) and a moderately small ocellus (0.09 mm).

Male. Unknown.

Minor Worker Description.

Measurements (n=2). TL 1.44; HL 0.420-0.444 (0.432); HW 0.360-0.384 (0.372); EL 0.030; ED 0.024-0.030 (0.027); SL 0.300; FSL 0.120-0.132 (0.126); CI 85.7-86.5 (86.1); SI 67.6-71.4 (69.5); PL 0.084-0.090 (0.087); PW 0.120-0.126 (0.123); PI 66.7-75.0 (70.8); PPL 0.108; PPW 0.126-0.138 (0.132); PPI 78.3-85.7 (81.9); WL 0.306-0.318 (0.312); PSL 0.030-0.036 (0.033); PSW 0.030.

Small; concolorous pale yellow; head quadrate, slightly longer than wide, sides of head straight, posterior border slightly concave; lateral clypeal teeth well developed, medial tooth absent, extralateral teeth small, angulate; clypeal carinae well defined; scape extends slightly more than $\frac{2}{3}$ length of head; eye small, brown, at least three ommatidia; pronotum and mesopleuron smooth and shiny; lower mesopleural region slightly horizontally striated; petiole arched, peduncle with well-developed tooth ventrally; postpetiole oval, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; hairs of various lengths (~0.030-0.150 mm), erect and suberect hairs on head, antennae hairy, scape with few suberect hairs, pronotal erect hairs projecting above outline viewed laterally, mesonotum with erect hairs (0.12mm) above profile; all hairs pointing in different directions.

johnsoni – México: Baja California

Major Worker Description.

Measurements (n=4). TL 1.92-2.52 (2.24); HL 0.540-0.624 (0.591); HW 0.480-0.570 (0.525); EL 0.036-0.042 (0.041); ED 0.030-0.036 (0.035); SL 0.360-0.420 (0.386); FSL 0.162-0.198 (0.177); CI 85.0-91.3 (88.8); SI 60.0-67.3 (65.2); PL 0.120; PW 0.156-0.186 (0.171); PI 64.5-76.9 (70.5); PPL 0.150; PPW 0.168-0.198 (0.185); PPI 75.8-89.3 (81.8); WL 0.390-0.480 (0.439); PSL 0.036-0.048 (0.041); PSW 0.036-0.042 (0.038).

Moderately large; concolorous honey yellow; head longer than wide, sides convex; lateral clypeal teeth well developed; extralateral teeth angulate; clypeal carinae well defined; frontal lobes vertically striated; eyes small, 3-5 ommatidia; scapes long, reaching $\frac{3}{4}$ length of head; minor funicular segments 3-8 long; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; propodeal spiracle small; metapleuron horizontally striated; petiolar node triangular, round, peduncle with well-developed tooth ventrally; postpetiolar robust, semicircular, lacking tooth or flange ventrally.

Abundantly hairy, erect and suberect hairs of various lengths covering all body surfaces; most hairs long (0.120-0.150 mm).

Female Description.

Measurements (n=3). TL 5.40-5.88 (5.64); HL 0.780-0.804 (0.794); HW 0.816-0.840 (0.832); EL 0.270-0.282 (0.278); ED 0.210-0.228 (0.220); MOL 0.072-0.078 (0.076); MOD 0.084-0.090 (0.086); SL 0.558-0.570 (0.562); FSL 0.300-0.330 (0.320); CI 104-105 (104); SI 69.4-71.5 (70.8); PSL 0.084-0.096 (0.090); PSW 0.066-0.084 (0.072); PL 0.144-0.150 (0.146); PW 0.378-0.390 (0.384); PI 36.9-39.1 (38.0); PPL 0.300; PPW 0.360; PPI 83.3; WL 1.32-1.44 (1.38).

Large; concolorous dark yellow; head quadrate, coarsely punctate; lateral clypeal teeth well developed; extralateral teeth small, well developed; clypeal carinae well defined; frontal lobes vertically striated, with striae extending up dorsum of head to medial ocellus; scapes long, coarsely punctate, reaching $\frac{3}{4}$ length of head; minor funicular segments 3-8 long; eyes black, large; medial ocellus moderately small, round; mesosoma coarsely punctate; mesopleuron horizontally striated; petiolar peduncle with flange ventrally.

Abundantly hairy, pilosity yellow; most hairs arising from coarse punctures, most hairs long (0.180-0.210 mm) on all body surfaces.

Etymology. Named to honor our friend and fellow myrmecologist, Dr. Robert Johnson, who collected the type series, as well as a large number of other interesting species.

Compare with
melina

fugax complex

johnsoni 195

Biology and habitat. *Solenopsis johnsoni* nests under stones. Nests are polygynous (>4 queens in type series). The specimens from Sierra Juárez locality were on a thistle in a grass meadow. We collected a nest under a stone in the state of México in May that had a number of males. It was in a grassy area full of weeds next to the road. It was hazy and rained the previous night. The soil was a brown rocky loam with good drainage and the soil was wet.

Locality. México (Baja California Sur, México).

Discussion. There are very few dimorphic species of thief ants. *Solenopsis johnsoni* is the only such species that we found in North America. It is easily recognized by its large size, coarsely punctate head and large ventral tooth present on the subpeduncular process.

The minor worker is nearly identical to the worker of *S. melina*. They can be separated as the subpeduncular process of *S. johnsoni* is in the form of a tooth, but is more of a flange in *S. melina*. The dorsum of the head (as seen in side view) of the minor worker of *S. johnsoni* generally has fewer than 10 erect hairs, whereas the head of the worker of *S. melina* in the same view has more than 20 erect hairs.

The female is easily recognized as it has striae extending from the frontal lobes to the medial ocellus and is coarsely punctate on all body surfaces, including the scapes, mesosoma, petiole, postpetiole, in addition to the dorsum of the head. It can be easily separated from the female of *S. melina* as it is much larger (total length > 5 mm) as compared to the smaller *S. melina* female (TL<5 mm).

Type series. Holotype 2♂ (MCZC), 11 paratype 2♂ ♀ and 3 paratype ♀ ♀, (CWEM, LACM, MCZC, CASC, IEMJ, RAJC). **MEXICO, Baja California Sur**, 0.4 mi Sierra San Francisco, 3610 feet, 26-i-1995, R Johnson #BCS 1201.

Material examined. Type series and **MEXICO, Baja California**, 4.0 mi N Laguna Hanson, 32°6'33"N 115°55'44", 5340 feet, 21-v-2000, R. Johnson # 2061 (4 ♀ ♀ CWEM, Johnson Collection, Clark Collection, MCZC); **México**, 3 km E San Nicolás, 26-v-1988, W. Mackay #10377 (10 2♂♂, 1 ♀, 23 ♂ CWEM).

johnsoni – México: Baja California

196 *krockowi*

fugax complex

Compare with

johnsoni, molesta, pergandei, pilosula

***Solenopsis krockowi* Wheeler**

Figs. 138-141; Map 32

fugax species complex

Solenopsis krockowi Wheeler, 1908b: 428-430, Plate 26, Figs. 28, 29 (♂ ♀) USA:
New Mexico, Sacramento Mountains, Box Cañon

Diagnosis.

Worker. This is a relatively large, bright yellow species, with coarse cephalic punctures. The head is nearly quadrate, a little longer than wide. The clypeal teeth are widely spaced, with a distance of about 0.100 mm between the tips of the teeth. The extralateral teeth are often well developed. It has a large, extended subpeduncular process; the postpetiole is oval-shaped as seen from above and has a large flange ventrally.

Female. The female is very large, over 7 mm in total length. It is golden yellow with the head wider than long and coarsely punctate. Four clypeal teeth are present and well developed, while the clypeal carinae are weakly defined. The pronotum is coarsely punctate and horizontal striae are present on the metapleuron.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 2.22-2.34 (2.29); HL 0.564-0.600 (0.575); HW 0.510-0.570 (0.533); EL 0.060-0.066 (0.062); ED 0.042; SL 0.396-0.444 (0.412); FSL 0.186-0.198 (0.191); CI 90.4-95.0 (92.7); SI 70.2-74.0 (71.6); PL 0.102-0.120 (0.106); PW 0.168-0.180 (0.170); PI 60.7-66.7 (61.9); PPL 0.132-0.150 (0.137); PPW 0.174-0.192 (0.180); PPI 73.3-79.3 (75.9); WL 0.420-0.480 (0.443); PSL 0.042-0.048 (0.044); PSW 0.042-0.048 (0.043).

Moderately large, concolorous yellow; head longer than wide, coarsely punctate; clypeal lateral teeth widely spaced, distance of 0.10 mm between tips of teeth; extralateral teeth often well developed; clypeal carinae well defined; eyes small, 5-6 ommatidia; mesosoma smooth and shiny, pronotum with coarse punctures; notopropodeal suture well depressed; posterior propodeal margin rounded; propodeal spiracle large; extended subpeduncular process large; petiole oval-shaped viewed dorsally, with large flange at subpeduncular process; postpetiolar node globose, without flange or tooth ventrally.

krockowi – USA (Arizona, New Mexico), México (San Luis Potosí)

Compare with
johnsoni, *molesta*, *pergandei*, *pilosula*

molesta complex

krockowi 197

Hairy with erect and suberect hairs of various lengths on all body surfaces; cephalic hairs short, central portion of head without hair; hairs on remainder of body, including petiole and postpetiole, mixture of long (0.070 mm) and short (0.040 mm) hairs.

Female Description.

Measurements (n=1). TL 7.32; HL 0.990; HW 1.02; EL 0.360; ED; 0.252; MOL 0.114; MOD 0.108; SL 0.720; FSL 0.540; CI 102; SI 35.3; PSL 0.120; PSW 0.090; PL 0.138; PW 0.420; PI 32.9; PPL 0.360; PPW 0.480; PPI 75.0; WL 1.80.

Very large, concolorous golden yellow; head quadrate, slightly wider than long, narrowed anteriorly, coarsely punctate; lateral clypeal teeth well developed; space between lateral teeth wide at 0.210 mm; extralateral teeth well developed; scapes long, do not reach posterior lateral corner of head; minor funicular segments long; eyes large; medial ocellus large; pronotum coarsely punctate; mesopleuron smooth and shiny; metapleuron horizontally striated; posterior propodeal margin rounded; propodeal spiracle large; petiole wider than postpetiole viewed laterally; large flange ventrally on petiolar peduncle; both petiole and postpetiole striated basally on nodes.

Abundantly hairy, pilosity yellow; erect and suberect hairs covering all body surfaces.

Biology and habitat. This species nests under stones in dry shrubland including sparse mesquite scrub on rocky slopes. Specimens were collected in a variety of leaf litter, ranging from desert scrub (creosotebush) to cottonwood tree leaves. Brood and sexuals were found in a nest in June (México), and it has been collected in surface and subterranean Vienna sausage baits, and in pitfall traps.

Distribution. USA (Arizona and New Mexico); México (San Luis Potosí).

Discussion. *Solenopsis krockowi* could be confused with the widely distributed *S. molesta*, but is easily separated by its rectangular-shaped head. The punctures on the head are very coarse, whereas they are fine in *S. molesta*. It can be separated from *S. pergandei* (southern USA) on the basis of the oval-shaped postpetiole (round in *S. pergandei*). The widely diverging clypeal carinae separate it from *S. pilosula* (Texas), in which the carinae are nearly parallel and closely spaced. The widely spaced clypeal carinae and monomorphism separate it from the similar *S. johnsoni* (México) and *S. vinsoni* (Central America).

Type series. *Solenopsis krockowi* Wheeler, New Mexico, Sacramento Mts., Box Canon, 06-vii-1906, Wheeler, type, Von Krockow type #1-13 20907
krockowi – USA (Arizona, New Mexico), México (San Luis Potosí)

198 *krockowi*

molesta species complex

Compare with

johnsoni, *molesta*, *pergandei*, *pilosula*

(lectotype ♀, 6 paralectotype ♀♀ and 1 paralectotype ♀ [here designated] MCZC).

Material examined. Type series and **MEXICO, San Luis Potosí**, Matehuala, 10-vi-1988, W. Mackay #'s 10960-7, 10968-5, 10968-7, 10970-1, 10972-2, 10972-3, 10972-4, 10972-5, 10972-6, 10974-3, 10974-10 10978-3 (61 ♀♀ CWEM). **USA, Arizona**, Cochise Co., Chiricahua Mts., 4.0 mi WNW Jct. ESR42B, 15-vii-1992, S. P. Cover #'s 5550, 3251 (2 ♀♀ MCZC), Santa Cruz Co., Cobre Ridge, 3.8mi W Ruby on FSR 39, 23-viii-2000, S. P. Cover #5991 (12 ♀♀ MCZC); **New Mexico, Doña Ana Co.**, Las Cruces, 29-iii-1983, 20-v-1984, W. Mackay (7 ♀♀ CWEM), 15 mi N Las Cruces, 11-vii-1983, 11-ix-1983, 5-x-1983, 3-xi-1983, W. Mackay #'s 1121, 1311, 1321, 2112, 2122, 3112, 3311, 3312, 3321 (54 ♀♀ CWEM), 40 k NNE Las Cruces, 29-iii-10983, W. Mackay # 3312 (1 ♀ CWEM), 45 k NE Las Cruces, Long Term Ecological Research site, 19-iv-1984, W. Mackay #'s 1311, 2122, 2211, 3212 (11 ♀♀ CWEM). Literature Records include, **New Mexico** and **Catrón Co.**, Datil, **Chaves Co.**, 12 mi. W Hope, 20 mi. W Hope (Cole, 1953).

krockowi – USA (Arizona, New Mexico), México (San Luis Potosí)

Compare with

molesta complex

laeviceps 199
molesta, striata

***Solenopsis laeviceps* Mayr**

Figs 142-143; Map 33

molesta species complex, *molesta* subgroup

Solenopsis laeviceps Mayr, 1870: 406 (♀) COLOMBIA (without locality)

Diagnosis.

Worker. This species is concolorous yellow (occasionally pale brown with yellow appendages) with a thickened petiole viewed laterally. The sides of the head are convex and the head is slightly narrowed at the posterior border. The lateral clypeal teeth are well developed and usually curved inwards, but the extralateral teeth are absent.

Female and Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.50-1.56 (1.51); HL 0.402-0.408 (0.407); HW 0.330-0.360 (0.348); EL 0.036-0.042 (0.040); ED 0.030; SL 0.300; FSL 0.120-0.126 (0.125); CI 82.1-88.2 (85.5); SI 73.5-74.6 (73.7); PL 0.072-0.078 (0.073); PW 0.096-0.102 (0.098); PI 70.6-81.3 (74.5); PPL 0.102-0.108 (0.107); PPW 0.108-0.120 (0.118); PPI 90.0-94.4 (90.9); WL 0.300-0.324 (0.307); PSL 0.030-0.036 (0.032); PSW 0.024-0.030 (0.029).

Yellow; sides of head convex, narrowing posteriorly, rarely straight; minor segments of funiculus relatively long; lateral clypeal teeth well developed, curved inwards (typically); extralateral teeth absent, yet bumps often interrupting anterior of clypeal margin; mesopleuron nearly completely smooth and glossy; horizontal striae on metapleuron; petiole thickened, wider than postpetiole viewed laterally.

Hairy, with erect and suberect hairs of various lengths covering all body surfaces; head covered with short (0.030 mm) suberect pilosity; long (0.102 mm) suberect hairs on mesosoma.

Biology and habitat. *Solenopsis laeviceps* was collected on San Antonio, Sierra Nevada of Santa Marta, at more than 1,000 meters in Colombia. Additionally, *S. laeviceps* was collected in wet montane forest, old growth dry tropical rain forest, montane hardwood forest, wet montane cloud forest and oak forest litter

laeviceps – Belize south to Brazil

200 *laeviceps*

molesta species complex

Compare with
molesta, *striata*

extractions. Specimens were collected in surface and vegetation Vienna sausage baits in tropical primary rain forest.

Distribution. Belize (Orange Walk) south to Colombia (Cauca and Valle del Cauca); Caribbean Region (Bahamas); as far south as Brazil (Santa Catarina).

Discussion. The workers of *S. laeviceps* are similar to those of *S. striata* (Costa Rica). The mesopleuron of *S. laeviceps* is nearly smooth and glossy which separates it from *S. striata* in which the mesopleuron is completely striated. Additionally, the petiole of *S. laeviceps* is thick viewed laterally, while the petiole of *S. striata* is thin with an elevated node. *Solenopsis laeviceps* is very similar to *S. molesta* and could be a synonym. We need to have sexuals of *S. laeviceps* so they can be directly compared with those of *S. molesta* in order to determine their relationship. *Solenopsis laeviceps* can be separated on the basis of differences in distribution, *S. molesta* is presently found only in North America (USA and México).

Forel (1912) proposed that *S. laeviceps* variety *antoniensis* but it is actually identical to the nominal and is also found in Colombia, thusly this variety is not recognized.

Type series. *Solenopsis laeviceps* Mayr, Colombia, (lectotype ♀ and an additional 11 paralectotype ♀♀ [here designated] NHMW). *Solenopsis laeviceps* var. *antoniensis* Forel, Colombia, St Antonio, Sierra Nevada of Santa Marta (MHNG).

Material examined. **BELIZE:** Orange Walk, Rio Bravo Conservation Area, 30-iv-1996 # 17703 (2 ♀♀ CWEM). **BRAZIL,** Santa Catarina, Hečko (17 ♀♀ NHMW, labeled as types). **COLOMBIA,** Valle del Cauca, Bosque Yotoco, 23-vi-1989, W. P. Mackay #11654, 11687 (4 ♀♀ CWEM), Cauca, Isla Gorgona, M Baena #GG-10 (5 ♀♀ CWEM), Isla Gorgona, 23-x-1989, M. Baena #'s GAP-Hii6, GAP-IA2 (8 ♀♀ CWEM); Medio Calima Site, 24-vi-1989, W. Mackay #11789 (4 ♀♀ CWEM). **COSTA RICA:** Guanacaste, Loma Barbudal, 3-vi-1989, S. Vinson #'s 12029, 12037 (2 ♀♀ CWEM), Maritza Field Station, 3-v-1995, R Anderson #'s 17715, 17716 (3 ♀♀ CWEM); Puntarenas, Las Cruces, 4 k S San Vito, 19-vi-1996, R. Anderson # 16660 (2 ♀♀ CWEM). **PANAMÁ,** Chiriquí, Bocas del Toro, 9-vi-1995, R. Anderson #'s 17840, 17841, 17842, 17843, 17847 (63 ♀♀ CWEM), 20.4 k N San Felix, 950m, 08-vi-1995, R Anderson #'s 17767, 17781, 17783, 17784, 17789, 17798, 17822 (44 ♀♀, 3 ♀♀ CWEM); Bocas del Toro, Continental Divide, 9-vi-1995, R. Anderson #'s 17843, 17845 (19 ♀♀ CWEM), same locality, La Fortuna, Hydrological Trail, 1100m, 9-

laeviceps – Belize south to Brazil

Compare with
molesta, striata

molesta complex

laeviceps 201

vi-95, R. Anderson #17785 (11 ♀♀ CWEM), same locality, La Fortuna, Finca La Suisse, 10-vi-1995, R. Anderson #'s 17788, 17789, 17795 (8 ♀♀ CWEM).

laeviceps – Belize south to Brazil

***Solenopsis latastei* Emery**

Figs. 144-150; Map 34

molesta species complex, *molesta* subgroup

Solenopsis latastei Emery, 1895a: 13-14, figs. a-d (♀ ♀) CHILE: Santiago, Santa Rita; Menozzi, 1935c, 320 (♂)

Solenopsis latastei var. *hoffmanni* Forel, 1912: 7 (♀ ♀) CHILE: Valparaiso (synonymy by Snelling & Hunt, 1976)

Solenopsis latastei var. *masora* Forel, 1912: 7 (♀) CHILE: "Pemnes", **NEW SYNONYM**

Solenopsis tenuis r. *weiseri* Forel, 1914: 278 (♀ ♀ ♂) ARGENTINA: Córdoba, Canals; raised to species, Santschi, 1923: 258, **NEW SYNONYM**

Diagnosis.

Worker. This is a golden brown species. The lateral clypeal teeth are well developed while the extralateral teeth are only present as small angles. The clypeal carinae are well developed and extend posteriorly between the antennal insertions. The pronotum has small punctures. The mesopleuron and the metapleuron below the spiracle have fine horizontal striae. The petiole is wider than the postpetiole when viewed in profile. The subpeduncular process has a small tooth.

Female. The concolorous golden brown females are very large at 5.4 mm in length. The gaster is about half the length of the body. The head is as long as wide. The clypeal region between the lateral teeth is very concave and the lateral teeth are very long (~0.06 mm). The extralateral teeth are present as angles. The frontal lobes have vertical striae. The head and pronotum are covered with small punctures with hairs extending from each. There are thin carinae that extend horizontally on the bottom of the mesosoma and extend toward the end of the propodeum. There is a tooth present on the subpeduncular process.

Male. The male is concolorous dark brown. There are very small punctures present on the head (almost invisible). The clypeal margin is slightly convex with no presence of teeth, angles or bumps. The three ocelli are clear, but the eyes are black. The eyes cover about 1/3 of the side of the head. The body is smooth and glossy. What is striking about the male is a tooth is present on the ventral surface of the petiolar peduncle and a more developed tooth present on the bottom of the postpetiole with erect hairs extending out from it.

Worker Description.

Measurements (n=6). TL 1.68-2.18 (1.87); HL 0.402-0.582 (0.518); HW 0.390-0.528 (0.468); EL 0.036-0.060 (0.053); ED 0.030-0.036 (0.032); SL 0.318-0.408 (0.377); FSL 0.138-0.180 (0.157); CI 84.9-97.0 (90.5); SI 70.1-79.1 (73.1); PL 0.090-0.108 (0.100); PW 0.108-0.162 (0.141); PI 66.7-83.3 (71.6); PPL 0.120-0.150 (0.140); PPW 0.144-0.210 (0.176); PPI 71.4-83.3 (79.8); WL 0.360-0.480 (0.410); PSL 0.030-0.036 (0.033); PSW 0.030.

Golden brown, gaster darker brown; head longer than wide, with small punctures; lateral clypeal teeth well developed, extralateral teeth angular; clypeal carinae well developed, extending posteriorly toward antennal insertions; frontal lobes vertically striated; scape extends $\frac{3}{4}$ length of head; pronotum with small punctures; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; mesopleuron and metapleuron basally below spiracle with fine horizontal striae; petiole wider than postpetiole when viewed laterally; subpeduncular process with small tooth; postpetiole rhombus-like in shape laterally.

Moderately hairy, with short erect and suberect hairs present on all body surfaces; legs pubescent; petiole, postpetiole and first tergum of gaster with suberect hairs that extend posteriorly.

Female Description.

Measurements (n=4). TL 4.32-6.00 (5.13); HL 0.750-0.798 (0.785); HW 0.720-0.888 (0.825); EL 0.180-0.198 (0.189); ED 0.120-0.180 (0.146); MOL 0.048-0.066 (0.060); MOD 0.054-0.060 (0.057); SL 0.510-0.558 (0.537); FSL 0.300-0.330 (0.308); CI 96.0-112.0 (105.0); SI 25.0-69.9 (57.7); PSL 0.054-0.060 (0.059); PSW 0.054-0.060 (0.059); PL 0.150-0.168 (0.158); PW 0.282-0.384 (0.347); PI 43.3-53.2 (45.9); PPL 0.264-0.324 (0.297); PPW 0.420-0.546 (0.509); PPI 54.9-62.9 (58.7); WL 0.960-1.20 (1.14).

Large; concolorous golden brown; head as long as wide; clypeal region between lateral teeth concave; lateral teeth long, extend ~ 0.060 mm past anterior clypeal margin; extralateral teeth small, angular; frontal lobes with vertical striae; eyes large; thin carina extends horizontally basally on mesosoma; petiole wider than postpetiole when viewed laterally, subpeduncular process with tooth; postpetiole wider than petiole viewed dorsally; fine punctures on first tergum of gaster; pigmented "fingers" present just before end of each tergum.

Head covered in small punctures with hairs extending from each; pronotum has punctures with hairs extending from each; hair covering all body surfaces; head, scape and mesosoma heavily pilose with short suberect hairs; petiole, postpetiole and gaster covered in short suberect hairs that curve posteriorly.

Male Description.

Measurements (n=3). TL 3.00-3.22 (3.13); HL 0.312-0.420 (0.372); HW 0.372-0.438 (0.398); EL 0.174-0.216 (0.192); ED 0.150-0.168 (0.156); MOL 0.042-0.060 (0.050); MOD 0.060-0.072 (0.064); SL 0.090-0.168 (0.126); FSL 0.720; CI 114.0-200.0 (145.0); SI 23.4-90.3 (50.7); PSL 0.048-0.060 (0.054); PSW 0.042-0.050 (0.048); PL 0.120; PW 0.204-0.240 (0.222); PI 50.0-58.8 (54.4); PPL 0.180-0.300 (0.240); PPW 0.216-0.252 (0.234); PPI 83.3-119.0 (101.0); WL 0.720-0.840 (0.760).

Dark brown; fine cephalic punctures (almost not visible); clypeal margin slightly convex without presence of teeth, angles or bumps; eyes large, cover $\frac{1}{3}$ of side of head, extend nearly to anterior of head; eyes brownish yellow; sculpture of body smooth and glossy; fine pronotal punctures; petiolar peduncle and postpetiole both with ventral teeth.

Hair present (erect and suberect) on body surfaces; however, male not heavily pilose; tooth present ventrally on postpetiole with erect hairs extending out from it.

Biology and habitat. Snelling and Hunt (1975) mention that *S. latastei* is common and widely distributed.

Distribution. Argentina, Chile.

Discussion. Forel (1912) separated *S. latastei* variety *hoffmanni* on the basis of a more developed clypeal teeth and shorter scapes. Direct comparison of the types (workers and females) show that the clypeal teeth, as well as all other characters are identical and we do not recognize this variety and therefore agree with Snelling and Hunt (1976). *Solenopsis latastei* var. *masora* is identical to the nominal in that it has the same teeth and more importantly, the same thin horizontal striae on the mesopleuron and the propodeum and is also synonymized. *Solenopsis tenuis* r. *weiseri* is identical to *S. latastei*.

Solenopsis latastei may be confused with the widespread *S. picea*. The workers may be distinguished from those of *S. picea*, which are never golden brown (dark brown to black and occasionally bicolored in *S. picea*). Additionally, the female of *S. picea* has vertical striae on the frontal lobes that extend posteriorly on the dorsum of the head (restricted to lobes on the female of *S. latastei*). Moreover, these two species can be distinguished as the eye of the male of *S. picea* is much larger at 0.3 mm in total length (0.17-0.22 mm in *S. latastei*).

Type series. *Solenopsis latastei* var. *hoffmanni* Forel [without locality data], Type # 29399, synonym (1 cotype ♂, 1 cotype ♀ MCZC). *Solenopsis latastei latastei* – Argentina and Chile

Compare with
picea

molesta complex

latastei 205

var. *masora* Forel “Pennes” Typus (Silvestri) (Forel coll.) (4 ♀♀ MHNG). *Solenopsis tenuis* Mayr r. *weiseri* Forel, Argentina, Córdoba (lectotype ♀ [here designated], 3 paralectotype ♀♀ and 2 paralectotype ♂♂ MHNG).

Material examined. Type series and **CHILE**, Temuco, 1903, Silvestri (3 ♀♀ IEGG) and (1 ♀ CWEM). Snelling and Hunt (1975) list additional localities from Chile.

206 *leptanilloides*

pygmaea complex

Compare with

dysderces, pygmaea, westwoodi

***Solenopsis leptanilloides* Santschi**

Figs. 151-153; Map 35

pygmaea species complex

Solenopsis (Diplorhoptrum) leptanilloides Santschi, 1925b: 159-160, Fig. 4 (♀)
ARGENTINA: Santa Fé, Rosario

Diagnosis.

Worker. This is a very small concolorous pale yellow species. The head is elongate with coarse punctures. The lateral clypeal teeth are angular and the extralateral teeth are absent. The clypeal carinae are nearly absent in this species. The notopropodeal suture is weakly depressed. The postpetiole is oval-shaped when viewed dorsally.

Female and Male. Unknown.

Worker Description.

Measurements (n=6). TL 0.960-1.20 (1.06); HL 0.312-0.360 (0.335); HW 0.240; EL 0.012; ED 0.012; SL 0.180-0.198 (0.183); FSL 0.060-0.066 (0.061); CI 66.7-76.9 (71.9); SI 50.0-60.0 (54.8); PL 0.060-0.084 (0.070); PW 0.072-0.084 (0.077); PI 83.3-100.0 (90.7); PPL 0.066-0.078 (0.072); PPW 0.072-0.102 (0.085); PPI 76.5-92.3 (85.3); WL 0.210-0.240 (0.224); PSL 0.018; PSW 0.018.

Small, concolorous pale yellow; head much longer than wide, with coarse cephalic punctures; lateral clypeal teeth angular, extralateral teeth absent; clypeal carinae nearly absent; scape short, reaches about $\frac{3}{4}$ length of head; minor funicular segments 3-8 short; mesopleuron smooth and shiny; notopropodeal suture weakly depressed, mesonotum and propodeum on straight line at dorsal mesosomal margin; propodeal spiracle small; posterior propodeal margin rounded; petiole slightly wider than postpetiole viewed laterally, postpetiole oval viewed dorsally.

Not very pilose; head with short (0.006-0.010 mm) erect and suberect hairs; scape pilose with suberect hairs; most suberect hairs on mesosoma, petiole and postpetiole curve posteriorly.

Biology and habitat. Unknown.

Locality. Known from the type locality in Santa Fé, Rosario, Argentina..

leptanilloides – Argentina: Santa Fé

Compare with

pygmaea complex

leptanilloides 207

dysderces, *pygmaea*, *westwoodi*

Discussion. *Solenopsis leptanilloides* could be confused with *S. pygmaea* (North America) but can be distinguished by its more elongate head. Additionally *S. pygmaea* has more developed, sharp lateral clypeal teeth that extend past the anterior clypeal margin, which is easily distinguished from the short, angular clypeal teeth with *S. leptanilloides*.

Solenopsis leptanilloides may be confused with *S. westwoodi* (southern South America), but can be distinguished as it is pale yellow, not medium dark brown as *S. westwoodi*. Moreover, although *S. westwoodi* has coarse cephalic punctures, they are scattered and smooth and shiny between, compared to the numerous punctures present in *S. leptanilloides*. *Solenopsis leptanilloides* is also similar to *S. dysderces* as both species have noticeably elongate heads. Close comparison reveals that *S. dysderces* has a larger head, in length, width and when measured from the dorsal to ventral surface. Additionally, *S. leptanilloides* has a noticeably slender body compared to the more robust *S. dysderces*. *Solenopsis dysderces* is only known from the mountains of Chile, while *S. leptanilloides* is found in northeastern Argentina.

Type series. *Solenopsis leptanilloides* Santschi, Argentina, Santa Fe, Rosario (Hubrich), Sammlung, Dr. F. Santschi, Kairouan (lectotype ♀ and 5 paralectotype ♀♀ [here designated] NHMB). *Solenopsis leptanilloides*, M.C.Z. Cotype 1-2 21914, Wm. M. Wheeler (2 cotype ♀♀ [seen] MCZC). *Solenopsis leptanilloides*, Rosario, Argentina, Hubrich (1 cotype ♀ [seen] LACM).

Material examined. Type series

***Solenopsis longinoi* Pacheco & Mackay, NEW SPECIES**

Figs. 154-155; Map 36

stricta species complex**Diagnosis.**

Worker. This is a moderately large and hairy, concolorous dark brown species. The head is subquadrate and finely punctate. The lateral clypeal teeth are well developed while the extralateral teeth are absent. The scape is long and reaches the posterior lateral corner of the head. The eyes have 5-7 ommatidia. The defining characters of this species are the deep notopropodeal depression and dome-shaped dorsopropodeum.

Female and Male. Unknown.

Worker Description.

Measurements (n=6). TL 2.40-2.52 (2.49); HL 0.606-0.618 (0.612); HW 0.504-0.510 (0.509); EL 0.060-0.066 (0.064); ED 0.042-0.048 (0.044); SL 0.480-0.498 (0.491); FSL 0.228-0.240 (0.234); CI 81.6-84.2 (83.2); SI 77.7-81.4 (80.2); PL 0.120-0.132 (0.122); PW 0.126-0.138 (0.132); PI 86.9-95.7 (92.5); PPL 0.174-0.180 (0.178); PPW 0.192-0.198 (0.196); PPI 87.9-93.8 (90.8); WL 0.540-0.570 (0.552); PSL 0.042-0.048 (0.045); PSW 0.042.

Moderately large; concolorous dark brown, with lighter brown appendages; head subquadrate, posterior margin and sides slightly convex, finely punctated; lateral clypeal teeth well developed, medial and extralateral teeth absent; clypeal carinae well defined, extend between frontal lobes; scape long, reaching posterior lateral corner of head; eye medium sized, 5-7 ommatidia; pronotum finely punctate (punctures barely visible), smooth and shiny between punctures; mesopleuron smooth and shiny; propodeum dome-shaped, striated basally; petiole widened when viewed laterally, peduncle elongate from propodeum, lacking ventral tooth or flange; postpetiole wider than petiolar peduncle viewed dorsally, lacking tooth or flange ventrally; both petiole and postpetiole smooth and shiny.

Moderately pilose, hairs yellow to light brown; head with erect and suberect hairs of various lengths (0.030-0.120 mm); scape with numerous suberect hairs (0.030-0.060 mm); pronotum with erect hairs of various lengths (0.030-0.150 mm); long (up to 0.180 mm) suberect hairs on petiole, postpetiole and gaster that curve posteriorly.

longinoi – Costa Rica: Puntarenas, San José

Compare with
stricta

stricta complex

longinoi 209

Biology and habitat. *Solenopsis longinoi* was collected in litter from lowland, oak, ridge and cloud forests in Costa Rica. It is listed as *Solenopsis* JTL-018 (Longino, Ants of Costa Rica website) and was reported in the website to be collected in montane forest of Cordillera de Talamanca at 1200 and 1670 m from Winkler samples of sifted litter in Costa Rica.

Etymology. Named to honor our friend and colleague John (Jack) Longino, one of the foremost ant authorities who has done the most important work on Costa Rican ants.

Distribution. Costa Rica (Puntarenas, San José).

Discussion. It would be unlikely to confuse *S. longinoi* with other members of the *stricta* complex based on its unusually dome-shaped propodeum. This trait is unique among the thief ants in the New World and makes *S. longinoi* easily recognized. Additional characteristics that make this species unique are its relatively long scape and elongated peduncle.

Type series. Holotype ♀ (MCZC) and one paratype ♀ (INBC), COSTA RICA, San José, Pan American Highway Km 117, 9°36'N 83°42'20"W, 15-vi-1998, R. Anderson #18657.

Material examined. COSTA RICA, Puntarenas, Osa Peninsula, Cerro Helado 17K Northeast of Rincon, 8°45'30" N 83°25'00" W, 24-vi-1997, R. Anderson #18689 (1 ♀ CWEM); San José, Pan American Highway, 19 K North of San Isidro, 8°26'N 83°40'W, 25-v-1997, R. Anderson #18690 (1 ♀ LACM), San José, Pan American Highway Km 117, 9°29'N 83°42'20"W, 15-vi-1998, R. Anderson #18657 (1 ♀ JTLC), San José, Pan American Highway Km 11725-vi-1997, R. Anderson #18690, 9°28'N 83°42'20"W (1 ♀ CWEM).

longinoi – Costa Rica: Puntarenas, San José

***Solenopsis loretana* Santschi**

Figs. 156-158; Map 37

molesta species complex, *molesta* subgroup

Solenopsis loretana Santschi, 1936: 406-408, Figs. 6-8 (♀) ARGENTINA:
Misiones, Loreto

Diagnosis.

Worker. This is small, concolorous brown species, with a quadrate head. The clypeal carinae are well developed and extend into well-developed lateral teeth. The extralateral teeth are solely present as small angles. The minor funicular segments 3-8 are relatively long, but the eye is small with only three ommatidia. The mesopleuron and metapleuron are covered with horizontal striae. The defining character for the worker is the large, globular postpetiolar node that resembles those present of species in the *globularia* species complex.

Female and Male. Unknown.

Worker Description.

Measurements (n=3). TL 1.74-2.04 (1.84); HL 0.510-0.540 (0.520); HW 0.390-0.450 (0.414); EL 0.048; ED 0.030; SL 0.360-0.384 (0.368); FSL 0.168-0.180 (0.172); CI 76.5-83.3 (79.5); SI 70.6-71.1 (70.8); PL 0.060-0.066 (0.062); PW 0.12; PI 50.0-55.0 (51.7); PPL 0.15; PPW 0.180-0.216 (0.192); PPI 69.4-83.3 (78.7); WL 0.360-0.438 (0.398); PSL 0.030; PSW 0.030.

Small, concolorous brown; head quadrate, posterior border nearly straight; clypeal carinae well developed, extend into well-developed lateral teeth; extralateral teeth angular; scapes do not reach the posterior lateral corner of head; minor funicular segments 3-8 relatively long; frontal lobes with vertical striae; eye small (3 ommatidia); notopropodeal suture well depressed, notch-like; horizontal striae on mesopleuron and metapleuron; dorsal propodeal margin angular; propodeal spiracle relatively small; petiolar node thin, anterior and posterior faces nearly parallel, forming thin, triangular node, lacking tooth or flange on subpeduncular process; postpetiole large, globular node, resembles species in *globularia* species complex.

Moderately hairy; scapes covered with appressed hairs; remaining body surfaces covered with erect and suberect hairs of various lengths, with longest 0.120 mm in length, present on mesosoma, petiole and postpetiole.

loretana – Argentina, Brazil, Paraguay

Compare with
globularia, latastei

molesta complex

loretana 211

Biology and habitat. *Solenopsis loretana* was collected in an underground nest (25 cm deep) in Argentina. This species was collected in humid subtropical tall forest nesting in soil, in an edge of campo cerrado/low forest foraging at 240 m, in mixed citrus grove and in scrub forest in Paraguay. *Solenopsis loretana* was collected by baiting (surface wiener) in Brazil.

Distribution. Argentina, Brazil and Paraguay.

Discussion. *Solenopsis loretana* may be confused with *S. latastei* because both species are concolorous brown and have similar clypeal carinae and teeth, but can be separated very easily by *S. loretana*'s large globular postpetiole (similar to those species of the *globularia* group). *Solenopsis loretana* is easily separated from the members of the *globularia* species group as it has a small eye that has only 3-5 ommatidia; members of the *globularia* species complex nearly always have 15-25 ommatidia.

Type series. *Solenopsis loretana* Santschi, Argentina, Misiones, Loreto, Dr. A.A. Ogloblin. Nido en la tierra a 25ctms. de profundidad, Santschi, 2082, Sammlung, Dr. F. Santschi, Kairouan, (lectotype ♀ and 2 paralectotypes ♀♀ [here designated] NHMB).

Material examined. Type series and **BRAZIL**, Mato Gross do Sul, 65K E Zuzu, 15-x-1989, S. Porter #12841 (2 ♀♀ CWEM). **PARAGUAY**, Canindeyú, Res. Nat. Bosque Mbaracayú Jejuimi, 24°0.6'S 55°30'W, 2-v-1996, A. Wild #AW0150 (3 ♀♀ CWEM), Arroyo Bandera, 24°0.5'S 55°31'W, 17-vi-1997, A. Wild #AW0508 (1 ♀ CWEM), Res. Mbaracayú, Aguara Nu 240m, 24°11'S 55°17'W, 16-xi-2002, A. L. Wild #AW1701 (1 ♀ CWEM), Res. Nat. Bosque Mbaracayú Lagunita, 24°08'S 55°26'W, 4-xii-1996, A. Wild #AW0353 (1 ♀ CWEM); Amambay. Parque Nac'l Cerro Cora, 22°39'S 56°01'W, 13-v-1997, A. Wild #AW0564 (1 ♀ CWEM); Central, Areguá, CHP center, 25°18'S 57°23'W, 14-17-i-1997, A. Wild, #AW0367 (1 ♀ CWEM).

loretana – Argentina, Brazil, Paraguay

***Solenopsis lucayensis* Wheeler**

Figs. 159-160; Map 38

globularia species complex

Solenopsis globularia subsp. *lucayensis* W. M. Wheeler, 1908a: 131, Plate 11, Fig. 8 (♀) BAHAMAS: Andros Island, Nicholl's Town, **NEW STATUS**

Diagnosis.

Worker. The worker is easily recognized by the large dilated postpetiole. It is distinguished from other members of the *globularia* complex by being concolorous pale yellow, with an eye of 12-15 ommatidia and appears to be monomorphic based on the material available.

Female and Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.80-2.04 (1.90); HL 0.510-0.528 (0.513); HW 0.420; EL 0.072-0.078 (0.077); ED 0.054; SL 0.360; FSL 0.162-0.168 (0.166); CI 79.5-82.4 (81.8); SI 68.2-70.6 (70.1); PL 0.090; PW 0.150-0.162 (0.157); PI 55.6-60.0 (57.3); PPL 0.180; PPW 0.240-0.252 (0.242); PPI 71.4-75.0 (74.3); WL 0.360; PSL 0.030; PSW 0.030.

Moderately large; monomorphic; concolorous pale yellow; head subquadrate, sides convex, finely punctate; five lateral teeth present, angulate, including medial tooth; clypeal carinae well defined; scape reaches $\frac{3}{4}$ length of head; minor funicular segments 3-8 long (average 0.166 mm); eye large, 12-15 ommatidia; pronotum smooth and shiny; mesopleuron horizontally striated; notopropodeal suture well depressed; posterior edge of propodeum angulate; propodeal spiracle small, round; metapleuron horizontally striated; peduncle long at 0.720 mm; petiole smaller than postpetiole viewed laterally and dorsally, peduncle lacking tooth or flange ventrally; postpetiolar node greatly dilated, globose, postpetiole lacking tooth or flange ventrally.

Abundantly hairy, pilosity pale yellow; erect hairs of various lengths (0.030-0.120 mm) on dorsum of head; erect and suberect hairs of various lengths (0.036-0.150 mm) on dorsum of mesosoma, pointing in different directions.

Biology and habitat. Unknown.

Locality. Bahamas (Type locality, Andros Island, Nicholl's Town).

lucayensis – Bahamas: Andros Island

Compare with
globularia

globularia complex

lucayensis 213

Discussion. *Solenopsis lucayensis* is recognized as a valid species. Further collection in the Bahamas or molecular analyses may show this to be a synonym (a color variant) of *S. globularia*, however based on the material examined, it appears to be monomorphic, consistently concolorous pale yellow, with workers that have 12-15 ommatidia for the eye; not 18-22 as seen with other forms of the *globularia* species complex. The mesopleuron and metapleuron are horizontally striated. Although the striae on the propodeum seem to be variable within this complex, it is consistently not visible on the dorsal portion of the side of the propodeum.

Type series. *Solenopsis globularia lucayensis* Wheeler, Bahamas Andros Island, May-June 1904, W. M. Wheeler Coll., M.C.Z. Cotype 1-15 20926 (lectotype ♀ [here designated] and 14 paralectotype ♀♀ MCZC).

Material examined. Type series.

***Solenopsis maboya* Snelling**

Figs.161-164; Map 39

molesta species complex, *pollux* subgroup*Solenopsis maboya* Snelling, 2001: 518-522, Figs. 8-13 (♂ ♀) USA: Puerto Rico, Guaynabo**Diagnosis.**

Worker. The worker is very small (1.14 mm TL) and uniformly yellow in color. The head and pronotum are semi-coarsely punctate. The notopropodeal suture is not well depressed, but the groove breaks the sculpture of the mesosoma. The eyes is small with three ommatidia. Both the petiolar peduncle and postpetiole lack a tooth or flange ventrally.

Female. The female is small and medium brown in color with lighter brown appendages. Both the lateral and extralateral teeth are blunt and short. The frontal lobes are vertically striated. The sides of the propodeum, petiole and postpetiolar are horizontally striated.

Male. Unknown.

Worker Description.

Measurements (n=2). TL 1.14; HL 0.360; HW 0.282; EL 0.036; ED 0.024; SL 0.240; FSL 0.078; CI 78.3; SI 66.7; PL 0.048; PW 0.072; PI 66.7; PPL 0.078; PPW 0.102-0.108 (0.105); PPI 72.2-76.5 (74.3); WL 0.240; PSL 0.030; PSW 0.024.

Small; concolorous yellow; head, longer than wide, sides nearly straight, slightly wider anteriorly, semi-coarsely punctate; lateral clypeal teeth well developed, extralateral teeth angulate; clypeal carinae well defined; eye small, three ommatidia; scape does not reach posterior border of head; minor funicular segments 3-8 short; pronotum semi-coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; notopropodeal suture depressed, groove breaks sculpture of mesosoma; posterior propodeal margin rounded; propodeal spiracle small; metapleuron horizontally striated; anterior and posterior faces of petiolar node subparallel, peduncle lacking tooth or flange ventrally; postpetiolar node semicircular, postpetiole lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hairs of various lengths covering all body surfaces; hairs on dorsum of mesosoma (0.030-0.060 mm); hairs on petiole, postpetiole and gaster curve posteriorly.

maboya – Puerto Rico: Guaynabo

Female Description.

Measurements (n=1). TL 2.76; HL 0.510; HW 0.456; EL 0.168; ED 0.144; MOL 0.054; MOD 0.060; SL 0.360; FSL 0.150; CI 89.4; SI 70.6; PSL 0.048; PSW 0.042; PL 0.072; PW 0.198; PI 36.4; PPL 0.168; PPW 0.258; PPI 65.1; WL 0.720.

Small; concolorous brown, lighter brown appendages; head, longer than wide, sides nearly straight, coarsely punctate; lateral and extralateral teeth blunt, short; clypeal carinae well defined; frontal lobes vertically striated; eyes large, extend 0.060 mm past lateral margin of head; scapes long, reach past medial ocellus; minor funicular segments 3-8 long; medial ocellus small, without pigment; pronotum coarsely punctate, smooth and shiny between punctures; posterior propodeal margin rounded; propodeal spiracle small, round; side of propodeum striated; petiolar node triangular, horizontally striated, peduncle lacking tooth or flange ventrally; postpetiolar node semicircular, side horizontally striated, postpetiole lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hairs of various lengths covering all body surfaces; scapes with numerous hairs of various lengths (longest 0.102 mm); hairs abundant on dorsum of mesosoma (0.060-0.120 mm); hairs on petiole and postpetiole curve posteriorly, longest hairs up to 0.180 mm in total length.

Biology and habitat. *Solenopsis maboya* was collected in a moist forest and nests in the ground (Snelling, 2001).

Locality. Puerto Rico.

Discussion. The workers of *Solenopsis maboya* are most similar to *S. corticalis*. They can be separated as *S. corticalis* has less developed lateral clypeal teeth, a longer posterior propodeal margin and a longer petiolar peduncle than *S. maboya*. *Solenopsis maboya* is similar to *S. pygmaea* as well but can be separated as *S. pygmaea* has a coarser cephalic punctures and a more elongated head.

Both the females of *S. maboya* and *S. pygmaea* have coarse cephalic punctures, separating them from the finely punctate, smooth and shiny head of *S. corticalis*. The female of *S. pygmaea* is much larger than the female of *S. maboya* at 5.0 mm total length compared to just under 3.0 mm for *S. maboya*. The female of *S. maboya* is further separated from *S. pygmaea* and *S. corticalis* as the frontal lobes are vertically striated, a feature lacking with *S. pygmaea* and *S. maboya*.

Solenopsis maboya resembles *S. pollux*, but can be distinguished as the head is larger as compared to the mesosoma and it has a small triangular-shaped petiolar node, as compared to the more rounded node in *S. pollux*.

216 *maboya*

molesta species complex

Compare with
corticalis, *pollux*, *pygmaea*

Type series. *Solenopsis maboya* R.R. Snelling 2001, Puerto Rico, Guaynabo, 14-ii-1999, JA Torres #82 (2 paratype ♂♂, 1 paratype ♀ CWEM).

Material examined. Type series.

maboya – Puerto Rico: Guaynabo

Compare with
photophila

nigella complex

macrops 217

***Solenopsis macrops* Santschi**

Figs. 165-167; Map 40

nigella species complex, *nigella* subgroup

Solenopsis macrops Santschi, 1917: 280-281 (♀) ARGENTINA: Buenos Aires, Tandil; combination in *S. (Euophthalma)*, Creighton, 1930: 120

Diagnosis.

Worker. This is small dark brown species that can be easily recognized by its large (about 35 ommatidia), peculiar kidney-shaped eye that extends ventrolaterally and nearly reaches the mandibles. The lateral clypeal teeth are angulate and the extralateral teeth are absent. The frontal lobes have thin vertical striae. The mesopleuron and the metapleuron have horizontal striae.

Female and Male. Unknown.

Worker Description.

Measurements (n=2). TL 1.37-1.44 (1.40); HL 0.462-0.468 (0.465); HW 0.390-0.408 (0.399); EL 0.156-0.162 (0.159); ED 0.072-0.084 (0.078); SL 0.276; FSL 0.108-0.120 (0.114); CI 84.4-87.2 (85.8); SI 58.9-59.7 (59.4); PL 0.054; PW 0.078-0.084 (0.081); PI 64.3-69.2 (66.8); PPL 0.09; PPW 0.12; PPI 75.0; WL 0.330-0.336 (0.333); PSL 0.024; PSW 0.018.

Small, concolorous, dark brown; eye large (about 35 ommatidia), kidney-shaped, extends ventrolaterally nearly reaching mandibles; head quadrate, widest near eyes, with fine punctures; lateral clypeal teeth angulate, extralateral teeth absent; clypeal carinae well developed; frontal lobes with vertical striae; scape does not reach posterior border of head, slender at only 0.048 mm at widest point; minor funicular segments 3-8 relatively long; notopropodeal groove breaks sculpture of mesosoma; mesopleuron and metapleuron have horizontal striae; coxa of front legs robust compared to other coxae; petiolar node sharp, triangular with sharp apical face, small tooth present on subpeduncular process, petiole wider than postpetiole viewed laterally.

Not very pilose; short appressed hairs on head, scape, gaster; mesosoma, petiole and postpetiole with very few appressed hairs.

Biology and habitat. Santschi (1917) states that he observed *Oxypomyrmex* and the workers stop at the opening of their nest before emerging entirely to observe a "vast visual sector" (Emery 1930). It appears that the eye of *S. macrops* allows it to view underneath its head.

macrops – Argentina: Buenos Aires

Distribution. Known only from type locality in Argentina, Buenos Aires, Tandil.

Discussion. This species may be confused with *S. nigella* but can be easily recognized by its peculiar eye. No other species of the *nigella* complex has such a long, elongate eye that extends ventrolaterally, except *S. photophila*. This species is very similar to *S. photophila* and it is obvious that they are sister taxa. They are extremely similar but the eye is smaller in *S. photophila* and this species has punctate/roughened sculpturing while *S. macrops* is more smooth and shiny on the mesopleuron and propodeum.

Type series. *Solenopsis macrops* Santschi, Argentina, Buenos Aires Tandil (Bruch), Sammlung, Dr. F. Santschi, Kairouan (lectotype ♀ and 1 paralectotype ♀ [here designated] NHMB).

Material examined. Type series.

***Solenopsis major* Forel**

Figs. 168-171; Map 41

molesta species complex, *molesta* subgroup

Solenopsis basalis var. *major* Forel, 1913: 220 (♂ ♀) ARGENTINA: Buenos Aires, Rio Santiago, **NEW STATUS**

Solenopsis major Théobald, 1937b: 201, Plate 4, Fig. 16; Plate 14, Fig. 4 (m.) FRANCE (Oligocene) [Unresolved junior primary homonym of *major* Forel, above], **not examined**

Solenopsis tenuis r. *delfinoi* Forel, 1913: 222 (♂) ARGENTINA: Santa Fé, Rosário; Forel, 1914: 278 (♀), **NEW SYNONYM**

Diagnosis.

Worker. This is a relatively large, golden yellow species with a somewhat elongate head. The clypeal margin between the lateral teeth (tips) is relatively wide at 0.090 mm and the lateral teeth are poorly developed and are present solely as angles that protrude slightly past the anterior margin as extensions of the well-developed clypeal carinae. The scape is long and nearly reaches the posterior margin of the head. The eye contains 8-10 ommatidia.

Female. The female is large and concolorous brown. All four clypeal teeth are well developed and the anterior margin between the lateral teeth is concave. The scape is thick basally and thins as it reaches the funicular segments. The ocelli are very small. The basal portion of the propodeum is finely and extends laterally past the propodeal spiracle.

Male. Unknown.

Worker Description.

Measurements (n=6). TL 2.07-2.46 (2.20); HL 0.510-0.576 (0.539); HW 0.426-0.480 (0.455); EL 0.054-0.060 (0.059); ED 0.036-0.048 (0.043); SL 0.348-0.396 (0.369); FSL 0.138-0.180 (0.155); CI 80.6-92.9 (84.5); SI 62.4-76.5 (68.6); PL 0.09; PW 0.132-0.162 (0.149); PI 55.6-68.2 (60.8); PPL 0.12; PPW 0.150-0.174 (0.165); PPI 68.9-80.0 (72.9); WL 0.420-0.480 (0.440); PSL 0.048-0.054 (0.049); PSW 0.042.

Small, concolorous golden yellow (sometimes with brownish gaster) with a somewhat elongate head; body smooth and shiny; clypeal margin between lateral teeth tips relatively wide at 0.090 mm, lateral teeth poorly developed, present as angles that protrude slightly past anterior margin as extensions of well-developed clypeal carinae; scape long, nearly reaches posterior margin of head;

major – Costa Rica: Guanacaste; Argentina: La Plata

eye moderately large (approximately 8-10 ommatidia); notopropodeal suture well depressed, groove breaks sculpture of body; thin horizontal striae present on metapleuron, absent on mesopleuron; propodeal spiracle large (0.05 mm maximum diameter); petiole thickened, larger than postpetiole viewed laterally; postpetiole oval, viewed dorsally.

Hair present on all body surfaces; head and scape with numerous suberect hairs, many extend past 0.060 mm in length; few long (0.060-0.120 mm) hairs present on mesosoma (with majority present on the pronotum), petiole, postpetiole and gaster.

Female Description.

Measurements (n=3). TL 3.84-4.20 (4.04); HL 0.660-0.780 (0.700); HW 0.600-0.792 (0.672); EL 0.180-0.240 (0.202); ED 0.120-0.180 (0.146); MOL 0.048; MOD 0.054-0.060 (0.056); SL 0.420-0.480 (0.460); FSL 0.240-0.252 (0.244); CI 90.9-101.0 (95.7); SI 61.5-72.7 (65.9); PSL 0.054-0.066 (0.062); PSW 0.054-0.060 (0.056); PL 0.126-0.138 (0.132); PW 0.252-0.282 (0.264); PI 48.9-51.2 (50.0); PPL 0.228-0.252 (0.240); PPW 0.300-0.324 (0.310); PPI 70.4-82.4 (77.6); WL 0.840-0.900 (0.860).

Large; concolorous brown; lateral and extralateral teeth well developed; anterior margin between lateral teeth concave; head quadrate; scape thick basally, thins distally; frontal lobes with vertical striae; eyes large; ocelli small; metapleuron finely striated, striae extend posteriorly past propodeal spiracle; propodeal spiracle large; petiole wider than postpetiole viewed laterally, pyramidal node; postpetiole globose, rounded, wider than petiole viewed dorsally.

Hairy; scape covered with suberect hairs, longer basally; suberect hairs covering all body structures, shorter on petiole and postpetiole.

Biology and habitat. *Solenopsis major* was collected from leaf litter extractions in wet cloud forest habitat in Costa Rica.

Locality. Argentina, Costa Rica.

Discussion. *Solenopsis major* is similar to *S. basalis* (Colombia south to Argentina, Caribbean), but is consistently larger in total length with a wider head and is easily distinguished from *S. basalis* by the wider space on the anterior clypeal margin between the lateral teeth.

Solenopsis tenuis r. *delfinoi* is nearly identical to *S. major*. The only difference is that *S. tenuis* r. *delfinoi* has more suberect hairs on the scape, but it does not look significantly different and thus *S. tenuis delfinoi* is proposed as a synonym.

major – Costa Rica: Guanacaste; Argentina: La Plata

Compare with
basalis

molesta complex

major 221

Type series. *Solenopsis major* Forel, Argentina, La Plata, les Bruch, 10.9.12, det. Forel, M.C.Z. Cotype 29400 (lectotype ♀ [here designated] MCZC). *Solenopsis tenuis* Mayr r. *delfinoi* Forel, Argentina, Santa Fé, 24 Rosario, (Bruch). 3 Canals, Córdoba, Weiser legit 280 (lectotype ♀ and 4 paralectotype ♀♀ [here designated] MHNG) *S. tenuis* Mayr r. *delfinoi*, Typus, Forel (3 paralectotype ♀♀ [here designated] MHNG).

Material examined. Type series and **COSTA RICA, Guanacaste**, Cacao Field Station, 2-ii-1996, 1400m, 2-ii-1976, 15-ii-1996, 20-ii-1996, #'s 17665, 17672, 17688, 17724, 17731 (numerous ♂♂, ♀♀ CWEM).

major – Costa Rica: Guanacaste; Argentina: La Plata

***Solenopsis melina* Pacheco & Mackay, NEW SPECIES**

Figs. 172-175; Map 42

fugax species complex**Diagnosis.**

Worker. The worker is small and honey yellow colored. The head has coarse cephalic punctures. The antennal club is long at 0.300 mm in total length. The lateral clypeal teeth are well developed, but the extralateral teeth are present as angles. The petiole and postpetiole are robust with a tooth on the subpeduncular process.

Female. The female is also honey yellow in color. What is unique to the female is that the frontal lobes contain vertical striae that curve laterally then anteriorly towards the anterior clypeal margin. Additionally the propodeum, petiole and postpetiole are covered in horizontal striae.

Male. Unknown.

Worker Description.

Measurements (n=6). TL 1.44-1.68 (1.59); HL 0.444-0.510 (0.469); HW 0.360-0.408 (0.382); EL 0.036-0.042 (0.040); ED 0.030; SL 0.300-0.360 (0.328); FSL 0.132-0.156 (0.143); CI 80.0-83.3 (81.3); SI 67.6-71.3 (69.8); PL 0.072-0.084 (0.076); PW 0.102-0.162 (0.126); PI 51.9-70.6 (61.2); PPL 0.090-0.120 (0.109); PPW 0.120-0.174 (0.145); PPI 68.2-90.0 (75.9); WL 0.300-0.360 (0.340); PSL 0.030-0.042 (0.038); PSW 0.024-0.036 (0.029).

Small; concolorous honey yellow; head rectangular, longer than wide, coarsely punctate, sides slightly convex, posterior border nearly straight (slightly concave); lateral clypeal teeth well developed, extralateral teeth angulate; clypeal carinae well defined; frontal lobes vertically striated; eyes, black, small, with 3-5 ommatidia; scape long, does not reach posterior border of head; minor funicular segments 3-8 long; club long at 0.300 mm in total length; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; posterior propodeal margin angulate viewed laterally; metapleuron horizontally striated; petiole robust, node triangular, peduncle with tooth ventrally; postpetiole robust, node globose, lacking tooth or flange ventrally.

Abundantly pilose, pilosity yellow; erect and suberect hairs of various lengths covering all body surfaces; hairs on mesosoma, petiole and postpetiole up to 0.120 mm in total length.

melina – USA: California, New Mexico

Female Description.

Measurements (n=2). TL 4.32; HL 0.684; HW 0.570; EL 0.174; ED 0.156; MOL 0.042-0.048 (0.045); MOD 0.060; SL 0.390; FSL 0.228-0.240 (0.234); CI 83.3; SI 57.0; PSL 0.048; PSW 0.054; PL 0.120; PW 0.300; PI 40.0; PPL 0.264; PPW 0.318; PPI 83.0; WL 0.840.

Moderately large; concolorous honey yellow; head rectangular, longer than wide, coarsely punctate; lateral clypeal teeth short but well developed, extra-lateral teeth small, well developed; clypeal carinae well developed; frontal lobes laterally and posteriorly from clypeal margin with striae which follow contours of head; scape short, reaches medial ocellus; medial ocellus round, large; eye large, black; pronotum coarsely punctate, smooth and shiny between punctures; side of metapleuron horizontally striated basally, with roughened sculpturing above spiracle; petiole and postpetiole horizontally striated; petiolar peduncle with flange ventrally.

Abundantly hairy, pilosity yellow; pronotum with numerous erect hairs of relatively equal length (0.090 mm); suberect hairs on petiole and postpetiole long (0.120-0.150 mm), curve posteriorly.

Etymology. From Latin, *melinus*, meaning honey-colored, referring to the color of the worker and female.

Biology and habitat. This species nests in the loose sandy gypsum soil of White Sands National Monument and in similar scrubby Chihuahuan Desert habitats of Lake Lucero. Brood was collected in a nest in July, and females were loose on ground in July, suggesting a mating flight had occurred recently.

In California they are found in the transition from shrubland to pine forest in rocky soils. *Myrmecophila* sp. crickets were found in a nest. Specimens were found in the nests of *Pogonomyrmex montanus* at the 110 cm level and at unspecified levels (3 additional nests) and in a nest of *Pogonomyrmex subnitidus*.

It is possible that *S. melina* is a specialist parasite of harvester ants of the genus *Pogonomyrmex*, as most specimens were collected within harvester ant nests. Those in the vicinity of White Sands National Monument were not specifically associated with harvester ants, but several species of *Pogonomyrmex* occur in the area (*P. californicus*, *P. desertorum*, *P. maricopa*).

Distribution. White Sands National Monument and nearby Lake Lucero New Mexico and the mountains of southern California.

Discussion. The worker of *Solenopsis melina* is similar to *S. molesta*, however can be separated from this widely distributed North American species by the presence of vertical striae on the frontal lobes. The head is more quadrate with

melina – USA: California, New Mexico

224 *melina*

fugax species complex

Compare with
molesta

the CI ranging from 85-93 (81-85 in *S. molesta*). *Solenopsis melina* has more robust petiolar and postpetiolar nodes. The female of *S. melina* is unique in having cephalic striae which extends from the frontal lobes laterally past the antennal insertion, which curve anterior toward the clypeal margin. This feature is unknown within other species of the *molesta* and *fugax* complexes in the New World.

Type series. Holotype ♀ (MCZC) and 9 paratype ♀♀ (CWEM, LACM, MCZC, USNM), New Mexico, Otero County, White Sands National Monument, 31-v-1992, 25-vii-1992, W. Mackay #'s 15945, 16054, 16059.

Material examined. Type series and **USA, California, Riverside Co.**, San Jacinto Mountains, 4 mi S Fulmore Lake, 12-vi-1980, Bill and Emma Mackay # 4264 (19 ♀♀, 1 dealate ♀ CWEM), same locality, 15-ix-1979, 14-viii-1980, Bill and Emma Mackay #'s 3446, 4533 (3 ♀♀ CWEM), **San Bernardino Co.**, San Bernardino Mountains, 2 mi NW Fawnskin, 2-viii-1979, Bill and Emma Mackay # 3234 (5 ♀♀ CWEM), 4 mi NW Fawnskin, 29-vii-1979, 20-viii-1980, Bill and Emma Mackay # 3197, 4566 (4 ♀♀ CWEM), Big Pine Flat, 19-viii-1980, Bill and Emma Mackay # 4564 (4 ♀♀ CWEM); **New Mexico, Otero Co.**, Lake Lucero, 25-vii-1992, W. Mackay #16065 (2 ♀♀ CWEM, MCZC).

melina – USA: California, New Mexico

***Solenopsis metanotalis* Emery**

Figs. 176-182; Map 43

nigella species complex, *metanotalis* subgroup

Solenopsis metanotalis Emery, 1896: 86-87 (♀) ARGENTINA: Buenos Aires, La Plata; combination in *S. (Euophthalma)*, Creighton, 1930: 124

Solenopsis silvestrii Emery, 1906: 120 (♀ ♀) URUGUAY: La Sierra; combination in *S. (Euophthalma)*, Creighton, 1930: 137, **NEW SYNONYM**

Solenopsis metanotalis var. *argus* Santschi, 1923: 260-261 (♀ ♂) ARGENTINA: Entre Rios, Villaguay, **NEW SYNONYM**

Solenopsis (Euophthalma) metanotalis var. *picturata* Santschi, 1931: 276-277 (♀) ARGENTINA: Buenos Aires, Rosas; Santschi, 1933e: 114 (♀), **NEW SYNONYM**

Diagnosis.

Worker. This is a bicolored, reddish brown species with a darker brown gaster. The clypeus is concave between the well-developed lateral teeth that extend 0.480 mm past the anterior margin. The clypeal carinae are well developed and the extralateral teeth are absent. The eye is large with 40-50 ommatidia with eight facets at its maximum width. The dorsal edge of the mesosoma, when viewed in profile, is nearly a diagonal. The entire mesosoma is covered in horizontal striae. The propodeal posterior margin is angular with a ridge; the propodeal spiracle is small with a maximum diameter of 0.024 mm. The petiole is slightly wider than the postpetiole when viewed in profile and both have roughened sculpture.

Female. The female is bicolored with the body and first tergite of the gaster reddish brown and the remainder of the is gaster darker brown. The lateral clypeal teeth extend 0.060 mm past the anterior margin of the clypeus. The extralateral teeth are absent. The head has coarse punctures, but smaller than the hairs that arise from them. The eye is large with approximately 188 ommatidia with a length of 0.225 mm and a width of 0.150 mm. The mesosoma is covered in horizontal striae and the petiole and postpetiole have roughened sculpturing.

Male. The male is dark brown, nearly black, with brown appendages. The head is wider than long. The clypeus is convex and lacking carinae. The eyes are large and extend 0.120 mm past the lateral margin of the head. The head and mesosoma are covered in striae. The petiole is wider than the postpetiole in pro-

file and both have roughened sculpturing. Both the petiole and postpetiole have nodes with pointy/sharp edges and both lack any tooth or flange ventrally.

Worker Description.

Measurements (n=4). TL 2.10-2.34 (2.24); HL 0.642-0.648 (0.645); HW 0.582-0.600 (0.596); EL 0.126-0.132 (0.128); ED 0.084; SL 0.438-0.450 (0.444); FSL 0.204-0.210 (0.207); CI 89.8-93.5 (92.3); SI 67.6-70.1 (68.8); PL 0.078-0.084 (0.083); PW 0.126-0.138 (0.134); PI 60.9-63.6 (61.8); PPL 0.150; PPW 0.192-0.210 (0.199); PPI 71.4-78.1 (75.3); WL 0.480; PSL 0.036; PSW 0.030.

Small, bicolored, reddish brown with darker brown gaster; head longer than wide, quadrate, with straight posterior margin; lateral clypeal teeth well developed, extend 0.480 mm past anterior clypeal margin; clypeal carinae well defined; extralateral teeth absent; eye large, with 40-50 ommatidia; frontal lobes vertically striated; scape long, but not reaching posterior lateral corner of head; minor funicular segments 3-8 long; mesosoma covered entirely with horizontal striae; notopropodeal suture well depressed, notch-like, groove breaks sculpture of mesosoma; propodeal posterior margin angular; propodeal spiracle small; petiole wider than postpetiole viewed laterally; both petiole and postpetiole heavily punctate with roughened sculpturing; petiolar node triangular with tooth ventrally; postpetiolar node oval-shaped when viewed dorsally.

Sparsely pilose, with few erect and suberect hairs covering all body surfaces; scape with numerous appressed hairs, none longer than maximum width; suberect and erect hairs of various lengths on mesosoma; suberect hairs extend posteriorly on both petiole and postpetiole, with longest reaching 0.120 mm in length.

Female Description.

Measurements (n=2). TL 4.44; HL 0.888-0.900 (0.894); HW 0.870; EL 0.222-0.228 (0.225); ED 0.156; MOL 0.054-0.060 (0.057); MOD 0.060; SL 0.600; FSL 0.300; CI 96.7-97.9 (97.3); SI 66.7; PSL 0.072; PSW 0.078; PL 0.144; PW 0.330; PI 43.6; PPL 0.270; PPW 0.540; PPI 50.0; WL 1.08.

Moderately large; bicolored body, head, mesosoma, first tergite of gaster reddish brown, remainder of gaster darker brown; head longer than wide, coarsely punctate, posterior margin straight; clypeal carinae well defined; lateral clypeal teeth well developed, extend 0.060 mm past anterior margin of clypeus; medial clypeal tooth present; extralateral teeth absent; frontal lobes vertically striated; eye large; medial ocellus small; scape reaches $\frac{2}{3}$ length of head to posterior lateral corner; mesosoma completely horizontally striated; propodeal margin angulate, ridge like viewed laterally; propodeal spiracle small; petiole wider than postpetiole viewed laterally; petiolar node triangular, peduncle with well-developed

metanotalis – Bolivia, Argentina, Uruguay

Compare with
nigella

nigella complex

metanotalis 227

flange ventrally; postpetiolar node globular with flange ventrally; petiole and postpetiole with roughened sculpturing.

Sparsely pilose, with erect and suberect hairs of various lengths scattered over body surfaces; head coarsely punctate, but with punctures smaller than hairs that originate from them; hairs on petiole and postpetiole curve posteriorly.

Male Description.

Measurements (n=2). TL 4.32; HL 0.642-0.648 (0.645); HW 0.792-0.810 (0.801); EL 0.312-0.336 (0.324); ED 0.246-0.258 (0.252); MOL 0.084; MOD 0.090-0.096 (0.093); SL 0.258-0.270 (0.264); FSL 1.20-1.32 (1.26); CI 123-125 (124); SI 40.2-41.7 (40.9); PSL 0.06; PSW 0.060; PL 0.120; PW 0.360; PI 33.3; PPL 0.150; PPW 0.438-0.450 (0.444); PPI 33.3-34.2 (33.8); WL 1.20.

Dark brown, nearly black with brown appendages; head wider than long, rounded posteriorly, striated; clypeus convex, lacking carinae; eyes large; mesosoma horizontally striated; petiole wider than postpetiole viewed laterally, with roughened sculpturing; petiolar and postpetiolar nodes angulate; petiolar peduncle and postpetiole lacking tooth or flange ventrally.

Abundantly hairy, with erect and suberect hairs of various lengths covering all body surfaces.

Biology and habitat. *Solenopsis metanotalis* can be found in the La Plata basin in Argentina (Creighton 1930). We collected this species using pitfall traps at 1796 m in Mendoza, Argentina, in a creosote bush desert shrubland in fine sandy soils. It rained two nights before we place the traps and the soil was wet to a 10 cm level.

Distribution. Bolivia, Argentina, Uruguay.

Discussion. *Solenopsis metanotalis* is easily recognized by its long clypeal teeth, large eyes and reddish brown, bicolored coloration. It may be confused with other members of the *metanotalis* subgroup and appears to be closely related to these sister species. However, *S. metanotalis* is distinguished from the other members of the *nigella* species complex and *metanotalis* subgroup by having the largest eyes and a fully striated mesosoma, with roughened sculpturing present on the petiole and postpetiole. These traits are variable in the other species, which are often lacking sculpturing on the pronotum or have less developed lateral clypeal teeth. Moreover, *S. metanotalis* is the largest species in this group.

Solenopsis silvestrii, *S. metanotalis argus* and *S. metanotalis picturata* are identical to *S. metanotalis* and are proposed as synonyms.

metanotalis – Bolivia, Argentina, Uruguay

Type series. *Solenopsis metanotalis* Emery, Argentina, La Plata (Spergazzini) (lectotype ♀ and 1 paralectotype ♀ [here designated] MCSN). *Solenopsis silvestrii* Emery 1906, Uruguay, La Vierra, 26.v.99, Tala 2000m Var., Syntypes MUSEO GENOVA Coll. C. Emery (dono 1925) (lectotype ♀, 1 paralectotype ♀, 1 paralectotype ♀ [here designated] MCSN). *Solenopsis metanotalis* v. *argus* Santschi, Argentina, Entre Rios, Villaguay, Sammlung, Dr. F. Santschi, Kairouan. (C. Bruch. Coll) (lectotype ♀, 3 paralectotype ♀ ♀, 2 paralectotype ♂ ♂ NHMB). *Solenopsis (Euophthalma) metanotalis* Emery v. n. *picturata*, Argentina, Buenos Aires (J. Daguerre), La Plata (OH, Bruch) Rosas-F.C. Sud; Sammlung, Dr. F. Santschi, Kairouan (1 lectotype ♀, 4 paralectotype ♀ ♀, 2 paralectotype ♀ ♀ [here designated] NHMB).

Material examined. Type series and ARGENTINA, Mendoza, 5.69 K SE Cacheuta, 33°4.214'S 69°37.88"W, 8-i-2008, W. Mackay #'s 22848, #22853 (6 ♀ ♀ CWEM).

Compare with
dysderces, leptanilloides, subterranea

pygmaea complex

minutissima 229

***Solenopsis minutissima* Emery**

Figs. 183-188; Map 44

pygmaea species complex

Solenopsis minutissima Emery, 1906: 133, Fig. 15 (♂ ♂) ARGENTINA: Buenos Aires, W. M. Wheeler, 1914: 43-44 (♀)

Solenopsis brevipes Emery, 1906: 135, Fig. 16 (♀) ARGENTINA: Entre Rios, Chajari, **NEW SYNONYMY**

Diagnosis.

Worker. The worker is very small and concolorous yellow. The head is elongate and coarsely punctate. The scape is short at 0.185 mm. The minor funicular segments 3-8 are short as well at 0.078 mm in total length. The eye is extremely small with 1-2 ommatidia and has a maximum diameter of 0.012 mm.

Female. Not seen. Emery 1906, "The female is easy to recognize for its minute stature, elongate head and short, thick legs and antennae."

Male. The male is brown with yellowish appendages. The head is as wide as long and coarsely punctate. The propodeal spiracle is large at 0.250 mm in width. The propodeum, petiole and postpetiole are completely horizontally striated.

Worker Description.

Measurements (n=5). TL 1.20-1.32 (1.29); HL 0.330-0.360 (0.347); HW 0.252-0.258 (0.257); EL 0.006-0.018 (0.013); ED 0.006-0.018 (0.012); SL 0.180-0.192 (0.185); FSL 0.072-0.084 (0.078); CI 71.7-78.2 (74.1); SI 51.7-54.5 (53.3); PL 0.072-0.084 (0.074); PW 0.078-0.096 (0.089); PI 75.0-92.3 (84.1); PPL 0.084-0.102 (0.091); PPW 0.096-0.114 (0.102); PPI 84.2-100 (89.5); WL 0.240; PSL 0.018; PSW 0.018.

Small; concolorous yellow; head quadrate, elongate, coarsely and densely punctate; lateral clypeal teeth well developed, extralateral teeth absent; clypeal carinae weakly defined; scape short, barely exceeds half-length of head; minor funicular segments 3-8 short; eyes small, with little pigmentation (eyes usually not defined), 1-2 ommatidia; mesosoma mostly smooth and shiny; posterior propodeal margin rounded; propodeal spiracle round, small; metapleuron horizontally striated; petiole wider than postpetiole viewed laterally; petiolar node rounded, triangular, peduncle without tooth or flange ventrally; postpetiolar node oval viewed dorsally, lacking tooth or flange ventrally.

minutissima – Argentina: Buenos Aires

Abundantly hairy, pilosity yellow; erect and suberect hairs covering all body surfaces; hairs appear uniform in total length (majority 0.036-0.048 mm).

Male Description.

Measurements (n=4). TL 3.12-3.24 (3.16); HL 0.480; HW 0.480-0.516 (0.495); EL 0.180; ED 0.162; MOL 0.054-0.066 (0.059); MOD 0.048-0.066 (0.056); SL 0.252-0.264 (0.258); FSL 1.32; CI 100-108 (103); SI 52.5-55.0 (53.8); PSL 0.066-0.084 (0.072); PSW 0.060; PL 0.150-0.162 (0.155); PW 0.222-0.240 (0.233); PI 62.5-70.3 (66.5); PPL 0.210-0.222 (0.213); PPW 0.240-0.270 (0.248); PPI 77.8-92.5 (86.3); WL 0.720-0.780 (0.735).

Moderately large; concolorous brown, with yellowish appendages; head as wide as long, coarsely punctate; anterior clypeal margin convex, lacking carinae; scapes and funicular segments long; eyes large, extend 0.108 mm past lateral margin of head; medial ocellus small; pronotum coarsely punctate; posterior propodeal margin rounded; propodeal spiracle large; propodeum horizontally striate; petiole wider than postpetiole viewed laterally; petiolar and postpetiole horizontally striate, both lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hairs covering all body surfaces; hairs on head 0.150 mm in total length; hairs on pronotum 0.120-0.150 mm in length; hairs on petiole, postpetiole and gaster curve posteriorly.

Biology and habitat. *Solenopsis minutissima* was collected nesting under a rock in Argentina (Wheeler, 1914).

Distribution. Argentina, Buenos Aires, Catamarca (Tucumán); Guianas; Trinidad; México, Hildalgo (Kempf 1972 [possibly *S. subterranea* mididentified]). Note, the Mexican records, from Wheeler (1914) are probably misidentifications of *S. pollux* or *S. subterranea*.

Discussion. This species is a small, pale yellow, slender ant, with few erect hairs on the mesosoma. It is also one of the species with long apical antennal segments (segments 9-10), longer than the combined length of the minor segments of the funiculus (others include *S. leptanilloides* and *S. dysderces*). *Solenopsis minutissima* is similar to *S. leptanilloides* and *S. dysderces* but can be separated as it has a quadrate shaped head compared to the other two species which have noticeably elongate heads. *Solenopsis minutissima* can be easily confused with *S. subterranea* as well, as both species have short hairs about the same length on the pronotum and on dorsum of the gaster. It can be separated as the

minutissima –Argentina: Buenos Aires

eyes are poorly developed and nearly absent (present and well-defined in *S. subterranea*). Additionally, the head of *S. minutissima* is thicker when viewed from the dorsal to ventral surface. Based on available material, *S. minutissima* is found in Argentina and the southernmost distribution of *S. subterranea* is Venezuela.

Emery (1906) described *S. minutissima* and *S. brevipes* in the same publication, separating *S. brevipes* by being slightly larger overall, with a longer scape. He mentions that they have the same coloration and states that *S. brevipes* has punctation and hair like any other thief ant species. Although vague in his description of *S. brevipes*, careful measurements of three syntypes of each species shows that *S. brevipes* is well within the range of measurements of *S. minutissima*. Additionally, the shape and length of the lateral clypeal teeth of *S. brevipes* are identical to *S. minutissima* and it is considered a synonym.

Type series. *Solenopsis minutissima* Emery, Argentina, Buenos Aires, Nunez 13.18. Silvestri. M.C.Z. cotype 22755 (lectotype ♀ [here designated], 1 paralectotype ♀ and 1 paralectotype ♂ MCZC). *Solenopsis minutissima* Emery, Argentina, Buenos Aires, Nunez 17.II.99, Museo Genova, Coll. C. Emery (dono 1925) (Syntypus 8 ♀ ♀, 3 ♂ ♂, (MCSN). *Solenopsis brevipes* Emery, Argentina.

Material examined. Type series.

***Solenopsis molesta* (Say)**

Figs. 7, 189-194; Map 45

molesta species complex, *molesta* subgroup

Myrmica molesta Say, 1836: 293-294 (♀) USA: Indiana; G. C. Wheeler & J. Wheeler, 1955c: 134 (l); Petralia & Vinson, 1980: 383 (l); Crozier, 1970: 116 (k.); combination in *Solenopsis*, Mayr, 1863: 407; in *S. (Diplorhoptrum)*, Creighton, 1950: 237

Solenopsis minuta Say, 1836: 294 (♀) USA: Indiana (synonymy by Emery, 1895b: 277)

Myrmica (Tetramorium) exigua Buckley, 1867: 342-343 (♀ ♀) USA: Washington, D. C. (synonymy by Emery, 1895b: 277)

Solenopsis debilis Mayr, 1886: 461 (♀ ♀ ♂) USA (synonymy by Emery, 1895b: 277)

Diagnosis.

Worker. This is a small, yellow species (occasionally pale brown), in which the dorsum of the head is finely punctated. The lateral clypeal teeth are well developed while the extralateral teeth are developed into small bumps. The minor funicular segments are typically about 0.14 mm in length.

Female. The female is moderately large at just over 5.00 mm in total length and concolorous yellow to pale brown. The head and dorsum of the mesosoma are semi-coarsely punctate, with long yellow erect hairs projecting from them. The petiole and postpetiole are horizontally striated. The petiolar peduncle has a small flange ventrally.

Male. The male is concolorous dark brown to bicolored with a brown head and gaster and yellow to golden brown body and is moderately large at just under 4 mm in total length. The anterior clypeal margin is convex. The frontal lobes are horizontally striated. The propodeum, petiole and postpetiole are horizontally striated. The petiolar peduncle has an angle ventrally (not a tooth or flange).

Worker Description.

Measurements (n=6). TL 1.38-1.62 (1.50); HL 0.420-0.510 (0.457); HW 0.360-0.432 (0.386); EL 0.036-0.042 (0.040); ED 0.030-0.036 (0.032); SL 0.282-0.348 (0.317); FSL 0.132-0.156 (0.141); CI 81.1-87.8 (84.5); SI 64.7-72.9 (69.4); PL 0.072-0.096 (0.083); PW 0.120-0.156 (0.126); PI 57.7-80.0 (66.3); PPL 0.102-

molesta – USA, northern México

Compare with *molesta* complex
abdita, *carolinensis*, *krockowi*, *salina*, *texana*, *validiuscula*

molesta 233

0.120 (0.108); PPW 0.120-0.162 (0.135); PPI 74.1-85.7 (80.4); WL 0.300-0.342 (0.325); PSL 0.030-0.036 (0.032); PSW 0.030.

Small; concolorous yellow to pale brown; head longer than wide, sides nearly straight, finely punctate; lateral clypeal teeth well developed, extralateral teeth absent; clypeal carinae well defined; scape long, nearly reaching posterior lateral corner of head; minor funicular segments moderately long; eye small, 3-5 ommatidia; pronotum finely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; notopropodeal suture well depressed, notch-shaped, groove breaks sculpture of mesosoma; posterior border of propodeum rounded; propodeal spiracle small, round; metapleuron horizontally striated; petiole wider than postpetiole viewed laterally; petiolar peduncle with minute angle ventrally; postpetiolar node semicircular viewed laterally, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hairs covering all body surfaces; scape with numerous appressed hairs; dorsum of mesosoma with hairs of various lengths (0.060-0.120 mm); hairs on petiole, postpetiole and gaster curve posteriorly.

Female Description.

Measurements (n=6). TL 4.68-5.64 (5.36); HL 0.720-0.840 (0.781); HW 0.642-0.780 (0.743); EL 0.240; ED 0.180; MOL 0.072-0.120 (0.103); MOD 0.072-0.120 (0.097); SL 0.516-0.540 (0.536); FSL 0.300; CI 89.2-98.5 (95.1); SI 64.3-71.7 (68.7); PSL 0.072-0.078 (0.075); PSW 0.060; PL 0.120; PW 0.276-0.384 (0.350); PI 31.3-43.5 (34.7); PPL 0.276-0.360 (0.306); PPW 0.330-0.420 (0.405); PPI 71.4-85.7 (75.8); WL 0.960-1.20 (1.12).

Moderately large; concolorous yellow to pale brown; head longer than wide, posterior border slightly concave, semi-coarsely punctate; lateral clypeal teeth well developed, extralateral teeth absent; clypeal carinae well defined; frontal lobes vertically striated; eyes large, extend 0.084 mm past lateral margin of head; scapes long, reach lateral ocelli; medial ocellus small, depigmented; dorsum of mesosoma semi-coarsely punctate, smooth and shiny between punctures; posterior propodeal margin viewed laterally slightly angled; propodeal spiracle small, oval; metapleuron horizontally striated; sides of petiolar and postpetiolar nodes horizontally striated; petiolar peduncle with thin flange ventrally; postpetiole lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; numerous erect and suberect hairs of various lengths on all body surfaces; hairs on dorsum of mesosoma long (0.120-0.180 mm); hairs on petiole and postpetiole long (up to 0.240 mm), curve posteriorly.

Male Description.

molesta – USA, northern México

Measurements (n=6). TL 3.48-4.32 (3.85); HL 0.498-0.516 (0.504); HW 0.510-0.534 (0.518); EL 0.276-0.300 (0.282); ED 0.216-0.228 (0.225); MOL 0.078-0.108 (0.091); MOD 0.102-0.120 (0.111); SL 0.204-0.228 (0.212); FSL 0.960-1.02 (0.972); CI 102-104 (103); SI 40.7-44.7 (42.3); PSL 0.078-0.090 (0.083); PSW 0.060; PL 0.132-0.144 (0.138); PW 0.252-0.282 (0.266); PI 48.9-55.8 (52.1); PPL 0.240; PPW 0.300-0.360 (0.324); PPI 66.7-80.0 (74.4); WL 0.960-1.08 (1.05).

Moderately large; concolorous dark brown to bicolored (darker head and gaster than mesosoma); head smooth and shiny with scattered fine punctures, wider than long; anterior clypeal margin convex, lacking teeth or carinae; frontal lobes vertically striated, extend laterally then anteriorly to clypeal margin; antennae long, yellow; eyes large, extend 0.120 mm past lateral margin of head; medial ocellus large, lacking pigment; semi-coarse punctures on pronotum, smooth and shiny between punctures; posterior propodeal margin viewed laterally rounded; propodeal spiracle small, round; propodeum striated; petiolar node rounded dorsally, horizontally striated, peduncle lacking tooth or flange ventrally, but with angle; postpetiolar node flattened dorsally, horizontally striated, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hairs of various lengths covering all body surfaces; most hairs on pronotum about 0.120 mm in total length; hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. *Solenopsis molesta* nests underground, often under stones, generally near the nests of other species where it steals from its host. *Solenopsis molesta* has been collected in nests of the following species, *Myrmica americana*, *Manica invidia*, *Pogonomyrmex occidentalis*, *Po. montanus*, *Messor lobognathus*, *Monomorium minimum*, *Pheidole bicarinata*, *Ph. pilifera*, *Dorymyrmex insanus*, *Camponotus vicinus*, *Lasius crypticus*, *L. neoniger*, *L. sitiens*, *L. umbratus*, *L. claviger*, *L. interjectus*, *L. murphyi*, *Formica argentea*, *F. neogates*, *F. limata*, *F. rubicunda*, *F. bradleyi*, *F. altipetens* and *F. fusca*. Colonies contain up to a few thousand workers. Reproductives and brood are present throughout summer to fall. It is occasionally polygynous, with up to eight females in a single nest. Nuptial flights occur from late July to early fall.

Solenopsis molesta has been found in a number of habitats, including grasslands, arid sites, such as creosote and mesquite scrub, beech/magnolia forest, grassland/oak transition, riparian oak/cottonwood forest; pinyon-juniper woodlands; pinyon pine-riparian; ponderosa pine, pine/hardwood forest, oak wood-

Compare with *abdit*a, *carolinensis*, *krockowi*, *salina*, *texana*, *validiuscula*

molesta complex

molesta 235

lands, meadows, sagebrush and disturbed areas. Soils range from clay to sand, sandy loam, rocky soils, to dry, light brown gravel.

Many specimens were collected in subterranean, surface and vegetation Vienna sausage bait traps, as well as surface, subterranean and vegetation fire ant bait traps. It is commonly collected in pitfall traps.

Solenopsis molesta is predaceous, but are also omnivorous (feeding on seeds), dead insects, they also tend homopterans. This species may also be a household pest. Additionally, it hollows out seeds, thus destroying seed in beds.

Distribution. USA, most of continental United States; New York to California; MEXICO, Nuevo León, San Luis Potosí and Baja California.

Discussion. Apparently, none of the type series exist today. We picked the most common specimens that range near the type locality to anchor the identity of this species. Additionally, we knew the identity of closely related species.

As most thief ant species are minute and concolorous yellow in color, it is difficult to differentiate *S. molesta* from other small species. It is often the case that any small, yellow species is incorrectly named *S. molesta*. However, *Solenopsis molesta* is the most common and widespread thief ant in the continental United States. When one collects a small, yellow *Solenopsis*, there is a high probability it is *S. molesta*.

This common species can be separated from *S. texana*, *S. carolinensis* and *S. abdit*a, by the longer length of the minor funicular segments. It can be separated from *S. krockowi* and its relatives, as the punctures on the head are much finer and the minor funicular segments are rarely greater than 0.150 mm in total length. It is difficult to separate the worker of *S. validiuscula*. *Solenopsis molesta* workers are often smaller than those of *S. validiuscula* (total length 1.80–2.00 mm). The cephalic punctures of *S. validiuscula* are moderately coarse, while *S. molesta* are finer. If females are available, the females of *S. validiuscula* are always dark brown, while *S. molesta* is typically concolorous yellow. The male of *S. molesta* is light brown and occasionally bicolored, while the male of *S. validiuscula* is concolorous dark brown. The pedicel of the male of *S. molesta* is large compared to that of the *S. validiuscula* male (length nearly as long as the scape). Although the two species are similar in size and form, based on the above differences in the castes, they will be recognized as different species.

It is difficult to separate the workers of *S. molesta* from *S. texana*. *Solenopsis texana* is consistently smaller, with the total length ranging from 1.20–1.30 mm. The females of *S. molesta* are easily separated as they are much larger than those of *S. texana* (total length of *S. molesta* ranging from 4 - 5.5 mm, the

molesta – USA, northern México

female of *S. texana* has a total length of slightly over 3 mm). The female of *S. molesta* is yellow or pale brown; that of *S. texana* is black to dark brown.

The worker is easily confused with those of *S. salina*, as both species are yellow and have similar cephalic punctures. They can be separated as the minor segments of the funiculus of *S. molesta* are nearly always over 0.120 mm in length, those of *S. salina* are nearly always shorter than 0.100 mm in length. The clypeal teeth of *S. molesta* are nearly straight, whereas they are usually slightly incurved in *S. salina*.

Type series. None known to exist (type locality, Indiana).

Material examined. **MEXICO, Baja California**, Sierra Juárez, 9.5 mi S Laguna Hanson, 31°56.25'N115°58.07'W, 15-v-2000, R. Johnson # 1997 (12 ♀♀ Johnson Collection); **Nuevo León**, 146 k N Monterrey, 19-v-1988, W. Mackay # 10233 (1 ♀ CWEM), El Salto (Zaragoza), 1415m, 11-vi-1988, W. Mackay #'s 11010-9, 11010-10 (8 ♀♀ CWEM); **San Luis Potosí**, Ciudad Valles, 9-vi-1998, W. Mackay #'s 10940-1, 10940-7 (2 ♀♀ CWEM). **USA, Arizona, Apache Co.**, Apache National Forest, 5 mi E Hwy 180 on USFS Road 249, 8630', 11-ix-1994, R. Johnson # AZ 549 (3 ♀♀ Johnson Collection), **Cochise Co.**, Chiricahua Mts., upper Cave Creek, 6000 - 7500', 11-viii-1967, V. Roth (3 ♀♀ CWEM), Portal, 11-vi-1977, V. Roth (2 ♀♀ CWEM); **Arkansas, Cross Co.**, Village Creek State Park, 14-viii-1988, R. Anderson (13 ♀♀ CWEM), **Hutchinson Co.**, without locality 9-viii-1943, G. Rexwood #45-6455 (25 ♀♀, 3 ♀♀ USNM), **Pulaski Co.**, Pinnacle Mountain State Park, 13-iii-1989, R. Anderson # 12766 (1 ♀ CWEM), **Washington Co.**, 20-viii-1959, R. Redfern (68 ♀♀ USNM); **California, Riverside Co.**, Riverside, 30-v-1960, C. Musgrove (1 ♀, 1 alate ♀, 1 ♂ CWEM), same locality, 14-v-1963, C. Musgrove (1 ♀, 1 ♀ CWEM), **San Diego Co.**, Point Loma, San Diego, L. Léonard (1 ♀ CWEM); **Illinois, La Rue**, 19-iv-1944, Ross Sanderson (4 ♀♀ USNM # 2017865); **Iowa, Story Co.**, Ames, 06-v-1940, Wm. F. Buren (4 ♀♀ USNM), county # 64, 27-viii-1945, R. King (1 ♀ CWEM); **Louisiana, Calcasieu Parrish**, Sam Houston Jones State Park, 17-viii-1987, W. Mackay # 9723-2 (2 ♀♀ CWEM); **Michigan, Saint Joseph Co.**, Sturgis, C. W. Sabrosky (9 ♀♀ USNM); **Mississippi, Oktibbeha Co.**, 4 k NE Starkville, 27-viii-1987, W. Mackay # 9927 (8 ♀♀ CWEM); **Montana, Fallon Co.**, 10 mi W Willard, 20-viii-1971, W. Mackay (7 ♀♀ CWEM); **New Mexico, Doña Ana Co.**, Las Cruces, 20-v-1984, W. Mackay (54 ♀♀ CWEM), 15 mi N Las Cruces, 5-x-1983, W. Mackay #'s 1112, 1121, 1122, 1321, 2112, 3111, 3321 (10 ♀♀

molesta – USA, northern México

CWEM), 45 k NE Las Cruces, 19-iv-1984, W&E Mackay # 2211, 3112, 3212 (6 ♀♀ CWEM), **Grant Co.**, 2 mi NW Luna, 16-iv-1980, W&E Mackay # 3879 (2 ♀♀ CWEM), **Los Alamos Co.**, Rio Grande, 1680m, 1-vii-1986, W. Mackay # 7938 (18 ♀♀, 10 alate ♀♀, 14 ♂♂ CWEM), **Socorro Co.**, Magdalena Mts., 17 k SSE Magdalena, 2063m (GPS), 4-viii-1994, W. Mackay #'s 16762, 16763, 16772, 16773, 16776, 16780 (14 ♀♀, 8 dealate ♀♀ CWEM); **New York, Rockland Co.**, Nyack, 22-viii-1989, M. Deyrup (4 ♀♀ CWEM), **Tompkins Co.**, Berger Beach, 13-v-1906, Krockow (22 ♀♀ USNM), Ithaca, 12-18-viii-1928, Eidmann (2 ♀♀ USNM), South Lansing, 21-viii-1971, A. Francoeur # 02143 (2 ♀♀ CWEM); **Tennessee, McMinn Co.** 7 k SW Athens (rest area), 12-vi-1998, Mackay family # 18271 (13 ♀♀ CWEM); **Texas, Bastrop Co.**, Buescher State Park, 3-v-1998, R. Anderson (5 ♀♀ CWEM), **Blanco Co.**, Pedernales Falls, 3-v-1988, R. Anderson (1 ♀ CWEM), **Brazos Co.**, Brazos Site, 30°35.2'N 96°23.2'W, 26-vii-1999, K. Helms Voucher # 5 (1 ♀ CWEM), 10 k N Kurten, 5-v-1987, W. Mackay # 9138 (44 ♀♀ CWEM), same locality, 18-vi-1987, W. Mackay #'s 9251, 9252, 9253, 9254, 9257, 9259, 9264 (26 ♀♀ CWEM), same locality, 5-viii-1987, W&E Mackay #'s 9558, 9563, 9568, 9569, 9605, 9626, 9631, 9638, 9643, 9644, 9646, 9647, 9648, 9663, 9671, 9672 (64 ♀♀ CWEM), Peach Creek, 22-vii-1987, W. Mackay # 9346 (1 ♀ CWEM), **Brewster Co.**, Big Bend National Park, Pine Canyon, 6-ix-1988, R. Anderson (11 ♀♀ CWEM), **Cameron Co.**, Sabal Palm Grove, 12-14-x-1988, R. Anderson (3 ♀♀ CWEM), **El Paso Co.**, El Paso, Chamizal National Monument, numerous dates during 1998-2001 (numerous ♀♀ CWEM), El Paso, 7-vii-1995, W. Mackay # 17139 (1 alate ♀ CWEM), **Jim Wells Co.**, Alice, 30-vii-1987, W. Mackay # 9530 (5 ♀♀ CWEM), **Houston Co.**, Big Slough Wilderness, 9-v-1988, R. Anderson # 12759 (2 ♀♀ CWEM), **Hudspeth Co.**, 25 k SW Van Horn, many dates, W. Mackay #'s 14083, 14391, 14535, 14689, 14691, 14838, 14911, 14935, 14936 (27 ♀♀ CWEM), **Jeff Davis Co.**, 3.4 mi NE Fort Davis, 10-ix-1988, R. Anderson (4 ♀♀ CWEM), **Rusk Co.**, 30 k NE Nacogdoches, 3-vi-1990, W. Mackay #'s 13406, 13419 (14 ♀♀ CWEM), **Sabine Co.**, 14.5 k E Hemphill, 11-v-1988, R. Anderson # 12763 (9 ♀♀ CWEM), same locality, 8-iii-1989, R. Anderson (8 ♀♀ CWEM), **Walker Co.**, Huntsville State Park, 14-iv-1988, R. Anderson # 12762 (64 ♀♀ CWEM); **Virginia, Albemarle Co.**, Charlottesville, K. M. King #4P-42 (1 ♀ USNM), Lantz Mt., 13-vi-1939, J. E. Graf, #39 (4 ♀♀ USNM), Pine Crest, 22-v-1938, M. R. Smith, (15 ♀♀ USNM); **Washington D. C.**, 09-xii-1938, L. Russell (6 ♀♀ USNM), same locality, 15-xi-1944, M. Wadsworth (3 ♀♀ USNM).

***Solenopsis nickersoni* Thompson**

Figs. 195-196; Map 46

molesta species complex, *tenuis* subgroup

Solenopsis (Diplorhoptrum) nickersoni Thompson, 1982: 486-488, Fig. 1 (♂)
USA: Florida; Thompson, 1989: 281 (♀)

Diagnosis.

Worker. This is a small, medium brown ant with pale yellow legs and antennae. There are suberect hairs on the head that are pointing to the midline of the head. The lateral clypeal teeth are well developed and the extralateral teeth are absent. All body surfaces are smooth and shiny. Both the petiolar peduncle and postpetiole are lacking a tooth or flange ventrally.

Female. Not seen.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.14-1.50 (1.34); HL 0.390-0.408 (0.394); HW 0.312-0.336 (0.323); EL 0.036-0.042 (0.037); ED 0.030-0.036 (0.031); SL 0.252-0.288 (0.265); FSL 0.102-0.120 (0.109); CI 79.4-86.2 (82.0); SI 64.6-70.6 (67.3); PL 0.060; PW 0.084-0.090 (0.089); PI 66.7-71.4 (67.6); PPL 0.078-0.102 (0.092); PPW 0.108-0.120 (0.115); PPI 72.2-85.0 (80.0); WL 0.276-0.300 (0.288); PSL 0.024-0.030 (0.029); PSW 0.024-0.030 (0.029).

Small, medium brown, with pale appendages; head quadrate, longer than wide; clypeal lateral teeth well developed, extralateral teeth absent; clypeal carinae well defined; frontal lobes vertically striated; scape long, reaching $\frac{3}{4}$ length of head to posterior lateral corner; eyes small, five ommatidia; mesosoma smooth and shiny; posterior propodeal margin rounded; petiole wider than postpetiole viewed laterally; petiolar node rounded triangular, peduncle without tooth or flange ventrally; postpetiolar node oval viewed laterally.

Moderately hairy, yellow pilosity; erect and suberect hairs of various lengths covering all body surfaces; suberect hairs on head pointed to midline of head; suberect hairs of various lengths on mesosoma (longest 0.120 mm); suberect hairs on petiole and postpetiole curve posteriorly.

Compare with
castor

molesta complex

nickersoni 239

Biology and habitat. *Solenopsis nickersoni* was collected by subterranean trap at Gainesville Airport, Florida (Thompson 1989). Additionally, this species can be found in Oak Hickory scrub in Florida.

Distribution. Known only from Florida.

Discussion. *Solenopsis nickersoni* is essentially identical to *S. castor*, differing only in being slightly smaller. It will continue to be considered a valid species until the female can be compared with the female of *S. castor*. It can be easily separated at the present time, as it occurs in Florida, whereas *S. castor* is not known from Florida, although it occurs nearby in the Antilles Islands and in México south to Bolivia. It would be unlikely that this species would be confused with any others in Florida, based on the color.

Type series. *Solenopsis nickersoni* Thompson Florida, Alachua. Co., Gainesville Airport, 7-x-1979, Trap 53, Col. C. R. Thompson, Thompson 1982 (3 paratype ♀♀ [seen] LACM).

Material examined. UNITED STATES, Florida, **Brevard Co.**, Indian River City, 1-iii-2001, M. Deyrup & S. Cover (15 ♀♀ Deyrup Collection), **Highlands Co.**, Lake Placid, 13-ix-1988, Hickory Ridge 18E, 17-ii-1990, Tract 18, M. Deyrup (8 ♀♀ CWEM).

***Solenopsis nigella* Emery**

Figs. 197-199; Map 47

nigella species complex, *nigella* subgroup

Solenopsis nigella Emery, 1888: 355-356 (♂) BRAZIL: Rio Grande do Sul, São Lourenço; Forel, 1912: 5 (♀); combination in *S. (Euophthalma)*, Creighton, 1930: 130

Diagnosis.

Worker. This is a concolorous golden brown ant that is shiny and with little body hair. The head is relatively large. The anterior margin of the head as well as the frontal lobes have vertical striae. The lateral clypeal teeth are present and well defined while the extralateral teeth are absent. The clypeal carinae are well developed. The scape is thin and short, barely exceeding the midpoint of the head. This ant has a large eye with about 30-35 ommatidia. Thin horizontal striae cover the basal portion of the metapleuron. The petiole is barely wider than the postpetiole in profile and has a well-defined subpeduncular tooth.

Female. Not seen.

Male. Unknown.

Worker Description.

Measurements (n=2). TL 1.92; HL 0.690-0.768 (0.729); HW 0.642-0.720 (0.681); EL 0.114-0.120 (0.117); ED 0.078; SL 0.384; FSL 0.150-0.156 (0.153); CI 93.0-93.8 (93.4); SI 50.0-55.7 (52.8); PL 0.096-0.102 (0.099); PW 0.162; PI 59.3-62.9 (61.1); PPL 0.126; PPW 0.198; PPI 63.6; WL 0.420-0.480 (0.450); PSL 0.024-0.030 (0.027); PSW 0.018.

Concolorous golden brown; shiny sculpture; head relative large, nearly as wide as long, with vertical striae on frontal lobes and anterior of head; lateral teeth well defined, extralateral teeth absent; clypeal carinae well developed; scape, short, thin, barely exceeding midpoint of head; eye large, 30-35 ommatidia; notopropodeal suture well depressed, groove deep, separating sculpture of mesosoma, sharply defining propodeum; thin horizontal striae cover metapleuron basally; petiole nearly equal in size to postpetiole viewed laterally; subpeduncular process with well-defined tooth.

Very few hairs present with suberect and appressed hairs scattered on all body surfaces.

nigella – Argentina, Brazil

Compare with
andina, *gensterblumi*

nigella complex

nigella 241

Biology and habitat. This species was collected foraging on sand in northern Argentina (Forel 1912).

Distribution. Argentina, Brazil (Kempf 1972).

Discussion. *S. nigella* is similar to *S. andina* and *S. gensterblumi*. *Solenopsis nigella* is just under 2.00 mm in total length while *S. gensterblumi* is 1.50 mm and *S. andina* is 2.70 mm. Additionally, *S. nigella* has fewer ommatidia (30-35) than *S. andina*, which has 45-55 and *S. gensterblumi* has 25-30.

We agree with the synonymy of *S. prevalens* with *S. gensterblumi* (Creighton 1930). *Solenopsis prevalens* are probably minor workers of the nominal *S. nigella*, and *S. gensterblumi* is probably the minor and smaller major of the *S. nigella*. Therefore, *Solenopsis nigella* is probably polymorphic and probably includes *S. prevalens* and *S. gensterblumi* but with the little evidence (incomplete series) we will retain them as separate species. However, if and when a complete series is collected, these three species may be synonymized.

Type series. Not found.

Material examined. Argentina, Cernadas (Córdoba) Silvestri, Cernada, 20-iv-99, (2 ♀ ♀ MCZC).

***Solenopsis ocellata* Moreno, Mackay & Pacheco,
NEW SPECIES**

Figs. 200-201; Map 48

pygmaea species complex

Diagnosis.

Worker. These ants are pale yellow with small eyes of at least one ommatidium. The lateral clypeal teeth are well developed with the extralateral teeth as developed, only slightly smaller. The gaster is densely pilose.

Female and Male. Unknown.

Worker Description.

Measurements (n=6). TL 1.26-1.56 (1.39); HL 0.372-0.408 (0.391); HW 0.270-0.342 (0.301); EL 0.024-0.030 (0.025); ED 0.018-0.024 (0.023); SL 0.228-0.258 (0.238); FSL 0.072-0.114 (0.089); CI 71.4-83.8 (76.8); SI 58.8-63.2 (60.7); PL 0.072-0.078 (0.073); PW 0.090-0.120 (0.103); PI 63.1-80.0 (71.6); PPL 0.096-0.102 (0.097); PPW 0.108-0.120 (0.114); PPI 80.0-89.5 (85.2); WL 0.240-0.300 (0.282); PSL 0.024-0.030 (0.026); PSW 0.024-0.030 (0.026).

Concolorous pale yellow; head elongate, sides of head straight, posterior border concave; lateral clypeal teeth well developed, medial tooth absent, extralateral teeth well developed, scape extends slightly more than $\frac{2}{3}$ distance to posterior or lateral corner of head; eye minute, appears to be one ommatidium; lower mesopleuron finely striated, petiolar peduncle and postpetiole lacking tooth or flange ventrally.

Hairs of various lengths (many 0.030 mm), erect and suberect hairs on head and all body surfaces; antenna very hairy, especially club, scape with few suberect hairs.

Biology and habitat. *Solenopsis ocellata* was collected in subterranean baits in pine/juniper forest habitats and nests under stones.

Etymology. From Latin, *ocellatus*, meaning having small eyes, referring to the tiny eyes.

Distribution. USA (Arizona and Louisiana).

ocellata – USA: Arizona and Louisiana

Compare with
isopilis, *whitfordi*

pygmaea complex

ocellata 243

Discussion. *Solenopsis ocellata* could be confused with *S. isopilis* and *S. whitfordi*. The hairs present on the first tergum of the gaster of *S. ocellata* is the distinguishing feature to separate it from these two species. The first tergum of the gaster in profile has fewer than 20 erect hairs of varying lengths (many over 0.05 mm), which separates it from *isopilis*, which is a species that has more than 20 hairs all equal in length (about 0.02 mm in length). *Solenopsis ocellata* can be separated from *S. whitfordi* in being consistently larger in total length (1.4 vs. 1.2 mm).

Type series. Holotype ♀ (MCZC) and 6 paratype ♀♀ (CWEM, Johnson's Collection, LACM, USNM, MCZC). UNITED STATES, Arizona, Stoneman Lake Rd @ 0.9 mi E I-17, 12-ix-1997, 5800', R. A. Johnson #AZ1115.

Material examined. Type series and Louisiana, Iberia Co., New Iberia, 19-viii-1987, W. P. Mackay #9787 (12 ♀♀ CWEM).

ocellata – USA: Arizona and Louisiana

***Solenopsis oculata* Santschi**

Figs. 202-205; Map 49

nigella species complex, *nigella* subgroup

Solenopsis (Diplorhoptrum) angulata st. *oculatus* Santschi, 1925b: 161-162 (♀)
ARGENTINA: Catamarca, Cerro Colorado; combination in *Solenopsis*
(*Euophthalma*) and raised to species, Creighton, 1930: 133

Diagnosis.

Worker. This is a small, dark brown species with a head that is longer than wide with very fine punctures. The eyes are large, with approximately 30-35 ommatidia. Antennal segment 10 is relatively long at 0.240 mm in length. Both the anterior and posterior faces of the petiole are nearly vertical and converge to form a rounded, although somewhat triangular node. Unlike other species of this complex, this species lacks a tooth at the subpeduncular process. The postpetiole has a rounded node and is wider than the postpetiole when viewed from above.

Female and Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.80-2.04 (1.88); HL 0.520-0.552 (0.534); HW 0.432-0.456 (0.444); EL 0.108-0.120 (0.118); ED 0.078-0.084 (0.079); SL 0.390-0.438 (0.413); FSL 0.192-0.198 (0.194); CI 81.8-86.5 (83.2); SI 73.9-80.8 (77.4); PL 0.102; PW 0.120; PI 85.0; PPL 0.126-0.132 (0.127); PPW 0.162-0.174 (0.169); PPI 72.4-77.8 (75.2); WL 0.390-0.420 (0.409); PSL 0.024-0.030 (0.029); PSW 0.024-0.030 (0.029).

Small, concolorous dark brown; head quadrate, longer than wide, with fine cephalic punctures; eyes large with approximately 30-35 ommatidia; clypeal carinae well developed, extend into well-developed lateral teeth, extralateral teeth rounded; scapes long but do not reach posterior lateral corner of head; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; horizontal striae present on mesopleuron as well as metapleuron; propodeal margin angled, propodeal spiracle small; petiole barely wider than postpetiole in profile, anterior and posterior faces of petiole subvertical, converge to form rounded triangular node, peduncle lacking tooth; postpetiole rounded node, wider than postpetiole when viewed dorsally.

Little pilosity present; sparse suberect hairs present throughout body surfaces.

oculata – Argentina: Catamarca

Compare with
nigella

nigella complex

oculata 245

Biology and habitat. Unknown.

Locality. Known only from the type locality.

Discussion. This species could be confused with other members of the *nigella* species subgroup, but may be distinguished by the lack of a tooth on the subpeduncular process, which is well defined in all other members of the *nigella* subgroup.

Type series. *Solenopsis oculata* Santschi, 5-46, Sammlung, Dr. F. Santschi, Kairouan Argentina, Catamarca, Cerro Colorado (Weiser) (lectotype ♀ and 4 paralectotype ♀ ♀ [here designated] NHMB).

Material examined. Type series.

***Solenopsis orestes* Forel**

Figs. 206-208; Map 50

molesta species complex, *pollux* subgroup*Solenopsis clytemnestra* r. *orestes* Forel, 1903: 256 (♂ ♂) BRAZIL: Ceará; Forel, 1912: 6 (♀), **NEW STATUS***Solenopsis clytemnestra* r. *orestes* var. *tucumana* Forel, 1914: 278 (♀) ARGENTINA; [unavailable name], **material referred here****Diagnosis.**

Worker. This is a small golden-yellow species. The head is nearly quadrate, covered with small punctures. The clypeal carinae are well developed, leading into the lateral teeth which are well developed and protruding past the clypeal margin. The extralateral teeth are present as bumps. The eyes are moderately large with 8-10 ommatidia. The mesosoma has small punctures present, especially on the pronotum. The peduncle is relatively long at 0.120 mm. The petiole and postpetiole are equal in size when viewed in profile, but the petiole is formed into a blunt pyramid and the postpetiole is a rounded rhombus.

Female and Male. Not seen.

Worker Description.

Measurements (n=6). TL 1.80-2.18 (1.92); HL 0.504-0.618 (0.535); HW 0.390-0.504 (0.443); EL 0.048-0.072 (0.061); ED 0.024-0.048 (0.039); SL 0.360-0.420 (0.375); FSL 0.108-0.150 (0.133); CI 77.3-88.4 (82.8); SI 63.1-79.5 (70.3); PL 0.090-0.114 (0.094); PW 0.126-0.180 (0.147); PI 55.6-71.4 (64.5); PPL 0.120-0.150 (0.125); PPW 0.156-0.210 (0.169); PPI 71.4-76.9 (74.1); WL 0.360-0.480 (0.390); PSL 0.036-0.042 (0.040); PSW 0.030-0.036 (0.034).

Small, concolorous golden-yellow species; head nearly quadrate, with coarse punctures; clypeal carinae well developed; lateral teeth well developed, protruding past clypeal margin; extralateral teeth are bumps; eyes moderately large with 8-10 ommatidia; scape relatively long, extending nearly to posterior lateral corner of head; pronotum with coarse punctures; notopropodeal suture weakly depressed, groove breaks sculpture of mesosoma; posterior propodeal margin angular; petiole and postpetiole equal in size when viewed laterally; petiole blunt pyramid; postpetiole rounded rhombus; postpetiole wider than petiole viewed dorsally.

orestes – Argentina, Brazil

Compare with
clytemnestra, *joergenseni*, *parva*

molesta complex

orestes 247

Hairs present on all body surfaces; head abundantly hairy with short erect and suberect hairs extending from punctures; antennae abundantly pilose with suberect hairs; mesosoma very hairy with erect and suberect hairs extending past dorsal margin, with most hairs extending anteriorly; petiole, postpetiole and first tergite of gaster abundantly hairy with suberect hairs that extend posteriorly.

Biology and habitat. Unknown.

Distribution. Argentina and Brazil.

Discussion. *Solenopsis clytemnestra orestes* var. *tucumana* (which is an unavailable name) is identical to *S. orestes*. They both are very hairy on all body surfaces (different from *S. clytemnestra*), have larger eyes and well developed lateral teeth. Additionally and perhaps most importantly *S. orestes* and *S. clytemnestra orestes* var. *tucumana* have a medial clypeal tooth (although poorly developed, but still visible as a small bump and not present in *clytemnestra*) and is synonymized.

This species is similar to *S. clytemnestra* but can be distinguished by having more hair present on all body surfaces, larger eyes, as well as more developed lateral clypeal teeth. This species can also be confused with *S. parva*, but can be separated in that *S. parva* has less hair on all body surfaces, has a kidney-shaped eye and less developed lateral clypeal teeth that resemble angles. *Solenopsis joergenseni* is similar to *S. orestes* in pilosity and number of ommatidia but can be distinguished from *S. orestes* as the head of this species is rectangular while *S. orestes* has a nearly square-shaped head. Additionally, *S. joergenseni* has horizontal striae present on the mesopleuron; a trait lacking in *S. orestes*.

Type series. *Solenopsis clytemnestra orestes* Forel, Type, AMNH, M.Z.C. Type 1-3, 20908, M.Z.C. Cotype 29398 (lectotype ♀ and 2 paralectotype ♀♀ [here designated] MCZC), Brazil, Ceará, Dr. Rocha. *Solenopsis clytemnestra* Em. r. *orestes* For. v. *tucumana* Forel, 163 Tucuman Shipton leg., v. cr. Tucumana Forel Coll. A. Forel Argentina (3 cotype ♀♀ MHNG).

Material examined. Type series.

orestes – Argentina, Brazil

***Solenopsis parva* Mayr**

Figs. 209-213; Map 51

molesta species complex, *molesta* subgroup*Solenopsis parva* Mayr, 1868: 175 (♂) ARGENTINA: Mendoza*Solenopsis angulata* Emery, 1894: 393 (footnote) (♂ ♀) BRAZIL: Rio Grande do Sul; combination in *Solenopsis (Diplorhoptrum)*, Santschi, 1925b: 161; in *Solenopsis (Oedaleocerus)*, Creighton, 1930: 146. [Misspelled as *angustata* by Santschi, 1912: 526], **NEW SYNONYM***Solenopsis angulata* var. *dolichops* Emery, 1906: 123 (♂ ♀) ARGENTINA: Chubut, Puerto Canarones, **NEW SYNONYM***Solenopsis angulata* r. *huasanensis* Forel, 1912: 8 (♂) ARGENTINA: Catamarca, Huasán, **NEW SYNONYM***Solenopsis angulata* r. *mendozensis* Forel, 1914: 277 (♂) ARGENTINA: Mendoza. [First available use of *Solenopsis angulata* r. *carettei* var. *mendozensis* Forel, 1913: 223; unavailable name.], **NEW SYNONYM***Solenopsis (Diplorhoptrum) gallardoi* Santschi, 1925b: 160-161, Fig. 5 (♂) ARGENTINA: Santa Fé, Fives Lille, **NEW SYNONYM****Diagnosis.**

Worker. This is a concolorous yellow to brown species with smooth, glossy sculpturing. The head is nearly quadrate with the anterior portion rounded while the posterior is angled at the edges. The lateral clypeal teeth are poorly developed and angulate. The eyes are moderately large with approximately 5-8 ommatidia and often kidney-shaped. Both the mesopleuron and metapleuron are horizontally striated. The peduncle is relatively long and extends 0.100 mm from the propodeum. The postpetiole is nearly quadrate viewed dorsally.

Female. The female is moderately large and concolorous brown in color. What is striking about the female is the thick scape (maximum diameter 0.096 mm) which is thicker basally and tapers distally towards the minor segments. The propodeum is striated basally.

Male. Unknown.

Worker Description.

Measurements (n=7). TL 1.56-1.62 (1.58); HL 0.420-0.456 (0.443); HW 0.378-0.408 (0.389); EL 0.060-0.078 (0.070); ED 0.048-0.060 (0.053); SL 0.270-

parva – Argentina, Brazil, Uruguay

Compare with
clytemnestra, *westwoodi*

molesta complex

parva 249

0.360 (0.314); FSL 0.120-0.138 (0.126); CI 82.9-93.2 (87.9); SI 61.6-78.9 (70.9); PL 0.066-0.078 (0.072); PW 0.084-0.096 (0.090); PI 73.3-86.7 (79.9); PPL 0.120; PPW 0.126-0.144 (0.134); PPI 83.3-95.2 (89.7); WL 0.300-0.360 (0.343); PSL 0.024; PSW 0.024.

Small; concolorous yellow to brown; head quadrate, longer than wide, finely punctate; lateral clypeal teeth poorly developed, angulate, extralateral teeth absent; clypeal carinae well defined; scape long, reaches $\frac{3}{4}$ length of head; minor funicular segments moderately long; eyes black, large, kidney shaped, approximately 5-8 ommatidia; pronotum smooth and shiny; metapleuron horizontally striated, especially basally; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; posterior edge of propodeum slightly angulate; propodeal spiracle small, round; metapleuron horizontally striated; peduncle relatively long; petiolar peduncle lacking tooth or flange ventrally, wider than postpetiole viewed laterally; postpetiole nearly quadrate viewed dorsally, larger than petiole.

Sparsely to moderately pilose, pilosity yellow to light brown; erect and suberect hairs scattered on all body surfaces.

Female Description.

Measurements (n=2). TL 3.96-4.80 (4.38); HL 0.690-0.720 (0.705); HW 0.660-0.720 (0.690); EL 0.204-0.210 (0.207); ED 0.132-0.156 (0.144); MOL 0.054; MOD 0.054; SL 0.480-0.510 (0.495); FSL 0.270-0.282 (0.276); CI 95.7-100 (97.8); SI 69.6-70.8 (70.2); PSL 0.060; PSW 0.060; PL 0.120; PW 0.270-0.276 (0.273); PI 43.5-44.4 (43.9); PPL 0.240; PPW 0.390-0.402 (0.396); PPI 59.7-61.5 (60.6); WL 0.900.

Moderately large; concolorous brown; head quadrate, semi-coarsely punctate; lateral clypeal teeth angulate, extralateral teeth present as bumps; clypeal carinae well defined; frontal lobes weakly striated; scape long, reaching $\frac{3}{4}$ length of head, thickened basally, tapered towards minor segments; minor funicular segments 3-8 long; eyes large, oval, extend 0.054 mm past sides of border of head; medial ocellus small, without pigment; pronotum semi-coarsely punctate, smooth and shiny between punctures; posterior edge of propodeum slightly angulate; propodeal spiracle large, round; metapleuron striated basally below spiracle; petiolar peduncle with minute, thin flange ventrally; postpetiole lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow to light brown; erect and suberect hairs of various lengths (0.090-0.240 mm) covering all body surfaces; scape with numerous suberect hairs (0.150 mm), especially basally; most hairs on mesosoma, petiole, postpetiole and gaster curve posteriorly.

parva – Argentina, Brazil, Uruguay

Biology and habitat. We found *S. parva* in creosote bush scrub in the deserts of Argentina and in shrublands and collected it in pitfall traps in January (summer) in light brown fine sandy soils.

Distribution. Argentina, Brazil, Uruguay, (Kempf, 1972).

Discussion. *Solenopsis parva* is easily recognized by having reduced angulate clypeal teeth and a moderately large, kidney-shaped eye. The eye separates this species from all other smaller yellow thief ants of the *molesta* species complex. The type of *S. parva* is slightly less pilose than other forms of *S. angulata* but this probably can be attributed to the old age of the specimen as well as the dusty appearance.

Solenopsis angulata, *S. angulata huasanensis* and *S. angulata mendozensis* are very similar, but the petiole of *S. angulata huasanensis* is more rectangular. As there is only a single specimen of *S. angulata mendozensis*, it is difficult to determine the significance of this character. *Solenopsis angulata mendozensis* is yellow in color and probably a color variant and is synonymized. *Solenopsis angulata dolichops* is identical to *S. parva* with a kidney-shaped eye, angulate teeth and striated meso- and metapleurae and is also synonymized.

Upon comparison of the types, *S. gallardoi* is identical to *S. parva*. Santschi (1925) states that *S. gallardoi* is similar to *S. westwoodi*, but can be distinguished by *S. westwoodi* having a shorter scape with greater punctuation. Santschi states that *S. basalis* is similar as well but has a more robust mesosoma; once again a character that does not seem different between these species. Santschi states that *S. clytemnestra* is similar but can be separated based on its shorter scape and shorter petiolar node. The scape of *S. clytemnestra* is much thinner and the petiolar node does appear to be slightly smaller, but these are inadequate characters and overall these three species should not have been compared to *S. gallardoi*. The key characters for this species are the larger eyes (about 8-10 ommatidia), the latitudinal striae present on the mesopleuron and the propodeum and the angled clypeal teeth make it very similar to *S. parva*. The only difference is that *S. parva* is predominantly found as a brown ant and *S. gallardoi* is concolorous yellow. However, some populations in Argentina are concolorous yellow as seen with *S. angulata mendozensis* which is a synonym of *S. parva* and thusly *S. gallardoi* is considered to be within the variation of *S. parva* and is synonymized.

parva – Argentina, Brazil, Uruguay

Compare with
clytemnestra, *westwoodi*

molesta complex

parva 251

Type series. *Solenopsis parva* Mayr, Argentina, Mendoza, June 12, Collect. G. Mayr, Mayr coll. (lectotype ♀ [here designated] NHMW). *Solenopsis angulata* Emery, 1896, Museo Genova C. Emery (dono 1925) Brazil, Rio Grande do Sul (lectotype ♀, 8 paralectotype ♀♀ [here designated] and 2 paralectotype ♀♀ [here designated] MCSN). *Solenopsis angulata dolichops* Emery, Museo Genova C. Emery (dono 1925) Argentina, Chubut, Puerto Camarones (lectotype ♀ and 4 paralectotype ♀♀ [here designated] MCSN). *Solenopsis angulata huasanensis* Forel, Forel coll., Argentina, Catamarca, Huasan (lectotype ♀ and 4 paralectotype ♀♀ [here designated] MHNG). *Solenopsis angulata carettei* var. *mendozenensis* Forel [unavailable name] Forel coll., Argentina, Mendoza (1 type ♀ MHNG). *Solenopsis (Diplorhoptrum) gallardoii* Santschi, Sammlung, Dr. F. Santschi, Kairouan Argentina, Santa Fé, Fives Lille (lectotype ♀ and 2 paralectotype ♀♀ [here designated] NHMB).

Material examined. Type series and **ARGENTINA, Entre Rios**, 8.63 k W Concordia, 50 m, 31°53.168'S 58°13.370'W, 27-12-2007, W&E Mackay # 22665 (2 ♀♀ CWEM); **Mendoza**, 5.69 k SE Cacheuta, 1835m, 33°4.714'S 69°3.788'W, 7-i-2008, W. Mackay #22849 (CWEM).

parva – Argentina, Brazil, Uruguay

***Solenopsis patagonica* Emery**

Figs. 214-217; Map 52

fugax species complex

Solenopsis patagonica Emery, 1906: 132-133, Fig. 14 (♀) ARGENTINA: Chubut, Puerto Madryn; Gallardo, 1919b: 246-247 (♀ ♂); *S. thoracica*, incorrectly synonymized by Kusnezov, 1960b: 338; see also Kusnezov: 1949b, 281

Solenopsis patagonica r. *medeis* Forel, 1912: 10 (♀ ♂) BRAZIL: Guanabara, Rio de Janeiro, **NEW SYNONYM**

Diagnosis.

Worker. This is a small, shiny, golden yellow to light brown species. The head is quadrate, coarsely punctate and covered in short, suberect hairs. All four clypeal teeth are present and well defined. The minor funicular segments 3-8 are 0.120 mm in length. The eye is small and contains 3-5 ommatidia. Coarse punctures are visible on the pronotum. The propodeum has an angled posterior margin and the propodeal spiracle is large at 0.030 mm maximum diameter. The petiole is wide and much larger than the postpetiole in profile. A well-developed tooth is present on the subpeduncular process as well as ventrally on the postpetiole.

Female. Not seen. Modified from Gallardo (1919), "The female is dark brown with reddish brown appendages. The head is coarsely punctated, longer than wide and wider posteriorly, with the posterior border straight and the posterior lateral corners rounded. The anterior clypeal margin has four well defined teeth. The scape is long reaching the lateral ocelli. The minor funicular segments 3-6 are wider than long, segment 7 is as long as wide and segment 8 is longer than wide. The postpetiole is oval and wider than the postpetiole."

Male. The male is small and golden brown in color. The anterior margin of the clypeus is nearly straight with no visible tooth or bump present. The eyes are large. The antennae are long and pale yellow in color. The three ocelli are large and clear. Coarse punctures are present on the head, pronotum and first tergite of the gaster. There are thin rugulae present on the propodeum. The petiolar node is angulate.

Compare with
tetracantha, *thoracica*, *westwoodi*

fugax complex

patagonica 253

Worker Description.

Measurements (n=5). TL 1.56-1.62 (1.59); HL 0.420-0.480 (0.446); HW 0.360-0.420 (0.379); EL 0.036; ED 0.030; SL 0.264-0.300 (0.285); FSL 0.072-0.120 (0.099); CI 80.0-87.5 (85.2); SI 58.7-69.4 (64.1); PL 0.078; PW 0.120-0.138 (0.128); PI 56.5-65.0 (60.9); PPL 0.120; PPW 0.132-0.150 (0.141); PPI 80.0-90.9 (85.5); WL 0.288-0.360 (0.346); PSL 0.030-0.036 (0.031); PSW 0.024-0.030 (0.029).

Small, golden yellow to brown; head longer than wide, coarsely punctate; clypeal lateral and extralateral teeth well developed; clypeal carinae well defined; scape does not reach posterior lateral corner of head; eye small, 3-5 ommatidia; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron and propodeum smooth and shiny; notopropodeal suture weakly depressed; posterior propodeal margin angulate; petiole wide compared to postpetiole (viewed laterally); petiolar node rounded, peduncle with well-developed tooth ventrally; petiolar node oval, with well-developed tooth ventrally.

Abundantly hairy; hair covering all body surfaces; head, mesosoma, petiole, postpetiole and gaster heavily pilose with erect and suberect hairs.

Female Description.

Not seen. Translated and modified from Gallardo (1919), "Large (6.00 mm TL); dark brown; head coarsely punctated, longer than wide; clypeal carinae well defined; clypeal lateral and extralateral teeth well developed; scape long, reaching lateral ocelli; mesosoma convex, finely punctated; basal face of epinotum quadrate forming obtuse angle with declivitous face that is also longer; petiole node scale-like, wider than long, with anterior face parted medially; postpetiole oval, slightly wider than petiole."

From Gallardo (1919), "Moderately hairy, erect and suberect hairs scattered on all body surfaces; short pubescence on head, mesosoma, petiole and appendages."

Male Description.

Measurements (n=3). TL 3.00-3.12 (3.08); HL 0.396-0.420 (0.412); HW 0.384-0.420 (0.400); EL 0.216-0.240 (0.224); ED 0.180; MOL 0.060; MOD 0.090; SL 0.162-0.180 (0.174); FSL 1.02; CI 91.4-100 (97.1); SI 40.9-42.9 (42.2); PSL 0.066; PSW 0.054-0.060 (0.058); PL 0.120; PW 0.192-0.210 (0.204); PI 57.1-62.5 (58.9); PPL 0.180; PPW 0.240; PPI 75.0; WL 0.840.

Small, concolorous golden brown; head wider than long, smooth and shiny except for roughened area posterior to medial ocellus; anterior clypeal mar-

patagonica – Argentina, Brazil

gin straight with no visible teeth or bumps; eyes relatively small; antennae long; pale yellow; ocelli large, clear; head, pronotum and first tergite of gaster coarsely punctate; pronotum and mesopleuron smooth and shiny; propodeum entirely rugose; petiole wider than postpetiole viewed laterally; petiolar node angulate, peduncle lacking tooth or flange ventrally; postpetiolar node rhombus, lacking tooth or flange ventrally.

Abundantly hairy; erect and suberect hair prevalent on all body surfaces; nearly all punctures with suberect hair.

Biology and habitat. *Solenopsis patagonica* was collected in a nest of *Iridomyrmex humilis* in Brazil. This species was collected under rocks in Argentina (Gallardo 1919).

Distribution. Argentina and Brazil.

Discussion. This species is similar to *S. tetracantha*, with well-developed lateral and extralateral teeth, but can be distinguished by its wider petiole compared to the more slender node of *S. tetracantha* (as seen in profile). *Solenopsis patagonica* is similar to *S. westwoodi*, based on the coarsely punctate head, but can be distinguished as *S. westwoodi* is dark brown in coloration and much smaller in total length. It is possible that *S. patagonica* is dimorphic as *S. thoracica*, but we have not seen the major.

The male resembles the male of *S. goeldii*, but can be distinguished as *S. goeldii* lacks striae on the lower half of the propodeum and *S. goeldii* has less pronounced angles on the upper portion of the petiole. This species was considered to be a synonym of *S. thoracica* (by Kusnezov 1960b), however the male of *S. thoracica* is approximately 5.00 mm in length while the *S. patagonica* male barely exceeds 3.00 mm in length and we regard *S. patagonica* as valid.

The workers of *Solenopsis patagonica medeis* are identical to the nominal and is synonymized.

Type series. *Solenopsis patagonica* Emery, Argentina, Puerto Madryn, Chubut, (Silvestri) (lectotype ♀ and 1 paralectotype ♀ [here designated], MCSN). *Solenopsis patagonica* Em. r. *medeis* For., Brazil, Rio de Janeiro (Goeldi) (lectotype ♀, 2 paralectotype ♀ ♀ and 3 paralectotype ♂ ♂ [here designated], MHNG).

Material examined. Type series.

patagonica – Argentina, Brazil

Compare with
pollux, *texana*

molesta complex

patriciae 255

***Solenopsis patriciae* Pacheco & Mackay, NEW SPECIES**

Figs. 218-221; Map 53

molesta species complex, *pollux* subgroup

Diagnosis.

Worker. The worker of this species is a small, yellow ant, in which most of hairs on the scapes and tibiae are appressed. The clypeal carinae are well defined and the lateral teeth are sharp and well formed. The head is elongate and the scapes reach approximately $\frac{2}{3}$ the length to the posterior lateral corner of the head. The eyes are small (maximum diameter 0.024 mm).

Female. The female is a small, dark brown specimen with relatively small eyes (0.222 mm in diameter). The scape is long, nearly reaching the posterior border of the head and light brown in color. The metapleuron, petiole and postpetiole are horizontally striated. The petiolar peduncle is lacking a tooth or flange ventrally.

Male. Unknown.

Worker Description.

Worker. Measurements (n=3). TL 1.02; HL 0.360-0.390 (0.370); HW 0.282-0.294 (0.288); EL 0.036; ED 0.024; SL 0.210-0.222 (0.216); FSL 0.078-0.084 (0.082); CI 73.8-81.7 (77.9); SI 55.4-61.7 (58.5); PL 0.048-0.054 (0.052); PW 0.078-0.084 (0.082); PI 61.5-64.3 (63.4); PPL 0.078; PPW 0.102-0.108 (0.104); PPI 72.2-76.5 (75.1); WL 0.240; PSL 0.030; PSW 0.024.

Small; concolorous golden yellow; head longer than wide, with semi-coarse punctation; lateral clypeal teeth well developed, extralateral teeth absent; clypeal carinae well defined; scapes short, reach $\frac{2}{3}$ length of head; minor funicular segments 3-8 short; eye small, three ommatidia; pronotum and mesopleuron smooth and shiny; metapleuron horizontally striated; posterior propodeal margin angulate; anterior and posterior faces of petiolar node nearly straight; postpetiolar node semicircular, smaller than petiole viewed laterally; both petiolar peduncle and postpetiole lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hairs of various lengths (0.018-0.090 mm) covering all body surfaces.

patriciae – México: Tabasco

Female Description.

Measurements (n=1). TL 2.76; HL 0.498; HW 0.396; EL 0.120; ED 0.222; MOL 0.036; MOD 0.042; SL 0.348; FSL 0.198; CI 79.5; SI 69.9; PSL 0.040; PSW 0.030; PL 0.078; PW 0.162; PI 48.1; PPL 0.144; PPW 0.192; PPI 75.0; WL 0.600.

Small; concolorous dark brown with lighter brown appendages; head longer than wide, sides slightly convex, posterior border straight, coarsely punctate; lateral clypeal teeth well developed, extralateral teeth angulate; clypeal carinae well defined; scapes long, nearly reaching posterior border of head; eyes small, black; medial ocellus small, without pigment; mesosoma smooth and shiny; metapleuron horizontally striated; petiole and postpetiole horizontally striated, lacking tooth or flange ventrally.

Abundantly hairy, pilosity light brown and yellow; erect and suberect hairs of various lengths (0.018-0.150 mm) covering all body surfaces; hairs on petiole and postpetiole longer than those on mesosoma, curve posteriorly.

Etymology. Named in honor of Dra. Patricia Rojas, ecologist with The Instituto de Ecología in Jalapa, México, close personal friend and fellow myrmecologist who collected the type series.

Biology and habitat. The type series was collected in a berlese leaf litter sample in “selva de Canacohite”.

Distribution. Known only from the type locality in southern México.

Discussion. The workers of *S. patriciae* are nearly identical to those of *S. texana*, but can often be separated by the slightly more abundant erect hairs. The hairs on the gaster of the worker of *S. patriciae* are usually longer (0.036 mm) and more dense (more than 15 on the dorsum of the first gastral tergum as seen from the side), as compared to the shorter hairs (most less than 0.035 mm) less dense hairs (usually fewer than 15) on the dorsum of the first gastral tergum. The female is also distinctive from *S. texana*, as it is small and dark brown in coloration compared to the light brown or yellowish-brown female of *S. texana*. Moreover the female of *S. texana* is larger (total length > 3 mm). The females are very different, and may be necessary to be sure of the correct identification of a series. *Solenopsis texana* is much more common, so when in doubt about a series, it is probably *S. texana*.

patriciae –México: Tabasco

Compare with
pollux, texana

molesta complex

patriciae 257

Workers of *S. patriciae* are very similar to those of *S. pollux*, which it overlaps in distribution. In most cases they can be easily separated as the workers of *S. patriciae* have fewer than 10 erect hairs on the promesonotum, whereas *S. pollux* has more than 10 erect hairs in the same position (as seen in profile). The female of *S. patriciae* are much smaller (see key) and darker than those of the pale brown or yellowish brown larger females of *S. pollux*.

Type series. Holotype ♀ (IEMJ) and 3 paratype ♂♂ (CWEM, IEMJ, MCZC), MEXICO, Tabasco; Campo Experimental COLPOS; Cárdenas, 22-viii-2000, Col. P. Rojas; Formicidae BSIE-1187.

Material examined. Type series.

patriciae – México: Tabasco

258 *pergandei*

fugax complex

Compare with

pilosula, *pygmaea* species complex

***Solenopsis pergandei* Forel**

Figs. 222-224; Map 54

fugax species complex

Solenopsis pergandei Forel, 1901a: 343-344 (♀ ♂) USA: North Carolina; G. C. Wheeler & J. Wheeler, 1960b: 21 (l); combination in *S. (Diplorhoptrum)*, M. R. Smith, 1947: 568, Plate 9, Fig. 36 (♀)

Solenopsis puncticeps Mackay and Vinson, 1989: 175-178 (♀), **NEW SYNONYM**

Diagnosis.

Worker. The worker is medium sized and light yellow. The clypeus is very narrow between the lateral carinae. The lateral clypeal teeth are well developed. It has very coarse cephalic punctures with scattered erect hairs on the dorsum of the head. The postpetiole is perfectly round when viewed from above. The notopropodeal suture is very depressed, the propodeal spiracle is large and close to the suture.

Female. The female is a moderately sized (6-7 millimeters total length) pale yellow specimen with black eyes. The lateral clypeal teeth are developed, the extralateral teeth are poorly developed. The dorsum of the head is coarsely punctate and the scapes fail to reach the posterior lateral corner of the head. Nearly all surfaces are covered with erect or suberect hairs up to 0.12 millimeters in length. The hairs are abundant on the dorsum and ventral surfaces of the head, scape and tibiae. Viewed from above, the postpetiole is globular-shaped, similar to that of the worker.

Male. Not included.

Worker Description.

Measurements (n=5). TL 1.74-1.86 (1.82); HL 0.498-0.510 (0.508); HW 0.456-0.468 (0.462); EL 0.036; ED 0.030; SL 0.360; FSL 0.162; CI 89.4-92.8 (91.0); SI 70.6-72.3 (70.9); PL 0.078-0.120 (0.102); PW 0.120-0.138 (0.133); PI 65.0-90.9 (76.4); PPL 0.132; PPW 0.150; PPI 88; WL 0.432-0.444 (0.438); PSL 0.048; PSW 0.048.

pergandei – USA: southern and eastern states

Compare with *fugax* complex
pilosula, *pygmaea* species complex

pergandei 259

Concolorous light yellow; head nearly quadrate; eye small, round, two ommatidia; clypeus narrow; lateral clypeal teeth well developed; extralateral teeth absent; clypeal carinae weakly developed; scape extends $\frac{3}{4}$ length of head; notopropodeal suture depressed; propodeal spiracle large; petiolar peduncle with translucent tooth ventrally; postpetiole circular viewed dorsally.

Entire body densely hairy, with all hairs about equal in length; hairs scattered across head, but with center line free of hairs.

Female Description.

Measurements (n=1). TL 6.5; HL 0.813; HW 0.900; EL 0.363; ED 0.263; SL 0.563; FSL 0.288; CI 111; SI 69; PL 0.313; PW 0.388; PI 124; PPL 0.425; PPW 0.450; PPI 106; WL 1.038; PSL 0.125; PSW 0.088.

Concolorous pale yellow with black eyes; mandible with four teeth; lateral teeth of clypeus short (0.002 mm); eye large, occupying approximately $\frac{1}{2}$ length of side of head; scape failing to reach posterior lateral corner of head by approximately maximum diameter of scape; ocelli well developed, diameter of median ocellus slightly larger than distance between median ocellus and lateral ocellus; mandibles smooth and glossy with scattered punctures; dorsum of head smooth and glossy, with large punctae, separated by about 2-3 punctal diameters; mesosoma smooth and glossy, scutum covered with coarse punctae as dorsum of head; subpeduncular process poorly developed; postpetiole and gaster smooth and glossy.

Erect golden-yellow hairs present on mandibles, clypeus, dorsal and ventral surfaces of head, posterior border, scape, funiculus, mesosoma, coxae, femora, tibiae, dorsum of petiole, all surfaces of postpetiole, and all surfaces of gaster

Biology and habitat. *Solenopsis pergandei* prefers compact soil, arid sites and areas such as lawns and trails in forests (Thompson, 1980) or actually in dense forests. It can also be found nesting in dark brown sandy soils; or in rotting pine stumps (Smith, 1931, 1944). This species can be collected in scrubby flatwoods in Florida and can be found in the Chihuahuan Desert in New Mexico. It can be collected using subterranean Vienna sausage baits.

Distribution. USA (North Carolina) south to Florida, west Texas and New Mexico.

pergandei – USA: southern and eastern states

Discussion. This species is unlikely to be confused with any others in North America, based on the coarse punctures on the head, combined with the perfectly round postpetiole (seen from above). The members of the *pygmaea* group, also have coarse punctures on the head, as well as circular postpetioles, but have elongated heads. *Solenopsis pergandei* has a quadrate-shaped head and is much larger than members of the *pygmaea* species complex. The shape of the petiole (moderately thickened as seen in profile) suggests a close relationship of this species with *S. pilosula*. It can be separated by the circular postpetiole (oval in *S. pilosula*) and the clypeal carinae are not parallel (nearly parallel in *S. pilosula*).

Solenopsis puncticeps differs from the “normal” *S. pergandei* in having coarser punctures on the dorsum of the head, but is very similar to the condition of the types and is recognized within the variation of the same species-level taxon.

Type series. *Solenopsis pergandei* Forel, North Carolina, Faisons, Forel (lectotype ♀, 5 paralectotype ♀♀, 2 paralectotype ♀♀ and 3 paralectotype ♂♂ MHNG). *Solenopsis puncticeps*, Texas, Brazos Co., 10 k N Kurten, 5-v-1987, W. Mackay # 9149 (27 paratype ♀♀ CWEM).

Material examined. Type series and USA, **Alabama**, Equality, L. Morpheme (1 ♀ CWEM); **Florida**, Alachua Co., without locality, 28-vii-1985, J. Trager (3 ♀♀, 1 alate ♀ CWEM), Highland Co., Archbold Biol. Station, 21-vii-1995, A. Wild (4 ♀♀ CWEM); Walton Co., De Funiak Springs, 9-vii-1989, M. Deyrup (4 ♀♀ CWEM); **Mississippi**, Ackerman, 2-i-1930, M. Smith # 2 (2 ♀♀ CWEM), Biloxi, M. Smith (1 ♀ CWEM); **New Mexico**, 40 k NNE Las Cruces, 29-iii-1983, W. Mackay # 2221 (1 ♀ CWEM); **Texas**, **Rusk Co.**, 30 k NE Nacogdoches, 3-vi-1990, W. Mackay # 13404 (11 ♀♀ CWEM).

Compare with
macrops

nigella complex

photophila 261

***Solenopsis photophila* Santschi**

Figs. 225-226; Map 55

nigella species complex, *nigella* subgroup

Solenopsis (Synsolenopsis) photophila Santschi, 1923: 250-252, Fig. 1 (♀) ARGENTINA: Entre Rios, Villaguay; combination in *Synsolenopsis*, Kusnezov, 1953c: 347; in *Solenopsis*, Ettershank, 1966: 142.

Diagnosis.

Worker. This species is very small and concolorous brown. What is striking about this species is its large kidney-shaped eyes with approximately 30 ommatidia. The mesopleuron, propodeum, petiole and postpetiole are heavily punctate with roughened sculpturing. The petiole has a triangular node and a flange is present ventrally.

Female and Male. Unknown.

Worker Description.

Measurements (n=1). TL 1.44; HL 0.540; HW 0.456; EL 0.120; ED 0.060; SL 0.318; FSL 0.156; CI 84.4; SI 58.9; PL 0.072; PW 0.144; PI 50.0; PPL 0.090; PPW 0.156; PPI 57.7; WL 0.360; PSL 0.030; PSW 0.030.

Small, concolorous brown; head quadrate, posterior border nearly straight, finely punctate; lateral clypeal teeth angulate, extralateral teeth absent; clypeal carinae well defined; frontal lobes vertically striated; eyes large, approximately 30 ommatidia; scape reaching $\frac{2}{3}$ length of head; pronotum smooth and shiny; mesopleuron and side of propodeum heavily punctate; metapleuron horizontally striated; posterior propodeal margin angulate; petiole and postpetiole heavily punctate; subpeduncular process with flange.

Not very hairy; erect and suberect hairs of various lengths scattered on all body surfaces, most hairs short (0.09 mm); suberect hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. *Solenopsis photophila* has been collected using seed baits in the Monte desert of Mendoza, Argentina, in *Prosopis* open woodland. It also occurs in fine sandy soils in creosote bush scrub, where it was collected in pitfall traps.

Distribution. Argentina.

photophila – Argentina: Entre Rios, Mendoza

Discussion. This is one of the most unique species in the genus *Solenopsis*, which is easily recognized by its large kidney-shaped eye. The only species that has a similar eye is *S. macrops*. However the eye is smaller in *S. photophila* and this species has punctate/roughened sculpturing, while *S. macrops* is more smooth and shiny on the mesopleuron and propodeum.

Type series. *Solenopsis Synsolenopsis photophila* Santschi det. Borgmeier, Nr, 3829 Borgmeier, Argentina, Entre Rios; Villaguay (Bruch) (lectotype ♂ [here designated] MCZC).

Material examined. Type series and ARGENTINA, Mendoza, 5.69 k SE Cacheuta, 1835 m, 33°4.714'S 69°3.788' W, 7-i-2008, W. Mackay # 22848 (1 ♂ CWEM), Ñacuñán Biosphere Reserve, ii-2006 (2 ♀ ♀ CWEM).

Compare with
castor, *pollux*

molesta complex

picea 263

***Solenopsis picea* Emery**

Figs. 227-232; Map 56

molesta species complex, *temuis* subgroup

Solenopsis picea Emery, 1896: 89-90 (♂ ♀) COSTA RICA: Jiménez

Solenopsis picea r. *subadpressa* Forel, 1903: 257 (♂) BRAZIL: Ceará, **NEW SYNONYM**

Solenopsis angulata r. *nigelloides* Forel, 1913: 223-224 (♂ ♀ ♂) ARGENTINA: Buenos Aires, **NEW SYNONYM**

Solenopsis picea r. *reducta* Menozzi, 1927c: 276-277 (♂) COSTA RICA: San José, **NEW SYNONYM**

Solenopsis angulata r. *carettei* var. *ardua* Santschi 1929: 298 (♂ ♀) BRAZIL: Paraná, Rio Negro [unavailable name], **material referred here**

Solenopsis parabiatica Weber, 1943: 90-91, Fig. 2 (♂ ♀) GUIANA: Mazaruni River, Forest Settlement, **NEW SYNONYM**

Diagnosis.

Worker. This is a black/dark brown (occasionally light brown or somewhat bicolored with the gaster darker than the remainder of the ant), medium sized species (total length 1.56 mm). The head is nearly quadrate, with fine cephalic punctures and short (0.030 mm) hairs. The lateral clypeal teeth are well developed. It has small eyes with 3-5 ommatidia. There are horizontal striae on the mesopleuron and metapleuron. The petiole is noticeable longer than the postpetiole when viewed laterally.

Female. The female is concolorous brown. The lateral teeth are well developed and extend about 0.030 mm beyond the anterior clypeal border. The scape is thick, 0.090 mm in diameter. Thin vertical striae are present on the frontal lobes. The scape, head and pronotum are covered in coarse punctures. Thin horizontal striae are present on the lower half of the metapleuron and just anterior to the propodeal spiracle. There are teeth present on the bottom of both the petiolar peduncle and postpetiole, however the petiolar peduncle's tooth is better developed than the one present on the postpetiole (which is more like an angle).

picea – México south to Brazil and Argentina; Caribbean

Male. The male is very dark brown (almost black). The legs and antennae are lighter brown in color. The clypeus is slightly concave with no presence of a tooth, bump or angle on the margin. Tiny striae is present on the clypeus and follow the clypeal margin. Thin vertical striae are present on the head from the ocelli to the frontal lobes. Punctures are present on the first segment of the antennae. No punctures are visible on the head, pronotum or rest of the mesosoma.

Worker Description.

Measurements (n=14). TL 1.38-2.04 (1.56); HL 0.402-0.540 (0.481); HW 0.336-0.510 (0.411); EL 0.042-0.060 (0.049); ED 0.030-0.042 (0.035); SL 0.282-0.396 (0.336); FSL 0.120-0.180 (0.137); CI 80.0-94.4 (85.4); SI 61.2-79.3 (69.9); PL 0.072-0.108 (0.087); PW 0.090-0.162 (0.125); PI 55.6-82.4 (70.3); PPL 0.102-0.132 (0.109); PPW 0.108-0.180 (0.149); PPI 65.5-94.4 (74.7); WL 0.300-0.450 (0.367); PSL 0.024-0.060 (0.037); PSW 0.024-0.060 (0.036).

Dark brown to light brown, sometimes with gaster lighter in color than body; head square-shaped, cephalic punctures fine; lateral clypeal teeth well developed; extralateral teeth angular to absent; eyes small, black, with 3-5 ommatidia; minor funicular segments 3-8 slender, long (0.137 mm); notopropodeal suture well depressed; horizontal striae on mesopleuron and metapleuron; petiole noticeable longer than postpetiole viewed laterally.

Moderately hairy, with erect and suberect hairs on all body surfaces; cephalic punctures fine and hairs very short (0.030 mm); hairs on scape short; suberect hairs of petiole and postpetiole curved posteriorly.

Female Description.

Measurements (n=2). TL 3.96-4.68 (4.32); HL 0.666-0.720 (0.693); HW 0.588-0.660 (0.624); EL 0.186-0.258 (0.222); ED 0.144-0.204 (0.174); MOL 0.048-0.072 (0.060); MOD 0.054-0.060 (0.057); SL 0.456-0.480 (0.468); FSL 0.204-0.282 (0.243); CI 88.3-91.7 (89.9); SI 66.7-68.5 (67.6); PSL 0.048-0.066 (0.057); PSW 0.060-0.072 (0.066); PL 0.144-0.150 (0.147); PW 0.240-0.324 (0.282); PI 44.4-62.5 (53.5); PPL 0.240; PPW 0.264-0.438 (0.351); PPI 54.8-90.9 (72.9); WL 0.900-0.960 (0.930).

Concolorous brown; head quadrate; lateral clypeal teeth well developed, extend 0.030 mm beyond anterior clypeal border; clypeal carinae well developed, extend posterior to antennal insertions; extralateral teeth smaller in size, angular; scape thick, 0.090 mm in diameter; thin vertical striae on frontal lobes; scape, head, pronotum with coarse punctures; eyes small; thin horizontal striae on entire side of propodeum; petiole and postpetiole horizontally striate, subpeduncular tooth well developed, tooth ventrally on postpetiole angular.

Compare with
castor, *pollux*

molesta complex

picea 265

Abundantly hairy, hairs present on all body surfaces; nearly every puncture on body has suberect hair.

Male Description.

Measurements (n=1). TL 3.48; HL 0.600; HW 0.642; EL 0.270; ED 0.180; MOL 0.054; MOD 0.078; SL 0.222; FSL 1.68; CI 107.0; SI 37.0; PSL 0.060; PSW 0.066; PL 0.150; PW 0.264; PI 56.8; PPL 0.180; PPW 0.330; PPI 54.5; WL 0.840.

Dark brown, legs and antennae lighter brown; clypeus slightly concave, with no presence of tooth, bump or angle on anterior margin; vertical striae follow clypeal margin; thin vertical striae extend from ocelli to frontal lobes; three ocelli clear, eyes black; scape with coarse punctures; no punctures visible on head, pronotum or remainder of mesosoma; side of propodeum entirely striated; sparse striae present basally on petiole and postpetiole; no visible tooth, angle or bump on subpeduncular process or subpostpetiolar process.

Abundantly hairy, with hair present on all body surfaces, most hairs are suberect and curve posteriorly.

Biology and habitat. *Solenopsis picea* nests under stones in dark clay loam soils. Brood and sexuals were collected in nests in México in May. *Solenopsis picea* was also collected from a nest in the extremities of dried *Psidium pomiferum* in Brazil (Forel 1903). This species was collected in the thin partitions separating the chambers of ant gardens inhabited by *Crematogaster limata parabiatica* and *Camponotus femoratus* in British Guiana (Weber 1943). Habitats include transitional bamboo/cloud forest, hardwood, montane cloud forest, wet montane forest, wet cloud forest, old growth tropical forest, oak ridge and coffee plantations.

Distribution. México south to Argentina, Brazil, Guiana; Caribbean Region (Cuba, Puerto Rico).

Discussion. Workers are easily confused with those of *S. castor*. *Solenopsis picea* are not as dark mahogany brown as is *S. castor* and the minor segments of the antennae are longer, nearly always greater in length than 0.100 mm (nearly always less than 0.120 mm in *S. castor*). If females are available, these two species are easily separated, as the females of *S. picea* are large (total length > 4 mm), compared to the much smaller females of *S. castor* (TL up to 3 mm).

The male of *S. picea* is similar to a male of *S. pollux*, but can be distinguished as *S. pollux* is slightly larger and has golden yellow antennae as opposed to the brown coloration of *S. picea* (= *S. nigelloides*). Additionally, *S. picea* (= *S. nigelloides*) lacks coarse punctures on the head and pronotum.

picea – México south to Brazil and Argentina; Caribbean

It is difficult to understand why Santschi (1929) believed that *S. ardua* was a subspecies of *S. angulata carettei*. This variety is from Argentina while the race is from Brazil. Santschi states his placement of the variety was based on the different shape of the mesosoma, the shorter head length that is more oblique anteriorly, length of petiole and color of gaster, as *S. ardua* has a higher propodeum, with a longer petiole in profile view and that the ant is overall brownish with a darker gaster. This description is exactly that of *S. nigelloides* and we do not recognize it or *S. nigelloides* as valid taxa. Additionally, *S. picea* is nearly identical to *S. parabiatica* with the only difference is that *S. parabiatica* being yellowish in coloration (Weber 1943), a variable trait that falls within the variation of the same species-level taxon. The race *subadpressa* is nearly identical to the nominal and is not recognized. Upon careful review of the descriptions of the race *subadpressa reducta*, it is not recognized and believed to be *S. picea*.

Type series. *Solenopsis angulata* Em. r. *nigelloides* Forel, Museo Civ. Genova, Forel Coll., Argentina, Buenos Aires x. 1912, G. Rovert (lectotype ♀, 5 paralectotype ♀♀, 1 paralectotype ♀ and 1 paralectotype ♂ [here designated], MHNG). *Solenopsis picea subadpressa* Forel Brazil, Ceará, Dr. Rocha (lectotype ♀ M.C.Z. cotype 1, 22616, MCZC). *Solenopsis angulata carettei ardua* Santschi Sammlung, Dr. F. Santschi, Kairouan Argentina, Paraná, Rio Negro, Reichen-sperger, 1928 (2 ♀♀, 1 ♀ NHMB). *Solenopsis parabiatica* Weber, types not found, specimens apparently identified by Weber found in MCZC (10 ♀♀).

Material examined. **COLOMBIA**, Risaralda, La Virginia Miralindo, 1900m, 4-ix-1997, L. Osorio #'s MYR-12, MYR-74 (5 ♀♀ CWEM). **COSTA RICA**, Guanacaste, Cacao Field Station, 1100 - 1200m, 15-ii-1996, 20-ii-1996, R. Anderson #'s 17664, 17673, 17682, 17687, 17690, 17693, 17731, 17739 (17 ♀♀ CWEM), Estación Maritza, 800 - 950m, 10°58'N 85°30'W, 3-4-v-1995, 13-ii-1996, R. Anderson #'s 17667, 17711, 17715 (3 ♀♀ CWEM), Parque Nacional Santa Rosa, 300m, 10°52'N 85°36'W, 4-v-1995, R. Anderson # 17717 (1 ♀ CWEM), Rincón de La Vieja, Las Pailas, 1400m, 18-ii-1996, R. Anderson # 17676 (3 ♀♀ CWEM); San José, Cerros de Escaza, 13-v-1997, R. Anderson (1 ♀ CWEM). **MEXICO**, Veracruz, 2k NE Orizaba, 27-v-1988, W. Mackay #10426 (3 ♀♀, 3 ♀♀, 1 ♂ CWEM). **PANAMA**, Chiriquí, 2 k NE Buquete, 1400m, 17-vi-1993, R. Anderson # 17791 (3 ♀♀ CWEM), Bocas del Toro, Continental Divide, 9-vi-1995, R. Anderson #'s 17842, 17847 (4 ♀♀ CWEM), Fortuna Hydrological Trail, 1100m, 09-vi-1995, R. Anderson # 17785 (2 ♀♀ CWEM), Fortuna area, Finca La Suisse, 10-vi-1993, 12-vi-1995, R. Anderson #'s 17776, 17777, 17778, 17780, 17781, 17824 (16 ♀♀ CWEM), 20.4 k N San Félix, 950m,

picea – México south to Brazil and Argentina; Caribbean

Compare with
castor, pollux

molesta complex

picea 267

8-vi-1995, R. Anderson # 17768 (1 ♀ CWEM). **PERÚ**, **Madre de Dios**, Rio Tambopata Res. 30km (air) SW Pto. Maldonado, 12°50'S 069°20'W, 290m (10 ♀♀ MCZC).

picea – México south to Brazil and Argentina; Caribbean

***Solenopsis picta* Emery**

Figs. 233-236; Map 57

molesta species complex, *tenuis* subgroup

Solenopsis picta Emery, 1895b: 278 (♀) USA: Florida; G. C. Wheeler & J. Wheeler, 1960b: 22 (1); see also Thompson & Johnson, 1989: 697

Solenopsis picta var. *moerens* W. M. Wheeler, 1915: 393 (♀) USA: Texas, Victoria (junior synonym of *picta*, Creighton, 1950: 237)

Diagnosis.

Worker. This is a small dark, occasionally bicolored ant (with a reddish brown head and mesosoma and a dark brown gaster). The head is slightly longer than wide and the body is not very hairy. The cephalic punctures are small. The hairs are erect and suberect and vary in length. The lateral clypeal teeth are widely separated (0.066 mm), but weakly developed. The eyes are small, with 4-5 ommatidia and almond-shaped. The notopropodeal suture is well depressed and breaks the sculpture of the mesosoma. The propodeum is flattened and the dorsopropodeum forms about a 45 degree angle with the posteropropodeum. The petiole is wider than the postpetiole when viewed in profile. The petiolar and postpetiolar nodes are rounded.

Female (undescribed). The female is small and concolorous golden brown. The head has fine punctation. The lateral teeth on the anterior margin of the clypeus are angulate and the extralateral teeth are absent. The medial ocellus is small; the pronotum is finely punctate. The posterior propodeal margin is slightly angulate. The petiole is wider than the postpetiole when viewed laterally. The petiolar node is rounded and somewhat triangular. The postpetiolar node is oval-shaped and globose. The ventral surfaces of both the petiole and postpetiole are lacking teeth, but the petiolar peduncle has a flange ventrally.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.32-1.44 (1.37); HL 0.390; HW 0.330-0.336 (0.331); EL 0.042; ED 0.030; SL 0.222-0.258 (0.248); FSL 0.090-0.096 (0.094); CI 84.6-86.2 (84.9); SI 56.9-66.2 (63.7); PL 0.072-0.078 (0.073); PW 0.084-0.090 (0.085); PI 85.7-86.7 (85.9); PPL 0.078-0.084 (0.082); PPW 0.096-0.102 (0.101); PPI 76.5-82.4 (80.9); WL 0.240-0.276 (0.260); PSL 0.030; PSW 0.030.

picta – USA: Florida, Louisiana, Mississippi, Texas

Small, concolorous brown or bicolored, reddish brown head, dark brown gaster; head longer than wide, cephalic punctures fine; lateral clypeal teeth widely separated, but poorly developed, extralateral teeth small, angulate; clypeal carinae well defined; eyes black, almond shaped, with 4-5 ommatidia; scape long, extending $\frac{3}{4}$ length of head; minor funicular segments 3-8 short, not surpassing 0.100 mm; mesosoma smooth and shiny; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; posteropropodeum flattened, dorsopropodeum forms 45 degree angle with posteropropodeum; petiole wider than postpetiole viewed laterally; petiolar node triangular, peduncle lacking tooth ventrally; postpetiolar node oval-shaped (seen from above).

Not very pilose; few body hairs present on all body surfaces; most hairs erect and suberect, present on head and scape; mesosoma, petiole, postpetiole and first tergite of gaster have very few erect and suberect hairs.

Female Description.

Measurements (n=1). TL 3.24; HL 0.540; HW 0.480; EL 0.156; ED 0.120; MOL 0.036; MOD 0.042; SL 0.360; FSL 0.180; CI 88.9; SI 66.7; PSL 0.060; PSW 0.050; PL 0.120; PW 0.216; PI 55.6; PPL 0.156; PPW 0.240; PPI 65.0; WL 0.720.

Small, concolorous golden brown; head quadrate, longer than wide, with fine cephalic punctures; lateral clypeal teeth angulate, extralateral teeth absent, with bumps in their positions; clypeal carinae well defined; scapes long, reaching $\frac{3}{4}$ length of head to posterior lateral corner; eyes black, small; medial ocellus small; pronotum finely punctate, sculpture smooth and shiny between punctures; mesopleuron smooth and shiny; metapleuron with horizontal striae; posterior propodeal margin weakly angulate; petiole wider than postpetiole viewed laterally; petiolar node rounded, triangular; postpetiolar node oval, globose; both petiolar peduncle and postpetiole lacking tooth or flange ventrally.

Hairy, with erect and suberect hairs of various lengths covering all body surfaces; scape with hairs of various lengths, with long suberect hairs basally (0.120 mm); dorsum of mesosoma, petiole and postpetiole covered in numerous suberect hairs of various lengths, those on petiole and postpetiole curve posteriorly.

Biology and habitat. These ants nest in hollow twigs and in dead wood in Florida and the southeastern states (Thompson 1980). *Solenopsis picta* can also be found in oak trees in Florida (Emery 1895) and were found in a dead pecan twigs in Victoria, Texas (Wheeler W. M. 1915). Workers can be collected in bait traps in trees. We found single a single queen in each nest. Brood was present in nests in August. They are found in oak woodlands.

picta – USA: Florida, Louisiana, Mississippi, Texas

Distribution. USA (Florida, Louisiana, Mississippi, Texas).

Discussion. The workers of *S. tenuis* are similar to *S. picta* but can be separated from *S. picta* by the longer scapes. *Solenopsis subtilis* is similar to *S. picta* as well, a species that is found in South America. *Solenopsis subtilis* is nearly identical in size and form, but may be distinguished by color as it is light brown with yellowish appendages while *S. picta* is dark brown or occasionally bicolored. The females of the two species are different as the female of *S. picta* lacks striae on the sides of the petiole and postpetiole.

Type series. *Solenopsis picta* Emery, Florida, (lectotype ♀ [here designated], MCSN), (Pinned in the “sandwich form,” in which the specimen is mounted between two pieces of film or plastic. It is very difficult to view and the head is separate from the rest of the body).

Material examined. Types, and USA, Louisiana, **Calcasieu Parish**, Sam Houston Jones South Park, 17-viii-1987, W. Mackay #'s, 9729-9, 9729-10, 9729-B1, 9729-B2, 9735 (44 ♀♀ and 1 ♀ CWEM), **St. Mary Parish**, Morgan City, 29-viii-1987, W. Mackay # 9814-216 (13 ♀♀ CWEM).

Compare with
krockowi

molesta species complex

pilosula 271

***Solenopsis pilosula* Wheeler**

Figs. 237-243; Map 58

fugax species complex

Solenopsis pilosula W. M. Wheeler, 1908b: 426, Plate 26, Figs. 26, 27 (♀ ♂)
USA: Texas, Jim Wells County, Alice

Diagnosis.

Worker. The workers are medium sized and dark yellow. The head is longer than wide; the clypeus between the frontal carinae is narrow and the lateral and extralateral clypeal teeth are well developed, thickened and blunt. The frontal carinae are nearly parallel. The mesopleuron is horizontally striated. The petiole is thickened when viewed laterally.

Female (undescribed). The female is large (6.36 mm total length) and dark yellow. The head is subquadrate with sparse coarse punctures. The lateral and extralateral teeth are blunt. The female has only few hairs present on body surfaces. The eye is relatively small with a diameter of 0.198 mm. The sides of the petiole and postpetiole are horizontally striated with a flange present ventrally on the petiolar peduncle.

Male. The male is large (4.62 mm) and concolorous dark brown in color. What is striking about the male is the head is covered in vertical striae from the frontal lobes laterally and anteriorly to the clypeal margin. The petiolar node is angulate. The sides of the petiole and postpetiole are horizontally striated.

Worker Description.

Measurements (n=5). TL 2.16-2.52 (2.30); HL 0.600-0.636 (0.619); HW 0.528-0.600 (0.563); EL 0.042; ED 0.042; SL 0.330-0.348 (0.336); FSL 0.150-0.162 (0.155); CI 88.0-95.2 (90.9); SI 52.4-55.2 (54.3); PL 0.132-0.150 (0.144); PW 0.204-0.240 (0.226); PI 62.5-67.6 (63.9); PPL 0.162-0.174 (0.164); PPW 0.222-0.240 (0.227); PPI 71.1-72.9 (72.5); WL 0.480-0.540 (0.516); PSL 0.042-0.048 (0.043); PSW 0.036-0.048 (0.038).

Large; concolorous dark yellow; head subquadrate, longer than wide, coarsely punctate; lateral and extralateral clypeal teeth well developed, thickened and blunt; clypeal carinae well defined, nearly parallel; eyes small, with 3-5 ommatidia; scape short, barely surpasses half-length of head; minor funicular segments 3-8 long; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron horizontally striated; notopropodeal suture depressed, groove

pilosula – USA: Texas

breaks sculpture of mesosoma; metapleuron horizontally striated; mesonotum narrow when viewed dorsally; propodeal spiracle large; posterior propodeal margin angulate (viewed laterally); petiole and postpetiole thickened, nearly of equal width (viewed laterally); petiolar peduncle with well-developed tooth ventrally.

Hairy, pilosity yellow; head covered with erect hairs of equal lengths projecting from coarse punctures, centerline free of hairs; erect and suberect hairs of various lengths on remainder of body, including petiole and postpetiole.

Female Description.

Measurements (n=1). TL 6.36; HL 0.900; HW 0.882; EL 0.240; ED 0.198; MOL 0.078; MOD 0.084; SL 0.558; FSL 0.30; CI 98.0; SI 62.0; PSL 0.090; PSW 0.080; PL 0.180; PW 0.468; PI 38.5; PPL 0.300; PPW 0.528; PPI 56.8; WL 1.44.

Large; concolorous dark yellow; head rectangular, nearly as wide as long, coarsely punctate; lateral and extralateral clypeal teeth blunt; clypeal carinae well defined; frontal lobes vertically striated; eyes, small black; medial ocellus small, without pigment; mesosoma smooth and shiny, with coarse punctures dorsally; metapleuron horizontally striated; petiole and postpetiole horizontally striated; petiolar node thickened, triangular, with peduncular flange ventrally; postpetiolar node thickened, semicircular, lacking tooth or flange ventrally.

Nearly depilose, pilosity yellow; few scattered erect and suberect hairs on body surfaces.

Male Description.

Measurements (n=2). TL 4.56-4.68 (4.62); HL 0.582-0.600 (0.591); HW 0.618; EL 0.270; ED 0.228; MOL 0.078; MOD 0.084-0.090 (0.087); SL 0.240; FSL 0.960; CI 103-106 (104); SI 40.0-41.2 (40.6); PSL 0.132; PSW 0.120; PL 0.120; PW 0.330-0.342 (0.336); PI 35.1-36.4 (35.7); PPL 0.240; PPW 0.390; PPI 61.5; WL 1.14.

Large; concolorous dark brown, lighter brown appendages; head wider than long; clypeal margin straight, lacking teeth; frontal lobes vertically striated towards medial ocellus, laterally toward eye, anteriorly to clypeal margin; eyes large, black; medial ocellus large, without pigment; pronotum coarsely punctate, smooth and shiny between punctures; propodeal spiracle large; propodeum with striae and roughened sculpturing; petiolar node angulate, with striae and roughened sculpturing; postpetiolar node rounded, semicircular, with striae and roughened sculpturing.

Abundantly hairy, pilosity white and yellow; suberect hairs of equal lengths on pronotum (0.120 mm), curve posteriorly; hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. This species nests in the soil and their mating season occurs in July (Wheeler, 1908b).

Distribution. USA, Texas,

Discussion. The workers of *S. pilosula* may be confused with those of *S. krockowi*, as both species are relatively large and have coarse cephalic punctures. The widely diverging clypeal carinae found in *S. krockowi* separate it from *S. pilosula*, in which the carinae are nearly parallel and closely placed.

Both *S. pilosula* and *S. krockowi* have females that are large at nearly 7.0 mm in total length. The female of *S. pilosula* can be distinguished from that of *S. krockowi* in that it is nearly devoid of pilosity with only a few hairs present on all body surfaces (*S. krockowi* is abundantly hairy). Although both species have four clypeal teeth, those with *S. pilosula* are blunt, while *S. krockowi* has sharp teeth. Additionally, *S. krockowi* has numerous coarse cephalic punctures that are sparsely punctate in *S. pilosula*. Although the petiole and postpetiole of both species are horizontally striated, only *S. pilosula* has a thin flange ventrally on the petiolar peduncle.

Type series. *Solenopsis pilosula* Wheeler, Texas, Alice Co., 16-vi-1903 (lectotype ♀, 2 paralectotype ♀♀ and 3 paralectotype ♂♂ [here designated], co-type#1-6 20909 MCZC); *Solenopsis pilosula*, Texas, Alice, 6-vi-1903 (3 cotype ♀♀ LACM).

Material examined. Type series and USA, Texas, Ector Co., Odessa, 30-i-1971, B. Pullen (5 ♀♀, 1 ♀ CWEM).

274 *pollux*

molesta species complex Compare with
abjectior, *carolinensis*, *corticalis*, *maboya*, *patriciae*, *texana*

***Solenopsis pollux* Forel**

Figs. 244-250; Map 59

molesta species complex, *pollux* subgroup

Solenopsis pollux Forel, 1893: 393-395 (♂ ♀ ♂) ANTILLES IS.: St. Vincent

Diagnosis.

Worker. This is a small concolorous yellow species with an elongate clypeus. The lateral teeth are well developed and the extralateral teeth are solely present as angles. The head is quadrate and coarsely punctated, resembling members of the *pygmaea* and *fugax* complexes; a character uncommon in the *molesta* group. The eye is small with only 3-5 ommatidia. The propodeal spiracle is small. There are horizontal striae present on the metapleuron.

Female. The female is golden brown in coloration. Both the clypeal lateral and extralateral teeth are angulate. The clypeal carinae are weakly developed. The head is brown, the scapes are golden yellow. The three ocelli are clear and the eyes are black and large. The frontal lobes have vertical striae. The head, mesosoma, petiole, postpetiole and first tergite of the gaster are all densely covered in coarse punctures. The lower half of the propodeum has horizontal striae just below the spiracle. The petiole is wider than the postpetiole (viewed laterally).

Male. The male is small and brown in color. The clypeus is slightly convex with no visible tooth or bump present on the anterior margin. There are thin rugulae present on the head that follow the contour of the head, in the middle of the head they are vertical and as they approach the antennal insertions they bend towards the sides of the head just above the eyes. The three ocelli are small and clear. Small punctures are present on all body surfaces. The antennae are long and golden yellow in color. Both nodes of the petiole and postpetiole are angular (lateral view).

Worker Description.

Measurements (n=5). TL 1.08-1.20 (1.132); HL 0.330-0.408 (0.368); HW 0.300-0.330 (0.314); EL 0.030-0.036 (0.034); ED 0.024-0.030 (0.028); SL 0.210-0.276 (0.244); FSL 0.084-0.108 (0.096); CI 87.9-134 (104); SI 60.3-77.6 (66.2); PL 0.048-0.054 (0.053); PW 0.084-0.096 (0.089); PI 50.0-64.3 (59.6); PPL 0.090-0.096 (0.095); PPW 0.108-0.144 (0.120); PPI 66.7-84.2 (79.6); WL 0.300; PSL 0.030; PSW 0.024.

pollux – México south to Brazil, Caribbean

Compare with *molesta species complex*
abjectior, carolinensis, corticalis, maboyna, patriciae, texana

pollux 275

Small, concolorous yellow; head longer than wide, with coarse cephalic punctures; clypeus elongate, lateral clypeal teeth well developed, extralateral teeth angulate; eye small with 3-5 ommatidia; scape does not reach posterior margin of head; pronotum and mesopleuron smooth and shiny; notopropodeal suture well depressed; breaks sculpture of mesosoma; posterior propodeal margin rounded; propodeal spiracle small (0.030 mm greatest diameter); metapleuron horizontally striate; petiole wide than postpetiole (viewed laterally); anterior and posterior faces of petiolar node converging and narrowest at apex viewed laterally.

Erect and suberect hairs of various lengths cover all body surfaces; head with numerous erect and suberect hairs (0.030 mm); suberect hairs on petiole, postpetiole and gaster curve posteriorly.

Female Description.

Measurements (n=3). TL 3.38-3.72 (3.59); HL 0.516-0.570 (0.536); HW 0.522-0.570 (0.554); EL 0.162-0.198 (0.180); ED 0.150-0.162 (0.154); MOL 0.048; MOD 0.060; SL 0.378-0.390 (0.386); FSL 0.150-0.180 (0.166); CI 91.6-110 (104); SI 68.4-74.7 (72.1); PSL 0.048-0.066 (0.056); PSW 0.054-0.060 (0.056); PL 0.120; PW 0.228-0.240 (0.236); PI 50.0-52.6 (50.9); PPL 0.228-0.240 (0.236); PPW 0.240-0.252 (0.248); PPI 95.0-95.2 (95.2); WL 0.840.

Small, golden brown, with darker brown head, scapes golden yellow; head quadrate; lateral and extralateral clypeal teeth angulate; clypeal carinae weakly defined; ocelli clear, without pigment; eyes black, large; scape long, nearly reaching posterior border of head; mesosoma coarsely punctate, pronotum and mesopleuron smooth and shiny between punctures; metapleuron horizontally striate; petiole, postpetiole and first tergite of gaster densely covered with coarse punctures; petiole wider than postpetiole (viewed laterally); petiole and postpetiole striated horizontally.

Hairy, erect and suberect hairs of various lengths covering all body surfaces; nearly all punctures have suberect hair arising from them.

Male Description.

Measurements (n=3). TL 2.69-2.88 (2.77); HL 0.402-0.456 (0.434); HW 0.534-0.558 (0.546); EL 0.210-0.240 (0.222); ED 0.180-0.198 (0.192); MOL 0.054; MOD 0.072-0.078 (0.076); SL 0.096-0.120 (0.106); FSL 0.900; CI 120-136 (131); SI 21.6-29.9 (25.6); PSL 0.060-0.066 (0.062); PSW 0.066-0.078 (0.070); PL 0.090; PW 0.180; PI 50.0; PPL 0.156; PPW 0.228; PPI 68.4; WL 0.720.

Small, concolorous brown, scapes golden yellow; head wider than long, thin rugulae follow contour of head, anterior margin of clypeus convex with no visible tooth or bump; three ocelli small and clear in color; small punctures pre-

pollux – México south to Brazil, Caribbean

sent on all body surfaces; pronotum and mesopleuron smooth and shiny between punctures; metapleuron horizontally striated; petiolar and postpetiolar nodes angular, petiole wider than postpetiole (viewed laterally), petiolar peduncle lacking tooth or flange ventrally.

Hairy, erect and suberect hairs present on body surfaces. Nearly all punctures have hair originating from them.

Biology and habitat. Forel (1893), “ (28). Pretty common, forming small colonies at the roots of grass or herbage. we have never seen more than forty or fifty together. Sluggish. (28a). Near Palmyra Estate (leeward), 1000 ft.. Nov. 3rd. Shady place near a stream. A small colony at the roots of grass growing on a rock. (28b) Fitz-Hugh Valley (leeward), 500 ft. Nov. 4th. Small passage in sod on a rock; shady place. (28c). Wallilobo Valley; open place, at the roots of sod on a rock. Nov. 8th. Near sea-level. (28e) Wallilobo Valley, 500 ft.; under sod on a rock. A small colony. (28f) Females found under the same sod with No. 28e and presumably the same species. (28g). Male, found under sod with Nos. 28e and 28f. (28i) Petit Bordelle Valley, 1200 ft. Nov. 13th. Shady banks of stream; under sod on a rock. No female could be found. (28j). Cumberland Valley, 300 ft. (leeward), Dec. 2nd. Dry place; edge of forest, under sod on a rock. The community contained perhaps 200 ants, with numerous males, many of which flew away. (28k). Windward, near seashore; at Robocca. Jan. 2nd. Under stone in a door-yard [?]. There were probably 200 workers, with about twenty females, in a small cavity under the stone. (28l). Windward, near seashore; open, sandy bed of the Dry River. Jan. 2nd. Under a stone. About 200 workers in a small cavity. No female could be found.”

Additionally, these ants are found in mixed wood leaf litter and also nest under stones. It occurs in slashed and burned tropical forest (Mackay and Mackay 2002) as well as very arid acacia scrub (Colombia) to temperate forests, tropical old growth dry forest to wet mountain cloud forest, pines and hardwood forests, and disturbed deciduous forest. Foragers are attracted to Vienna sausage baits (surface and subsurface) as well as collected in pitfall traps. *Solenopsis pollux* was collected up to 1000m in elevation in Costa Rica.

Distribution. The Antilles Islands, St. Vincent, Martinique, Dominican Republic, Haiti; Brazil (Kempf 1972); México, Colombia, Costa Rica, Panama and Puerto Rico.

Discussion. Workers of *S. pollux* is highly variable in the following characteristics, clypeal teeth, size, cephalic punctures and shape of petiole, which can cause confusion with a multitude of similar species that overlap it in distribution.

pollux – México south to Brazil, Caribbean

Compare with *molesta* species complex
abjectior, *carolinensis*, *corticalis*, *maboya*, *patriciae*, *texana*

pollux 277

The worker of *S. pollux* can be confused with those of *S. abjectior* (Argentina), but *S. abjectior* can be separated by having finer cephalic punctures and a narrower petiolar apex, in which the faces are nearly parallel in profile and about as wide at apex as at level of peduncle.

The workers are nearly identical to those of *S. carolinensis* (USA), but can be separated by the distributions. The eyes of the female and male of *S. carolinensis* are larger than those of the sexuals of *S. pollux*. The node of the male of *S. carolinensis* is not as angulate as that of the male of *S. pollux*. Additionally, the female and male of *S. carolinensis* are much lighter in color than the golden brown *S. pollux*.

Specimens from central México south to Colombia are difficult to separate from *S. patriciae* and *S. texana* as the distributions overlap. The worker of *S. pollux* can nearly always be separated as the promesonotum has more than 10 erect hairs (seen in profile), whereas workers of the latter two species nearly always have fewer than 10 erect hairs in the same position. The female of *S. pollux* is yellowish brown or pale brown, whereas the females of the latter two species are dark brown.

The workers of *S. pollux* can be confused with *S. maboya* (Puerto Rico) in the Caribbean, but the worker of *S. maboya* is smaller, has coarse punctures on pronotum and has a larger head, and can be further distinguished from *S. pollux* by the small triangular petiole. The female of *S. maboya* is a small black specimen whereas that of *S. pollux* is larger and paler in color.

Care must be taken in the Caribbean region where *S. pollux* and *S. corticalis* are common, as confusion could result between them, especially on the island of St. Vincent. The relatively abundant erect hairs on the dorsum of the promesonotum would separate the workers of *S. pollux*, from the worker of *S. corticalis* which generally has only a few hairs on the same surface.

Type series. *Solenopsis pollux* Forel, Forel coll. Antilles, St. Vincent (lectotype ♀, 4 paralectotype ♀♀, 3 paralectotype ♀♀, 3 paralectotype ♂♂ [here designated] MHNG).

Material examined. Type series and ANGUILLA, Abadam Hole, 20-v-2006, J. Wetterer # 78 (1 ♀ MCZC), The Fountain, 21-v-2006, J. Wetterer # 107 (2 ♀♀ MCZC), Junk's Hole Bay, 20-v-2006, J. Wetterer # 77 (2 ♀♀ MCZC), Katouche Valley, 18-vi-2006, J. Wetterer # 33 (2 ♀♀ MCZC), Little Harbor, 30-v-2006, J. Wetterer # 229 (2 ♀♀ MCZC), Long Bay, 21-vi-2006, J. Wetterer # 90 (1 ♀ MCZC), Meads Bay, 17-v-2006, J. Wetterer # 16 (1 ♀ MCZC), The Quarter, 19-v-2006, J. Wetterer # 48 (1 ♀ MCZC), Shoal Bay Road near Little Dix, 17-v-2006, J. Wetterer # 26 (1 ♀ MCZC), The Valley, 29, 30-v-2006, J.

pollux – México south to Brazil, Caribbean

Wetterer #'s 225, 238 (4 ♀♀ MCZC), White Hill, 19-v-2006, J. Wetterer # 69 (2 ♀♀ MCZC), Windward Point, 17-v-2006, J. Wetterer # 86 (1 ♀ MCZC). **BARBADOS**, Bellaplaine, 22-vi-2006, J. Wetterer #451 (1 ♀ MCZC), Bennett's Trees, 19-vi-2006, J. Wetterer # 390 (1 ♀ MCZC), Black Rock, 16-vi-2006, J. Wetterer # 337 (1 ♀ MCZC), Bennett's Trees, 19-vi-2006, J. Wetterer # 390 (1 ♀ MCZC), Bridgetown, 28-ix-2003, J. Wetterer # 116 (1 ♀ MCZC), Canefield, 16-vi-2006, J. Wetterer # 346 (1 ♀ MCZC), Crab Hill, 26-vi-2003, J. Wetterer # 95 (1 ♀ MCZC), Edge Hill, 16-vi-2006, J. Wetterer # 338 (1 ♀ MCZC), Fitts, 17-vi-2006, J. Wetterer # 371 (1 ♀ MCZC), Flower Forest, 29-xi-2003, J. Wetterer # 130 (1 ♀ MCZC), Hackleton Cliff, 17-vi-2006, J. Wetterer # 358 (2 ♀♀ MCZC), Hopewell, 29-xi-2003, J. Wetterer # 121 (1 ♀ MCZC), Jack-in-the-Box, 22-vi-2006, J. Wetterer # 459 (1 ♀ MCZC), Welshman Hall Gully, 27-xi-2003, J. Wetterer # 110 (1 ♀ MCZC). **BELIZE**, Orange Walk, Rio Bravo Conservation Area, 17°50'26.3" N 89°1'46.5"W. 25-iv-1996, W&E Mackay # 17703 (1 ♀ CWEM). **COLOMBIA**, Valle del Cauca, Loboguerrero, 26-vi-1989, F. Fernandez, W&E Mackay #11945, 11979, 11981, 12010 (13 ♀♀ CWEM). **COSTA RICA**, Guanacaste, Cacao Field Station, 1000 m, 12-ii-1996, R. Anderson # 17733 (1 ♀ CWEM), Loma Barbudal, 3-vi-1989, S. Vinson # 12216 (3 ♀♀ CWEM), Parque Nacional Santa Rosa, 4-v-1995, R. Anderson # 17717 (2 ♀♀ CWEM). **GRENADE**, Grand Etang, 8, 11-xi-2003, J. Wetterer #'s 3, 4, 25 (14 ♀♀, 1 ♀ CWEM), Annandale waterfall, 9-xi-2003, J. Wetterer # 11 (1 ♀ CWEM), Apres Tout, 27-vi-2006, J. Wetterer # 548 (1 ♀ CWEM), Castaigne, 12-xi-2003, J. Wetterer # 38 (1 ♀ CWEM), 0.5 k E Florida, 23-vi-2006, J. Wetterer # 462 (1 ♀ CWEM), Mt. Granby, 23-vi-2006, J. Wetterer # 463 (1 ♀ CWEM), Mt. Nelson, 26-vi-2006, J. Wetterer # 522 (1 ♀ CWEM), Tufton Hall, 26-vi-2006, J. Wetterer # 517 (1 ♀ CWEM). **MEXICO**, Chiapas, 24 k SW Cintalpa, 710m, 2-vi-1998, W. Mackay # 10717E, C, 10718B, C, D, 17020E, G, 10723H, 10726A (27 ♀♀ CWEM); Nuevo León, Parque Chipinque, 29-ix-1990, J. Garcia Pérez # 83 (3 ♀♀ CWEM); Tabasco, 10 k N Cárdenas, 10m, 28-v-1998, W. Mackay # 10521 (2 ♀♀ CWEM); Veracruz, Reserva Ecológica La Mancha, various dates, P. Rojas (16 ♀♀ Rojas Collection), same locality, 25-x-2000 W. Mackay #19599 (2 ♀♀ CWEM); **PANAMA**, Chiriquí, Bocas del Toro, Continental Divide, 9-vi-1995, R. Anderson # 17841 (2 ♀♀ CWEM), Fortuna hydrological trail, 1100m, 9-vi-1995, R. Anderson # 17785 (1 ♀ CWEM), 20.4 k N San Félix, 950m, 8-vi-1995, R. Anderson # 17767 (2 ♀♀ CWEM). **PUERTO RICO**, Humacao, Isla Culebra, 26.viii.1982, J. A. Torres #297, (2 ♀♀, 1 ♀ CWEM). **SAN MARTIN**, Fond Mahaut, 28-v-2006, J. Wetterer # 209 (2 ♀♀ MCZC), Little Bay Pond, 26-v-2006, J. Wetterer # 171 (2 ♀♀ MCZC), Loterie

pollux – México south to Brazil, Caribbean

Compare with *molesta species complex*
abjectior, carolinensis, corticalis, maboya, patriciae, texana

pollux 279

Farm, 27-v-2006, J. Wetterer #'s 160, 196, 213 (7 ♀♀ MCZC), Mullet Bay, 25-v-2006, J. Wetterer # 152 (1 ♀ MCZC), Saint Jean, 24-v-2006, J. Wetterer # 139 (1 ♀ MCZC). **SAINT VINCENT**, Belle Vue, 2-vii-2006, J. Wetterer # 660 (1 ♀ MCZC), Chateau, 2-vii-2006, J. Wetterer # 664 (2 ♀♀ MCZC), Hermitage, 3-vii-2006, J. Wetterer # 671 (1 ♀ MCZC), La Soufriere Trail, 5-vii-2006, J. Wetterer # 706 (3 ♀♀ MCZC), Wallilabou Falls, 3-vii-2006, J. Wetterer # 665 (1 ♀ MCZC). **SANTA LUCIA**, Ambre, 16-xi-2003, J. Wetterer # 53 (2 ♀♀ CWEM), Barre Le L'Isle, 15-xi-2003, J. Wetterer # 47 (2 ♀♀ CWEM), Boguis, 17-xi-2003, J. Wetterer # 57 (1 ♀ CWEM).

pollux – México south to Brazil, Caribbean

***Solenopsis pulleni* Pacheco, Mackay, & Moreno,
NEW SPECIES**

Figs. 251-252; Map 60

pygmaea species complex

Diagnosis.

Worker. This species concolorous pale yellow with an elongated and coarsely punctated head. The cuticle is translucent, making the eyes difficult to see. The lateral clypeal teeth are well developed while the extralateral teeth are bumps. It is not very pilose, with short erect and suberect hairs of relatively equal length (0.02-0.03 mm) on all body surfaces.

Female and Male. Unknown.

Worker Description.

Measurements (n=4). TL 1.38-1.44 (1.43); HL 0.390-0.408 (0.396); HW 0.276-0.294 (0.284); EL 0.024; ED 0.018; SL 0.210-0.222 (0.215); FSL 0.066-0.078 (0.072); CI 127.0-136.1 (132.2); SI 52.9-56.9 (54.2); PL 0.072; PW 0.090-0.096 (0.092); PI 75.0-80.0 (78.8); PPL 0.090-0.102 (0.098); PPW 0.108; PPI 83.3-94.4 (90.3); WL 0.288-0.300 (0.294); PSL 0.018; PSW 0.018.

Concolorous pale yellow; head elongate, dorsal and ventral surfaces flat, sides of head straight, posterior border deeply concave; lateral clypeal teeth well developed, medial tooth absent, extralateral bumps weakly developed; scape extends slightly more than half length of head; eye barely visible, same color as cuticle, ommatidia not evident; mesosoma and petiole as in other members of the complex.

Short (0.020 mm), erect hairs sparse on head, antenna not very hairy, especially club, scape with few suberect hairs; all body surfaces with scattered erect and suberect hairs.

Biology and habitat. *Solenopsis pulleni* was collected in a grassy playa surrounded by a ring of mesquite.

Etymology. Named to honor Barry Pullen, who collected the type series, as well as several other interesting ants.

Locality. Known only from the type locality, USA, New Mexico.

pulleni – USA: New Mexico

Compare with
subterranea, tonsa

pygmaea species complex

pulleni 281

Discussion. *Solenopsis pulleni* may be confused with *S. tonsa* (Florida and Texas) but can be distinguished by the shape of the head, which is larger, wider and more robust with *S. tonsa* and thin, with straight lateral edges with *S. pulleni*. Additionally, *S. pulleni* is similar to *S. subterranea* (USA to Colombia and Venezuela). *Solenopsis pulleni* can be separated based on the much longer head compared to that of *S. subterranea* (CI 74.1-83.3 [77.2]).

Type series. Holotype ♀ [MCZC] and 15 paratype ♀♀ (AMNH, CASC, CWEM, IAVH, LACM, MCZC, MPEG, MZSP, USNM), USA, New Mexico, **Doña Ana Co.**, Jornada Playa, 8-x-1986, B. Pullen #10.

Material examined. Type series.

pulleni – USA: New Mexico

***Solenopsis pygmaea* Forel**

Figs. 253-256; Map 61

pygmaea species complex

Solenopsis pygmaea Forel, 1901a: 345 (originally misspelled as *pygmaca*; justified emendation *pygmaea* by Forel, 1915: 354); replacement name for *exigua* Forel, 1893: 395 (junior secondary homonym of *exigua* Buckley, 1867: 342) ANTILLES IS.: St. Vincent

Diagnosis.

Worker. The workers are small (usually less than 1.00 mm in total length), pale yellow ants, in which the minor segments of the funiculus are short in total length. The lateral clypeal teeth are well developed and the extralateral teeth are absent. The punctures on the head are moderately large, larger than the hairs that arise from them.

Female. The female is large (about 5 mm total length). It is medium brown with a lighter brown gaster (due in part to the lighter intersegmental membranes of the distended gaster) to black. The eye is relatively small (maximum diameter 0.180 mm), extending about $\frac{1}{3}$ of the length of the side of the head. The dorsum of the head is covered with coarse punctures. The scapes and tibiae are covered with suberect hairs. Both the petiole and postpetiole are thickened, robust and have rugulae.

Male. Unknown.

Worker Description.

Measurements (n=6). TL 0.960-1.08 (0.996); HL 0.342-0.360 (0.350); HW 0.240-0.276 (0.255); EL 0.018-0.030 (0.024); ED 0.012-0.024 (0.019); SL 0.204-0.222 (0.211); FSL 0.060-0.066 (0.064); CI 70.2-76.7 (72.8); SI 58.3-64.9 (60.3); PL 0.060-0.066 (0.063); PW 0.072-0.090 (0.081); PI 66.7-84.6 (78.2); PPL 0.078-0.090 (0.082); PPW 0.102-0.108 (0.103); PPI 76.5-88.2 (79.6); WL 0.240-0.360 (0.260); PSL 0.018-0.030 (0.024); PSW 0.018-0.024 (0.020).

Small, concolorous pale yellow; head elongate, longer than wide, posterior border straight, semi-coarsely punctated; lateral clypeal teeth well developed, extralateral teeth absent; clypeal carinae weakly defined, nearly absent; scape does not reach posterior border of head; minor segments of funiculus 3-8 short, less than 0.070 mm total length; eyes small, 1-3 ommatidia; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; meta-

pygmaea – México, Guatemala, Caribbean

pleuron with faint, thin striae; posterior propodeal margin rounded; petiole wider than postpetiole viewed laterally; petiolar node round, somewhat triangular, lacking tooth or flange ventrally; postpetiolar node oval viewed laterally and dorsally.

Abundantly hairy; pronotum with numerous erect hairs, of different lengths; hairs on posterior tibiae usually slightly raised from cuticular surface; erect and suberect hairs on first tergum of gaster similar to those on pronotum, but tend to be equal in length (0.036 mm); hairs on remaining terga longer and coarser.

Female Description.

Measurements (n=1). TL 4.92; HL 0.648; HW 0.600; EL 0.180; ED 0.150; MOL 0.066; MOD 0.072; SL 0.420; FSL 0.240; CI 92.6; SI 64.8; PSL 0.072; PSW 0.066; PL 0.138; PW 0.282; PI 48.9; PPL 0.180; PPW 0.324; PPI 55.6; WL 0.960.

Large, medium brown with lighter brown to black gaster; head longer than wide, coarsely punctated; clypeal lateral teeth well developed, extralateral teeth angulate; clypeal carinae weakly defined; eye relatively small, extending about $\frac{1}{3}$ length of side of head; medial ocellus small; scape yellow, does not reach posterior border of head; minor segments of funiculus long; mesosoma, petiole, postpetiole and first gastral tergum coarsely punctated; pronotum and mesopleuron smooth and shiny between punctures; propodeum striate; petiole robust, wider than postpetiole (viewed laterally); petiole rugose, node triangular, peduncle with tooth or flange ventrally; postpetiolar node globose, lacking tooth or flange ventrally.

Abundantly hairy; erect and suberect hairs covering all body surfaces; erect hairs on pronotum nearly equal in length (~0.120 mm); scapes and tibiae covered with suberect hairs; hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. *Solenopsis pygmaea* nests underground and was collected in soil in Selva Avacohite. This species was collected in tropical rain forest by subterranean baits at 11 m in elevation in clay and 69 m in elevation in rocky loam soil in Guatemala.

Distribution. Caribbean, Guatemala and México.

Discussion. The workers of this species are nearly identical to those of *S. tennesseensis*, differing in being slightly smaller and more abundantly covered with erect hairs. The hairs on the dorsum of the first tergum are all short (up to 0.030 mm, few up to 0.040 mm), abundant (more than 20) and approximately equal in length. The similar hairs of *S. tennesseensis* are longer (many 0.050 mm), sparse (fewer than 20) and are somewhat unequal in length.

pygmaea – México, Guatemala, Caribbean

The specimens from México appear to be identical to specimens from Puerto Rico, but are not associated with females.

Type series. *Solenopsis pygmaea* Forel, (lectotype ♀ [here designated], Forel Coll. MHNG), Antilles Is., St. Vincent.

Material examined. Type series and **BARBADOS**, Hackleton's Cliff, 27-xi-2003, J. Wetterer # 107 (1 ♀ CWEM), same locality, 17-vi-2006, J. Wetterer # 364 (1 ♀ CWEM). **GRENADA**, Diamond Estate, 26-vi-2006, J. Wetterer # 528 (1 ♀ CWEM), River Antoine, 25-vi-2006, J. Wetterer # 501 (1 ♀ CWEM). **HAITI**, Cape Haitien, W. Mann (4 ♀♀ MCZC). **MEXICO**, **Tabasco**, Campo Experimental COLPOS, Cárdenas, 22-viii-2000, P. Rojas # BSIE-1186 (8 ♀♀ IEMJ). **GUATEMALA**, **Izabal** Biotopo, Chocon Machacas 23.17 km NE Frontera, 26-vii-2004, J. Pacheco GRC 45-18, 15°47'16.6"N 88°50'38.6"E (4 ♀♀ CWEM); **Petén**, Paso Caballos Est. Biol. Las Guacamayas, GCR 23-217°14'49.7"N 90°17'33.3"W 21-vii-2004, J. Pacheco (3 ♀♀ CWEM). **SAINT VINCENT**, Belle Vue, 2-vii-2006, J. Wetterer # 660 (1 ♀ CWEM), Rabacca, 6-vii-2006, J. Wetterer # 725 (1 ♀ CWEM), Wallibou River, 1-vii-2006, J. Wetterer # 598 (1 ♀ CWEM). **UNITED STATES**, **Puerto Rico**, Cayey, 8-vi-1991, J. Torres # 600 (3 ♀♀ CWEM); Guaynabo, Barrio Sonadora, 3-vi-1991, J. Torres # 593 (2 ♀♀, 1 alate ♀ CWEM).

Compare with
molesta, *salina*, *texana*

molesta species complex

quadridentata 285

***Solenopsis quadridentata* Pacheco, Mackay & Moreno,
NEW SPECIES**

Figs. 257-260; Map 62

molesta species complex, *molesta* subgroup

Diagnosis.

Worker. This is a concolorous pale yellow species with angular lateral clypeal teeth. The hairs on the posterior tibiae are typically appressed or suberect. There is a translucent tooth present at the subpeduncular process.

Female. The female is concolorous golden brown. The diagnostic character of the queen is that both the lateral and extralateral clypeal teeth are well developed. The head and pronotum have coarse punctures. The metapleuron, petiole and postpetiole have horizontal striae.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.38-1.50 (1.44); HL 0.420-0.450 (0.440); HW 0.360-0.390 (0.383); EL 0.036; ED 0.030; SL 0.306-0.342 (0.314); FSL 0.120-0.132 (0.125); CI 85.7-89.0 (86.9); SI 68.9-76.0 (71.4); PL 0.090; PW 0.108-0.120 (0.114); PI 75.0-83.3 (79.1); PPL 0.102-0.108 (0.104); PPW 0.138; PPI 73.9-78.3 (75.4); WL 0.300-0.306 (0.302); PSL 0.030; PSW 0.024.

Concolorous pale yellow; head longer than wide, sides of head straight, posterior border slightly concave, with coarse punctures, larger than hairs that originate from them; lateral clypeal teeth angular, medial tooth absent, extralateral teeth poorly developed; scape extends slightly more than $\frac{2}{3}$ length of head, funicular segments 3-8 short; eye small, brown, at least three ommatidia; punctures on mesosoma and gaster less coarse than those of head with surfaces between punctures smooth and shiny, pronotum and mesopleuron smooth and shiny, metapleuron with horizontal striae, notopropodeal suture depressed with groove breaking sculpture of mesosoma; posterior border of propodeum rounded, propodeal spiracle small; petiole wider than postpetiole in profile with rounded, triangular node, thin, translucent tooth present on subpeduncular process; postpetiolar node oval; sculpture of petiole and postpetiole smooth and shiny.

Hairs of various lengths (~0.020-0.090 mm) present on all body surfaces; erect and suberect hairs on head, antenna very hairy, scape with few suberect hairs, pronotum with erect hairs projecting above outline, as seen in profile,

quadridentata – USA: New Mexico

mesonotum with erect hairs (0.070 mm) above profile, propodeum, petiole, postpetiole with suberect that curve posteriorly, gaster with suberect hairs on outline of first tergum.

Female Description.

Measurements (n=1). TL 5.58; HL 0.660; HW 0.630; EL 0.192; ED 0.180; MOL 0.060; MOD 0.078; SL 0.480; FSL 0.276; CI 95.5; SI 72.7; PSL 0.036; PSW 0.036; PL 0.165; PW 0.288; PI 57.3; PPL 0.240; PPW 0.342; PPI 70.2; WL 1.08.

Concolorous golden brown, slender bodied gyne; coarse cephalic punctures; head longer than wide; lateral and extralateral clypeal teeth sharp, well developed; clypeal carinae well developed; frontal lobes with vertical striae; medium sized eyes; medial ocellus medium sized; scape reaching about $\frac{2}{3}$ to posterior lateral corner of head; pronotum coarsely punctate, but smooth and shiny between punctures, mesopleuron smooth and shiny, horizontal striae on metapleuron; petiole wider than postpetiole in profile with rounded, triangular node, horizontal striae present, thin flange on subpeduncular process; postpetiolar node oval, covered basally with horizontal striae.

Hairy with erect and suberect hairs covering all body surfaces; head, mesosoma, petiole, postpetiole and gaster heavily pilose with hairs of various lengths (0.030-0.120 mm); scape heavily pilose with several longer hairs present of 0.120 mm in total length.

Biology and habitat. *Solenopsis quadridentata* nests under stones and workers were captured via pitfall traps in New Mexico. It occurs in pinyon-juniper and grey oak forests in light brown gravel soils. Brood was present in a nest in August, and a nest had a single queen.

Distribution. USA, New Mexico.

Discussion. The workers of *S. quadridentata* can be confused with those of *S. salina* and *S. texana*. *Solenopsis quadridentata* can be separated from *S. salina* based on the degree of development of the lateral clypeal teeth. *Solenopsis quadridentata* has angular lateral clypeal teeth whereas *S. salina* has blunt, inwardly curved clypeal lateral teeth in most cases. This trait will separate this species from the closely related *S. texana*, which has straight, thick, blunt teeth that rarely bend inward. The punctures on the head of *S. quadridentata* are coarse, which also separates this species from *S. texana* as well as *S. molesta* (where the punctures are small and difficult to see). *Solenopsis molesta* workers are consistently larger (total length 1.5–1.7 mm) compared to 1.38-1.50 for *S. quadridentata*.

quadridentata – USA: New Mexico

Compare with *molesta* species complex *quadridentata* 287
molesta, salina, texana

The female of this species may be confused with queens from the *fugax* species complex as it has four sharp clypeal teeth, but is recognized by its relatively small size (TL 5.58 mm), wide head and thin subpeduncular flange. The female may be confused with *S. molesta*. However, *S. molesta* females are nearly always concolorous yellow and have two well defined lateral clypeal teeth instead of the four well developed teeth found with *S. quadridentata*.

Type series. Holotype ♀ (MCZC) and 5 paratype ♂♂ (CWEM, MCZC), USA, New Mexico, Socorro Co., Magdalena Mt. 17.0K Magdalena, 33°57'47.8"N 107°14'43.1"W, 2063 m, 04-viii-1994, W. Mackay #16774.

Material examined. Type series.

quadridentata – USA: New Mexico

***Solenopsis rosella* Kennedy, NEW STATUS**

Figs. 261-266; Map 63

molesta species complex, *molesta* subgroup

Solenopsis rosella Kennedy, 1938: 232, Figs. 1-3, 5, 6, 8, 10 (♂ ♀ ♂) CANADA: Ontario, Pelee Point and Pelee Island (incorrectly listed as USA in Bolton, 1994); incorrectly considered to be junior synonym of *S. texana*, Creighton, 1950: 238, **NEW STATUS** (Revived from synonymy)

Diagnosis.

Worker. Workers are small, pale yellow ants. The head is longer than wide with the posterior border depressed medially. The cephalic punctures are semi-coarse, resembling those of the *pygmaea* complex. The lateral clypeal teeth are developed only into small, blunt angles and the extralateral teeth are absent. The clypeal carinae are present, but not well developed. The petiolar node is triangular and a miniscule flange is present on the subpeduncular process.

Female. The female is pale yellow in color with a pink gaster (when alive, they become yellow in pinned specimens) and moderately large. The head is semi-quadrate and slightly longer than wide. The cephalic punctures are coarse, resembling those found with the *fugax* species complex. The eyes extend 0.060 mm past the lateral margin of the head. The medial ocellus is relatively large. The subpeduncular process has a small tooth.

Male. The male is slightly bicolored with a brownish head and gaster and pale yellow body. The head is as long as wide. The antennae are pale yellow in color. The eyes of the male are large and extend 0.72 mm past the lateral margin of the head. Vertical striae are present between the frontal lobes and below the medial ocellus. Horizontal striae are present lateral to the torulae and eye. There is a small tooth present on the subpeduncular process.

Worker Description.

Measurements (n=1). TL 1.44; HL 0.408; HW 0.360; EL 0.060; ED 0.030; SL 0.276; FSL 0.108; CI 88.2; SI 67.7; PL 0.078; PW 0.108; PI 72.2; PPL 0.120; PPW 0.126; PPI 95.2; WL 0.282; PSL 0.042; PSW 0.030.

Small, concolorous pale yellow; head longer than wide; cephalic punctures semi-coarse; medial clypeal teeth angular, extralateral teeth absent; clypeal carinae weakly developed; scape does not reach posterior lateral margin of head; minor segments of funiculus 0.108 mm in total length; eyes small (five ommatidia); notopropodeal suture depressed, groove breaks sculpture of mesosoma; posterior propodeal margin slightly angled; propodeal spiracle relatively small; fine hori-

rosella – Canada: Ontario

zontal striae present on metapleuron; petiole wider than postpetiole viewed laterally; petiolar node triangular, small flange at subpeduncular process; petiole rhomboid when viewed laterally, wider than petiole when viewed dorsally.

Erect and suberect hairs of various lengths covering all body surfaces; suberect hairs of various lengths present on mesosoma seen in profile.

Female Description.

Measurements (n=1). TL 4.44; HL 0.660; HW 0.630; EL 0.252; ED 0.240; MOL 0.090; MOD 0.108; SL 0.480; FSL 0.240; CI 95.5; SI 72.7; PSL 0.080; PSW 0.070; PL 0.240; PW 0.300; PI 80.0; PPL 0.240; PPW 0.330; PPI 72.7; WL 0.960.

Concolorous pale yellow, moderately large; head subquadrate, slightly longer than wide, cephalic punctures coarse; clypeal anterior margin concave between lateral teeth, lateral teeth well developed, extralateral teeth bumps; clypeal carinae weakly developed; vertical striae on frontal lobes; eyes relatively large with approximately 150 ommatidia, eyes extend 0.060 mm past lateral margin of head; scape long, does not reach posterior lateral border of head; medial ocellus relatively large; propodeal margin with angular margin; propodeal spiracle relatively small; horizontal striae on metapleuron; petiolar and postpetiolar nodes similar in size when viewed laterally and dorsally, subpeduncular process with small tooth.

Abundantly hairy with hair of various lengths present on all body surfaces; approximately 35 erect and suberect hairs of various lengths present on mesosoma when viewed in profile; both petiole and postpetiole abundantly hairy with suberect hairs curved posteriorly.

Male Description.

Measurements (n=1). TL 3.00; HL 0.480; HW 0.480; EL 0.300; ED 0.240; MOL 0.096; MOD 0.150; SL 0.240; FSL 0.960; CI 100; SI 50.0; PSL 0.070; PSW 0.040; PL 0.240; PW 0.240; PI 100; PPL 0.240; PPW 0.300; PPI 80.0; WL 0.840.

Bicolored with brownish head and gaster, pale yellow body; head as long as wide; antennae pale yellow; eyes large, extend 0.720 mm past lateral margin of head; vertical striae between frontal lobes and anterior to medial ocellus, horizontal striae lateral to frontal lobes and eye; medial ocellus large; propodeal spiracle small; petiole wider than postpetiole in profile; small tooth present on subpeduncular process.

Abundantly hairy with erect and suberect hairs of various lengths present on all body surfaces; approximately 20 erect and suberect hairs of various lengths present on mesosoma when viewed in profile.

Biology and habitat. From Kennedy 1938, “This ant can be found in coarse moist sand at high beach level. Nest No. 1372 was found eight inches to one side of a nest of *Iridomyrmex analis pruinosus* Emery in coarse sand along the west side of a sand-spit on the south shore of Pelee Island, Ontario.”

The junior author and Emma Mackay found that most of Pelee point had eroded away and spent a couple of days looking for them in 2007. We finally found them on the west side beach in a nest of *Formica schaufussi* at about dark. We searched the surrounding area in Ontario but did not find them. No females or males were found. In 2009 we checked the south side of Lake Erie in the United States and were unable to find them, so they are apparently found only in one location in Canada.

Distribution. Pelee Point, and Pelee Island, Ontario, Canada, the most southern point in Canada.

Discussion. It is helpful to have a female as part of the series, in order to identify this species. The female is relatively large, pale yellow with relatively large eyes. If one has females of a series, they are easily recognized by the color and the size of the eye. Without females, identification is very difficult, as workers are easily confused with the smaller workers of *S. texana*. However, *S. rosella* is from Canada and *S. texana*'s northern limits are the upper part of New Mexico and Oklahoma in the mid and southwest and Virginia in the East.

This species could be confused with and is most similar to *S. molesta* based on the similarities between the females, but *S. rosella* females when alive exhibits a pinkish tint to its cuticle as is seen with *S. texana*. Additionally, *S. molesta* females are slightly larger in size at 5 mm in total length and more often have a tooth present on the subpeduncular process.

Solenopsis rosella was considered to be a synonym *S. texana* (Creighton 1950). The workers are very similar to *S. texana*, but females are nearly identical to *S. molesta* (except most females of *molesta* have a large subpeduncular process, lacking in *S. rosella*) and are different from those of *S. texana*. *Solenopsis rosella* can be separated from *S. texana* based on the female that is large (total length ~ 4.5 mm) and yellow, much larger than the female of *S. texana* and much brighter in color than the brown female of *S. texana*. Additionally the eyes of the female are large (0.250 mm greatest diameter), similar to the eyes of *S. molesta* and much larger than the eyes of *S. texana* (0.160 mm greatest diameter).

Compare with
molesta, texana

molesta species complex

rosella 291

Type series. *Solenopsis rosella* Kennedy, Pelee Island, Ontario, (holotype, winged ♀ from nest No. 1372, Kennedy collection, Ohio State University (OSUC), allotype ♂ from nest No. 1372, ♀ from nest No. 1372 (both seen OSUC), ♀, described 1372, type rosea, C.H. Kennedy Collection, Barcode # OSUC 0119922 (seen OSUC), ♀, rosea female 1372, drawn, type rosea, C.H. Kennedy Collection, Barcode # OSUC 0119920 (seen OSUC), ♂, rosea male no. 1372, type rosea, C.H. Kennedy Collection, Barcode # OSUC 0119921 (seen OSUC). *Solenopsis rosella*, Pelee Island, Ontario, 1934, type nest 1372 (2 ♀♀ and 1 ♀ seen LACM).

Material examined. Type series and CANADA, Ontario, Pelee Point, 20-vii-2007, W&E Mackay # 22471 (69 ♀♀, CWEM).

rosella – Canada: Ontario

***Solenopsis rugiceps* Mayr**

Figs. 267-268; Map 64

fugax species complex*Solenopsis rugiceps* Mayr, 1870: 406 (♀) COLOMBIA: Bogotá**Diagnosis.**

Worker. This species is golden brown with the gaster being darker brown. The relatively coarsely sculptured head of the worker easily separates this species from most other New World species. The rugulae cover much of the anterior part of the head and sides of the head, the posterior part of the head may be moderately smooth and glossy. The four teeth on the anterior border of the clypeus are well developed, the extralateral teeth are nearly as large as the lateral pair of teeth.

Female and Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.74-1.80 (1.77); HL 0.558-0.570 (0.566); HW 0.444-0.468 (0.461); EL 0.042; ED 0.036; SL 0.402-0.420 (0.408); FSL 0.168-0.180 (0.177); CI 79.6-82.9 (81.4); SI 71.3-73.7 (72.0); PL 0.096; PW 0.132-0.150 (0.145); PI 64.0-72.7 (66.3); PPL 0.108-0.120 (0.113); PPW 0.150-0.162 (0.157); PPI 66.7-76.9 (71.8); WL 0.402-0.420 (0.416); PSL 0.036-0.042 (0.038); PSW 0.030-0.036 (0.034).

Golden brown with gaster darker brown; head coarsely sculptured, with rugulae covering anterior part of head, sides of head, posterior part may be moderately smooth and glossy; lateral clypeal teeth well developed, extralateral teeth well developed, nearly as large as lateral pair; clypeal carinae well defined; scape nearly extends to posterior margin of head; notopropodeal suture deeply depressed, groove breaks sculpture of mesosoma; petiole broad when viewed in profile, postpetiole oval when viewed dorsally; mesopleuron with horizontal striae or may be completely smooth and shiny (variation also found within type series).

Abundantly hairy (erect and suberect hairs) on all body surfaces, from anterior margin of clypeus to dorsum of gaster.

Biology and habitat. Workers were collected in surface and subterranean baits containing Vienna sausage, in an old-growth tropical rainforest.

Distribution. Colombia.

rugiceps – Colombia: Cundinamarca, Valle del Cauca

Discussion. The workers of *Solenopsis rugiceps* are superficially similar only to *S. vinsoni*, a species found from México to Panamá. These two species are the only ones in the New World that have sculptured heads. *Solenopsis rugiceps* is apparently monomorphic while *S. vinsoni* is dimorphic and the major of *S. vinsoni* may be confused with the workers of *S. rugiceps*. However, the major worker of *S. vinsoni* can be easily separated by the sculptured mesosoma, petiole and post-petiole (predominantly smooth and glossy in *S. rugiceps*). Additionally the notopropodeal suture is weakly depressed (strongly depressed in *S. rugiceps*). Although the sculpturing of the head is similar in the two species, they do not appear to be closely related.

Type series. *Solenopsis rugiceps* Mayr, Mayr Collection, Colombia, Santa Fé de Bogotá (Bogotá) (Lindig) (lectotype ♀ and 4 paralectotype ♀♀ [here designated], NHMW). The types were probably collected elsewhere in Colombia and shipped from Bogotá, as the type locality seems too cool and of high elevation for this apparently tropical species.

Material examined. Type series and **COLOMBIA, Valle del Cauca**, Bosque Yotoco, 1575m, 23-vi-1989, W. Mackay #'s 11542, 11549, 11550, 11573 (42 ♀♀ CWEM).

***Solenopsis salina* Wheeler**

Figs. 269-272; Map 65

molesta species complex, *molesta* subgroup*Solenopsis salina* Wheeler, 1908b: 427, Plate 26, Figs, 24, 25 (♀) USA: Texas, Ft. Davis**Diagnosis.**

Worker. The workers are small, typically yellow (occasionally pale brown), in which the total length of the minor funicular segments is usually less than 0.120 mm in total length. The lateral clypeal teeth are usually bent inward and usually blunt tipped. The extralateral teeth are angulate. The hairs on the posterior tibiae are usually appressed or at most suberect. The cephalic punctures are coarse.

Female (undescribed). The female is medium brown with a dark brown head. The head is coarsely punctate and resembles members of the *fugax* species complex. The space between the lateral clypeal teeth is wide at 0.120 mm. The metapleuron, petiole and postpetiole are striated. The petiolar peduncle has a flange ventrally.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.41-1.50 (1.45); HL 0.408-0.432 (0.420); HW 0.342-0.360 (0.356); EL 0.036-0.042 (0.037); ED 0.030; SL 0.270-0.288 (0.279); FSL 0.108-0.132 (0.121); CI 83.3-85.7 (84.9); SI 63.9-68.6 (66.6); PL 0.078; PW 0.102-0.114 (0.108); PI 68.4-76.5 (72.3); PPL 0.096-0.102 (0.098); PPW 0.120-0.150 (0.133); PPI 68.0-80.0 (74.3); WL 0.300-0.330 (0.312); PSL 0.024-0.036 (0.031); PSW 0.024-0.030 (0.029).

Small, concolorous yellow to pale brown; head longer than wide, punctures on head moderately large, much larger than hairs that arise from them; lateral clypeal teeth angulate, thick, blunt at tips, often bent inward, extralateral teeth absent, angles present in their position; clypeal carinae well defined; eyes small, 3-5 ommatidia; scape does not reach posterior border of head; minor funicular segments 3-8 relatively short; pronotum and mesopleuron smooth and shiny; metapleuron with thin, faint striae; posterior propodeal margin rounded; petiole wider than postpetiole (viewed laterally); petiolar node rounded, peduncle with small tooth ventrally; postpetiolar node oval, lacking tooth or flange ventrally.

salina – USA: New Mexico, Texas, Louisiana, Mississippi

Abundantly hairy; hairs on pronotum numerous and various lengths, longest 0.012 mm in length; hairs on posterior tibiae usually appressed or suberect; hairs on petiole, postpetiole and gaster curve posteriorly.

Female Description.

Measurements (n=2). TL 4.92-5.16 (5.04); HL 0.762-0.774 (0.768); HW 0.720; EL 0.240; ED 0.210; MOL 0.060-0.066 (0.063); MOD 0.072; SL 0.540-0.570 (0.555); FSL 0.288-0.324 (0.306); CI 93.0-94.5 (93.8); SI 70.9-73.6 (72.3); PSL 0.066-0.084 (0.075); PSW 0.054-0.060 (0.057); PL 0.192-0.210 (0.201); PW 0.360-0.378 (0.369); PI 53.3-55.6 (54.4); PPL 0.276; PPW 0.402; PPI 68.7; WL 1.20.

Moderately large; medium brown with darker head; head longer than wide, coarsely punctate; lateral clypeal teeth well developed, space between tips of teeth wide at 0.120 mm; extralateral teeth absent; clypeal carinae weakly defined; scape long, but not reaching posterior lateral corner of head; minor funicular segments 3-8 long; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; mesopleuron horizontally striated; petiole and postpetiole robust, petiolar peduncle with well-developed flange ventrally.

Abundantly hairy, yellow pilosity, suberect to erect hairs of various lengths on all body surfaces; mesosoma very pilose, longest hairs 0.240 mm in length; hairs on petiole, postpetiole and gaster curve posteriorly.

Biology and habitat. *Solenopsis salina* nests under large stones in creosote desert scrub, grassland, grassland-juniper transition, hardwood oak and pine forests, in dark brown sandy soils and rocky loam soils. Several nests were found in the soil in a bare, burned area. Occasionally there is a small mound around the entrance. Two nests were under logs. One nest was found in the nest of *Formica oreas*, another in a nest of *Pheidole porcula*. *Solenopsis salina* appears to inhabit mesic sites frequently in New Mexico and reproductives can be found in nests in July and August (Mackay and Mackay, 2001). Workers were collected in surface, vegetation and subterranean Vienna sausage, live mealworm and fire ant baits, and in seed baits. Specimens were also collected in pitfall traps.

Distribution. USA (Louisiana, Mississippi, New Mexico and Texas).

Discussion. The blunt, inwardly curved clypeal teeth of the worker (although a variable character in a series) will often separate this species from the similar *S. texana* which has straight lateral teeth and *S. quadridentata* which has straight, sharp lateral clypeal teeth. The cephalic punctures are moderately coarse, which also separates this species from *S. texana*, where the cephalic punctures are

salina – USA: New Mexico, Texas, Louisiana, Mississippi

fine. The appressed or suberect hairs on the posterior tibiae will separate it from *S. carolinensis* (which rarely has erect hairs on the tibia). Larger workers (rare) are similar to *S. molesta*, but the combination of the bent clypeal teeth and the larger cephalic punctures distinguish *S. salina* from *S. molesta*. It can be also separated from *S. molesta* as the minor funicular segments of *S. molesta* are typically over 0.12 mm in length, while *S. salina* are typically shorter than 0.10 mm in total length.

Type series. We were unable to locate any types of *S. salina*; they were apparently borrowed by Thompson in 1989 and not yet returned (S. Cover, Harvard University [MCZC], pers. comm.).

Material examined. USA, **Louisiana**, Calcasieu Parish, Sam Houston Jones St. Park, 17-viii-1987, W. Mackay #'s 9702-7 (1 ♀ CWEM), **Iberia Parish**, New Iberia, 19-viii-1987, W. Mackay # 9785 (6 ♀♀ CWEM); **Mississippi**, **Hancock Co.**, Waveland, 24-viii-1987, W. Mackay #9850 (1 ♀ CWEM), **Ok-tibbeha Co.**, 4 k NE Starkville, 27-viii-1987, W. Mackay #'s 9928, 9933, 9936, 9937, 9955 (28 ♀♀ CWEM); **New Mexico**, **Catrón Co.**, 37 k N Apache Creek, 24-iii-1994, W. Mackay # 16581 (41 ♀♀, 1 ♀ CWEM), **Otero Co.**, Bates Peak Turnoff, N side of Rd., 41.4 Km. NW Sitting Bull Falls, 01-ix-1997, W & E Mackay #'s 17588, 17611, 17636, 17637 (54 ♀♀ CWEM); **Texas**, **Brazos Co.**, College Station, Foster Lane, 17-vi-1987, W. Mackay #'s 9214, 9220, 9221, 9222, 9226, 9228, 9230, 9233, 9234, 9236, 9238, 9240, 9246 (46 ♀♀ CWEM), same locality, 5-v-1987, W&E Mackay #'s 9196, 9197, 9200 (9 ♀♀ CWEM), 10 K N Kurten, 5-v-1987, W. Mackay #'s 9108, 9198, 9199, 9201 (14 ♀♀ CWEM), same locality, 18-vi-1987, W. Mackay #'s 9255, 9256, 9258, 9265, 9272, 9287, 9621, 9682, (20 ♀♀ CWEM), Peach Creek, 22-vii-1987, W. Mackay #'s 9355(2), 9356B, 9357B, 9358A(3), 9358B, 9359(2) (39 ♀♀ CWEM), same locality, 5-viii-1987, W. Mackay # 9661 (2 ♀♀ CWEM), Lick Creek Park, College Station, 03-vii-1999, K. Helms #'s 53-56, 58, 65-67, 69, 70-75, 79, 80, 81 (10 ♀♀ CWEM), Anderson Site, K. Helms #'s 29, 30, 35-37, 39 (6 ♀♀ CWEM), Brazos Site, 01-vii-1999, K. Helms # 10 (1 ♀ CWEM), **Brooks Co.**, 13 k S Falfurrias, 38-vii-1987, C. Pinder # 9440 (3 ♀♀ CWEM), **Hardin Co.**, Votaw, 16-viii-1987, W. Mackay # 9699 (2 ♀♀ CWEM), **Real Co.**, 13 k S Leakey, 15-iii-1990, W. Mackay # 13380 (1 ♀ CWEM), **Rusk Co.**, 30 k NE Nacogdoches, 3-vi-1990, W. Mackay # 13400 (16 ♀♀ CWEM).

Compare with
andina, *metanotalis*

nigella species complex

schilleri 297

***Solenopsis schilleri* Santschi**

Figs. 273-274; Map 66

nigella species complex, *nigella* subgroup

Solenopsis schilleri Santschi, 1923: 263, Fig. 3c (♂) ARGENTINA: Neuquén, Challacito; combination in *Solenopsis* (*Euophthalma*), Creighton, 1930: 136

Diagnosis.

Worker. This is a dark brown, (possibly black when collected and faded through time) moderately large species. The clypeus is extremely concave between the lateral clypeal teeth which are well developed. The eye is relatively large and contains approximately 50-60 ommatidia. Vertical striae are located from the anterior edge of the frontal lobes to below the eye on the anterior portion of the head. The dorsal margin of the mesosoma in profile is relatively straight with the pronotum, mesopleuron and propodeum at a nearly equal level, however slanted posteriorly toward the gaster. Both the mesopleuron and the sides of the propodeum are completely striated. There is sculpturing present both on the side of the petiole and on the base of the postpetiole.

Female and Male. Unknown.

Worker Description.

Measurements (n=1). TL 2.40; HL 0.660; HW 0.600; EL 0.120; ED 0.108; SL 0.480; FSL 0.240; CI 90.9; SI 72.7; PL 0.090; PW 0.138; PI 65.2; PPL 0.150; PPW 0.180; PPI 83.3; WL 0.480; PSL 0.030; PSW 0.024.

Dark brown, moderately large; head longer than wide, rounded sides; clypeus strongly concave between lateral clypeal teeth, lateral teeth well developed, extralateral teeth present as minute bumps (difficult to see); clypeal carinae well developed, extend posteriorly to frontal lobes; vertical striae on frontal lobes, gena and clypeus, reaching mandible insertion; scapes long, nearly reach posterior lateral corner of head; eye relatively large, approximately 50-60 ommatidia; dorsal margin of mesosoma viewed laterally relatively straight with pronotum, mesopleuron and propodeum at nearly equal level, but slanted posteriorly toward gaster; mesopleuron and side of the propodeum horizontally striated; notopropodeal suture depressed, groove breaks sculpture of mesosoma; propodeal spiracle small; propodeal posterior margin angular; petiole wider than postpetiole viewed lateral-

schilleri – Argentina: Neuquén

ly; petiolar node triangular with well-defined tooth on subpeduncular process; postpetiole rhomboid viewed laterally.

Relatively few hairs present on all body surfaces; posterior margin of head with fewer than 10 hairs present (dorsal view); scape with abundant appressed hairs; mesosoma with erect and suberect hairs of various lengths (viewed in profile); petiole, postpetiole and gaster with several suberect hairs of various lengths, angled posteriorly.

Biology and habitat. Unknown.

Distribution. Argentina, Neuquén.

Discussion. This species may be confused with *S. andina* and *S. metanotalis*. *Solenopsis schilleri* does not have striae on the pronotum as seen with *S. metanotalis*, but does have striae higher on the mesopleuron than *S. andina*. Additionally, *S. metanotalis* has longer lateral clypeal teeth. *Solenopsis andina* has straighter sides of the head and *S. schilleri* is slightly more rounded. Additionally, *S. andina* has less developed clypeal carinae than *S. schilleri*.

Type series. *Solenopsis schilleri* Santschi, Sammlung, Dr. F. Santschi, Kairouan, Argentina, Neuquén, 1252 Challacito, D. Schiller. (holotype ♀ NHMB).

Material examined. Holotype.

Compare with
emiliae, *metanotalis*

nigella species complex

shiptoni 299

***Solenopsis shiptoni* Forel**

Figs. 275-277; Map 67

nigella species complex, *metanotalis* subgroup

Solenopsis shiptoni Forel, 1914: 276 (♀) ARGENTINA: Tucumán; subspecies of *metanotalis*, Creighton, 1930: 127, **NEW STATUS**

Solenopsis shiptoni var. *steigeri* Santschi, 1916e: 378 (♀) ARGENTINA: Chaco; subspecies of *metanotalis*, Forel, 1914, **NEW SYNONYM**

Diagnosis.

Worker. This is a bicolored species with golden brown body and a darker brown head and gaster. The posterior margin of the head is nearly straight. The lateral clypeal teeth are well developed and extend past the anterior clypeal margin by 0.024 mm. In full face view, the eye extends past the lateral margin of the head by 0.003 mm. There are horizontal striae present on the mesopleuron and propodeum but are lacking on the pronotum. There is roughened (coriaceous) sculpturing on the lower halves of the sides of the petiole and postpetiole.

Female and Male. Unknown.

Worker Description.

Measurements (n=6). TL 1.80-1.92 (1.82); HL 0.480-0.528 (0.510); HW 0.420-0.456 (0.434); EL 0.096-0.108 (0.101); ED 0.060; SL 0.342-0.354 (0.349); FSL 0.162; CI 82.4-87.5 (85.2); SI 67.0-71.3 (68.5); PL 0.078; PW 0.132-0.144 (0.137); PI 54.2-59.1 (56.9); PPL 0.120; PPW 0.168-0.180 (0.173); PPI 66.7-71.4 (69.5); WL 0.360-0.420 (0.386); PSL 0.036; PSW 0.036.

Bicolored; with golden brown body, darker brown head and gaster; head longer than wide, posterior occipital margin nearly straight; clypeal margin between lateral teeth concave; lateral teeth well developed; extralateral teeth angular, break margin of clypeus; scape does not reach posterior lateral corner of head; eye extends past lateral margin of head, approximately 17 ommatidia; horizontal striae on mesopleuron, side of propodeum, lacking on pronotum; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; dorsal propodeal margin angular, propodeal spiracle relatively small; roughened sculpturing basal on petiole, postpetiole; petiole wider than postpetiole viewed laterally, triangular node; well-developed flange on subpeduncular process; postpetiolar node oval, larger than petiole when viewed dorsally.

shiptoni – Argentina: Chaco, Tucumán, Bolivia: Santa Cruz

Hairy with hair covering all body surfaces; erect and suberect hairs of various lengths from head to gaster.

Biology and habitat. Unknown.

Distribution. Argentina (Chaco, Tucumán), Bolivia (Santa Cruz).

Discussion. It is obvious that *S. shiptoni* is closely related to *S. metanotalis* and *S. emiliae* but can be distinguished by its smaller eye and lack of sculpturing on the pronotum. This lack of pronotal sculpturing is the diagnostic character for this species and separates it from all other members of the *metanotalis* subgroup. *Solenopsis shiptoni* does not have as well developed lateral clypeal teeth as does *S. metanotalis* and *S. emiliae* (extend past anterior clypeal border by approximately 0.050-0.060 mm). In addition, *S. emiliae* has more roughened sculpturing covering the petiole and postpetiole compared to *S. shiptoni*.

The variety *steigeri* is identical to the nominal in both the form of the clypeal teeth and the lack of pronotal sculpturing and is not recognized as valid.

Type series. *Solenopsis shiptoni* Forel, Coll. Forel, Argentina, Tucumán (Shipton) (lectotype ♀ and 1 paralectotype ♀ [here designated], MHNG). *Solenopsis shiptoni* var. *steigeri* Santschi Sammlung, Dr. F. Santschi, Kairouan, Argentina, Chaco (von Steiger (lectotype ♀ and 3 paralectotype ♀ ♀ NHMB),).

Material examined. Type series and **BOLIVIA**, Santa Cruz, Perforación, 68k ESE Charagua, 19°55'S 62°34'W, 470m, 11-xii-1993, P. S. Ward # 12335-11 (2 ♀ ♀ CWEM, MCZC).

***Solenopsis striata* Pacheco & Mackay, NEW SPECIES**

Figs. 278-279; Map 68

molesta species complex, *molesta* subgroup

Diagnosis.

Worker. The worker is golden yellow. The funicular segments are 0.120 mm in total length. The eye is small with 3-5 ommatidia. The mesopleuron and metapleuron are completely horizontally striated. The petiolar peduncle has a small tooth ventrally.

Female and Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.44-1.62 (1.51); HL 0.420-0.426 (0.421); HW 0.360-0.390 (0.369); EL 0.030-0.036 (0.035); ED 0.030; SL 0.288-0.324 (0.313); FSL 0.120-0.132 (0.126); CI 84.5-92.9 (87.8); SI 68.6-77.1 (74.4); PL 0.078-0.084 (0.082); PW 0.090-0.126 (0.113); PI 66.7-86.7 (73.3); PPL 0.102-0.108 (0.106); PPW 0.120-0.144 (0.131); PPI 70.8-90.0 (81.3); WL 0.324-0.342 (0.330); PSL 0.030; PSW 0.030.

Small; concolorous golden yellow; head subquadrate, slightly longer than broad, sides of head convex, posterior border straight; lateral clypeal teeth well developed, extralateral teeth developed as only slightly swollen areas; scape nearly reaching posterior lateral corner of head; eyes small, 3-5 ommatidia; notopropodeal suture deeply depressed; punctures on head small, only slightly larger in diameter than hairs arising from them, all surfaces smooth and glossy, except for mesopleuron and metapleuron, which are latitudinally striated (at least lower half); petiole wider than postpetiole viewed laterally; petiolar node rounded, peduncle with small tooth ventrally; postpetiolar node oval, lacking tooth or flange ventrally.

Abundantly hairy with yellow pilosity; erect and suberect hairs abundant on most surfaces, including scapes and tibiae; longest hairs on mesosoma 0.012 mm; hairs on petiole, postpetiole and gaster curve posteriorly.

Etymology. From Latin, *stria* for furrow, referring to the sculpture on the lower mesopleuron and metapleuron.

Biology and habitat. Workers of *S. striata* were collected in Berlese extraction litter samples from adjacent to a sphagnum bog, lowland forest, mixed oak, ridge forest, montane hardwood, montane transitional and wet montane cloud forests in Panama and Costa Rica at 600-1175 m.

Distribution. Costa Rica and Panamá.

Discussion. The horizontally striated mesopleuron will separate *S. striata* from most others in the *S. molesta* species complex, including *S. laeviceps* (Belize to Brazil), in which the mesopleuron is nearly completely smooth and shiny. *Solenopsis striata* is also similar to *S. joergenseni* (Argentina, Paraguay and Brazil) but can be separated as *S. striata* has a smaller eye composed of 3-5 ommatidia, compared to 8-10 ommatidia for *S. joergenseni*.

Type series. Holotype ♀ (MCZC) and 61 paratype ♀♀ (AMNH, CASC, CWEM, INBC, LACM, MCZC, MPEG, MZSP, USNM), COSTA RICA, Guanacaste, Pitilla Field Station, 600 - 1175m, 2-v-1996, 14-ii-1998, R. Anderson #'s 17679, 17691, 17692, 17694, 17715, 17721, 17722, 17741.

Material examined. Type series and COSTA RICA, Guanacaste, Cacao Field Station, 12-15-ii-1996, R. Anderson #'s 17733, 17765 (2 ♀♀ CWEM), Maritza Field Station, 13-17-ii-1996, R. Anderson #'s 17667, 17668, 17734 (24 ♀♀ CWEM), same locality, 3-v-1995, R. Anderson # 17715 (7 ♀♀ CWEM); Puntarenas, Cerro Helado, 24-vi-1997, R. Anderson # 18699 (1 ♀ CWEM), Osa, Fundación Neotropical, 23-vi-1997, R. Anderson # 18687 (3 ♀♀ CWEM); San José, 68 k from Boquillos, 10-ii-1996, R. Anderson # 17750 (1 ♀ CWEM). PANAMA, Chiriquí, Bocas del Toro, 9-vi-1995, R. Anderson #'s 17840, 17841, 17843, 17845 (11 ♀♀ CWEM), Fortuna area, Finca La Suissa, 10-12-vi-1995 Anderson # 17775, 17839 (21 ♀♀ CWEM), Fortuna Hydrological Trail, 1100m 9-vi-1995, R. Anderson # 17785 (5 ♀♀ CWEM), 20 k N San Félix, 8-vi-1995, R. Anderson #'s 17767, 17768 (66 ♀♀ CWEM); Cerro Campana, 5-vi-1995, R. Anderson # 17756 (7 ♀♀ CWEM).

Compare with
hayemi

stricta species complex

stricta 303

***Solenopsis stricta* Emery**

Figs. 12, 280-283; Map 69

stricta species complex

Solenopsis stricta Emery, 1896: 90, Plate 1, Fig. 15 (♂) BOLIVIA (without locality)

Solenopsis laeviceps v. *antoniensis* Forel, 1912: 5 (♂) COLOMBIA: Sierra Nevada de Santa Marta, **NEW SYNONYM**

Solenopsis stricta st. *foederata* Santschi, 1923: 255-256 (♂ ♀) BRAZIL: Santa Catarina, **NEW SYNONYM**

Solenopsis stricta st. *foederata* var. *specularis* Santschi, 1923: 255 (♂) [unavailable name] **material referred here**

Diagnosis.

Worker. This is a golden brown species with smooth sculpture. The head is nearly quadrate, the clypeus is concave, the clypeal carinae are well developed and form the lateral teeth as small angles. The eyes contain approximately 3-5 ommatidia. The minor funicular segments 3-8 are very long, occasionally reaching 0.180 mm in total length. Additionally, there are thin horizontal striae present on the base of the propodeum just below the spiracle. The propodeal spiracle is large at 0.042 mm at its widest point. The distinguishing feature of this species is the very wide petiole that has an arched node viewed laterally. The petiole is very thin and the postpetiole is oval-shaped when seen from above.

Female. The female is small and concolorous dark brown. An important characteristic on the gyne is the wide space (0.138 mm) between the tips of the lateral clypeal teeth. The scape is long and nearly reach the posterior border of the head. The medial ocellus is small at 0.048 mm in diameter. The metapleuron and the sides of the petiole and postpetiole are horizontally striated.

Male. Unknown.

Worker Description.

Measurements (n=13). TL 1.80-2.04 (1.94); HL 0.480-0.540 (0.512); HW 0.426-0.480 (0.451); EL 0.048-0.054 (0.050); ED 0.030-0.036 (0.035); SL 0.342-0.396 (0.364); FSL 0.150-0.180 (0.163); CI 83.5-94.1 (88.1); SI 67.1-75.0 (71.1); PL 0.108-0.150 (0.124); PW 0.078-0.102 (0.089); PI 118-167 (139); PPL 0.120;

stricta – Bolivia, Brazil, Colombia, Ecuador, Panamá, Paraguay, Perú

PPW 0.126-0.150 (0.139); PPI 80.0-95.2 (86.6); WL 0.360-0.408 (0.378); PSL 0.030-0.054 (0.041); PSW 0.030-0.042 (0.036).

Small, golden brown; head longer than wide, with convex lateral margins; lateral clypeal teeth angulate, extralateral teeth as bumps; clypeal carinae well defined; eyes small, 3-5 ommatidia; scape long, extends more than $\frac{3}{4}$ length of head; notopropodeal suture deeply impressed, groove breaks sculpture of mesosoma; pronotum and mesopleuron smooth and shiny; metapleuron horizontally striated; propodeum with posterior margin angulate, distinguishing a posterior slope; propodeal spiracle large; petiole wider than postpetiole viewed laterally, petiolar node arched, peduncle lacking tooth or flange ventrally; postpetiolar node oval, lacking tooth or flange ventrally; petiole thin and postpetiole oval viewed dorsally.

Moderately hairy; erect and suberect hairs of various lengths covering body surfaces; mesosomal hairs long (up to 0.180 mm); hairs on petiole, postpetiole, gaster curve posteriorly.

Female Description.

Measurements (n=4). TL 3.36-3.72 (3.60); HL 0.642-0.648 (0.644); HW 0.600; EL 0.162-0.168 (0.167); ED 0.150; MOL 0.042; MOD 0.048-0.054 (0.050); SL 0.438-0.462 (0.450); FSL 0.240-0.276 (0.252); CI 92.6-93.5 (93.2); SI 68.2-71.3 (69.9); PSL 0.072-0.084 (0.075); PSW 0.066-0.072 (0.068); PL 0.162-0.168 (0.167); PW 0.216-0.222 (0.219); PI 75.0-77.8 (76.0); PPL 0.156; PPW 0.276-0.300 (0.285); PPI 52.0-56.5 (54.8); WL 0.810-0.840 (0.833).

Small, concolorous dark brown; head longer than wide, coarse punctures scattered; lateral clypeal teeth angulate, space between tips of teeth wide at 0.138 mm; extralateral teeth absent; clypeal carinae well defined; eyes large; medial ocellus small; scape long, nearly reaching posterior border of head; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; posterior propodeal margin rounded; propodeal spiracle large, circular; metapleuron horizontally striated; petiolar node arched, wide, horizontally striated with scattered punctures, peduncle lacking tooth or flange ventrally; postpetiolar node oval, horizontally striated with scattered punctures, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hairs of various lengths on all body surfaces; long hairs (up to 0.240 mm) on head, mesosoma, petiole, postpetiole and first tergum of gaster; hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. *Solenopsis stricta* was collected in humid, subtropical, inundated low forest, nesting in a twig in Paraguay. This species was collected at 600 m in a primary tropical rainforest nesting in a dead twig, in a pasture

stricta – Bolivia, Brazil, Colombia, Ecuador, Panamá, Paraguay, Perú

Compare with
hayemi

stricta species complex

stricta 305

of *Psidium guayaba* at 500 m and in secondary growth forest in a recent tree fall at 650 m in Ecuador.

Distribution. Bolivia, Brazil, Colombia, Ecuador, Panamá and Perú.

Discussion. *Solenopsis stricta* is similar to *S. hayemi* and the distinguishing characteristic is the thickness of the petiolar node viewed from above. *Solenopsis stricta* is consistently thinner than the thicker, more robust node of *S. hayemi* and easily distinguished.

It is difficult to understand why Santschi (1923) named the subspecies *S. foederata* or the variety *specularis* as the workers of both are identical to the workers of *S. stricta*. Emery (1896) states that the eye of the nominal contains 7-9 indistinct ommatidia when actually there are 3-5 (length, 0.054 mm, width, 0.036 mm), also seen with *S. stricta foederata* and *S. stricta foederata specularis*. Santschi (1923) distinguishes *S. stricta foederata* by stating that the petiole is narrower than that of the type and that the node leans a little less forward, when indeed they are both 0.090 mm in width from dorsal view with the nodes identical. Moreover, Santschi (1923) stated that the worker size is smaller than that of the type. The overall body size for the both types are all around 1.80 mm in length. Thusly, we do not recognize the subspecies *foederata* as valid. Santschi (1923) states that *S. stricta foederata specularis* is similar to the race *S. stricta foederata*, but the head is as dark as the gaster and it is a little more robust. Additionally, he states that the eye is more rounded and more forward. Upon inspection, the worker of *S. specularis* is identical to that of *S. stricta* is both size and the placement of the eye (both 0.150 mm from the edge of the insertion of the mandible) and is not recognized as valid. *Solenopsis laeviceps antonensis* is identical to *S. stricta* with the same clypeal teeth and identical petiolar node and is a member of the same species-level taxon.

Type series. *Solenopsis laeviceps* Mayr, Colombia, (lectotype ♀ and an additional 11 paralectotype ♀ ♀ [here designated] NHMW). *Solenopsis laeviceps* var. *antoniensis* Forel, Colombia, St Antonio, Sierra Nevada of Santa Marta (MHNG). *Solenopsis stricta foederata* Santschi, Cotype Wm M. Wheeler, M.C.Z. Cotype Brazil, Blumenau (Cotype 1-3 20941, seen MCZC). *Solenopsis stricta foederata specularis* Santschi, Cotype, Wm M. Wheeler M.C.Z, Brazil, Blumenau (Cotype 1-5 20940 MCZC). *S. stricta foederata* Santschi 177, Brazil, S.C. Blumenau Witte, Sammlung Dr. F. Santschi Kairouan (lectotype ♀ and 10 paralectotype ♀ ♀ [here designated] NHMB). *S. stricta foederata specularis* Santschi 177, Brazil, S.C. Blumenau Witte Sammlung Dr. F. Santschi Kairouan (lectotype ♀ and 15 paralectotype ♀ ♀ [here designated] NHMB).

stricta – Bolivia, Brazil, Colombia, Ecuador, Panamá, Paraguay, Perú

306 *stricta*

stricta species complex

Compare with
hayemi

Material examined. Type series and **ECUADOR, Pichincha**, ENDESA Forest Res., 600m, 00°08'N 079°03'W, 5-xii-2003, A. L. Wild #AW2202 (3 ♂♂ CWEM). **Napo**, Miravalle, 500m, 01°09'S 077°50'W, 11-xii-2003, A. L. Wild #AW2295 (1 ♂ CWEM); 3k NNE Archidona, 00°53'S 077°48'W, 650m, 9-xii-2003, A. L. Wild & D. Donoso #AW2266 (1 ♂ CWEM). **PANAMA**, Corozal C.E. NOV. 21, 1911, Wm. M. Wheeler (6 ♂♂ MCZC), Trijoles, C.Z. Wheeler (3 ♀♀ MCZC). **PARAGUAY, Canindeyú**, Reserva Nacional, Bosque Mbaracayu Jejuimi, 24°06'S 55°30'W, 24.vii.1996, A. Wild #AW 0237 (2 ♂♂, 1 ♀ CWEM). **PERÚ**, Parane, June 19, 1920, J.C.B. #606 (2 ♂♂ CWEM).

stricta – Bolivia, Brazil, Colombia, Ecuador, Panamá, Paraguay, Perú

Compare with *pygmaea* species complex
isopilis, minutissima, tonsa

subterranea 307

***Solenopsis subterranea* Mackay and Vinson**

Figs. 284-286; Map 70

pygmaea species complex

Solenopsis (Diplorhoptrum) subterranea Mackay and Vinson, 1989: 91, 175-178,
Figs. 1-4 (♀) USA: Texas, Brazos County

Diagnosis.

Worker. This species is recognized by having an elongated, coarsely punctated head. The eyes are minute with about one ommatidium. The head and mesosoma are covered with short (0.020 mm) erect and suberect hairs. The minor funicular segments are short at 0.060 mm.

Female and Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.02-1.14 (1.07); HL 0.318-0.342 (0.326); HW 0.240-0.270 (0.252); EL 0.018-0.030 (0.023); ED 0.018-0.030 (0.022); SL 0.192-0.198 (0.193); FSL 0.060-0.066 (0.062); CI 74.1-83.3 (77.2); SI 57.9-60.4 (59.2); PL 0.066-0.078 (0.072); PW 0.084-0.090 (0.086); PI 78.6-86.7 (83.3); PPL 0.072-0.084 (0.078); PPW 0.078-0.102 (0.091); PPI 80.0-92.3 (85.8); WL 0.210-0.240 (0.222); PSL 0.024-0.030 (0.025); PSW 0.018-0.030 (0.024).

Head elongate, densely, coarsely and evenly punctate; eyes small, round, with at least one ommatidium; scape short, does not reach posterior border of head; clypeal lateral teeth well developed; extralateral teeth angular, poorly defined, but interrupt anterior clypeal border; clypeal carinae weakly developed; minor segments 3-8 of funiculus short; petiole wider than postpetiole viewed laterally; subpeduncular process lacking tooth; postpetiolar node oval when viewed laterally and dorsally.

Head and mesosoma covered with short (0.020 mm), erect and suberect hairs approximately equal in length.

Biology and habitat. Specimens of *S. subterranea* were captured in subterranean Vienna sausage baited traps at 10 cm in depth in the United States (Mackay and Vinson 1989) and in the same type of traps in Costa Rica and Venezuela. They were collected in a subterranean trap baited with a mealworm in Louisiana. Habitats include an open grassy area in an oak forest in the US, brushy

subterranea – USA south to Venezuela and Colombia

grasslands in Venezuela and a weedy area in a pine and hardwood forest in México.

Distribution. Costa Rica (Guanacaste), Colombia (Cauca), México (Chiapas and Tabasco), USA (Louisiana and Texas) and Venezuela (Distrito Federal).

Discussion. The short erect and suberect hairs on the head and mesosoma would easily separate this species from all other species in the United States in the *pygmaea* complex, except *S. tonsa*. It can be separated from *S. tonsa* as the head of *S. subterranea* is slender viewed laterally, compared to the robust, thick profile of *S. tonsa*. It could be easily confused with the Mexican species *S. isopilis* and the South American *S. minutissima*, which both have short hairs on the pronotum and gaster, which are all about equal in length (0.030-0.048 mm in length). It can be separated from *S. isopilis* by being more hairy, with more than 20 erect hairs on the outline of the pronotum when seen in profile (*S. isopilis* only has approximately 10 erect hairs). It can be separated from *S. minutissima* as its eyes are small, but well-defined (poorly defined, nearly absent in *S. minutissima*).

Type series. *Solenopsis subterranea* Mackay and Vinson, (holotype ♀ and 20 paratypes ♀♀ are deposited in the MCZC, additional 180 paratype ♀♀ are deposited in the USNM, AMNH, CASC, CWEM, LACM, BMNH, UNAM, FMNH, FSCA, MZSP, MACN, TAMU [Mackay and Vinson, 1989]), USA, Texas, Brazos Co., 10 k N Kurten.

Material examined. Type series and **COLOMBIA, Cauca**, Isla Gorgona, 2-x-1989, M. Baena # GGHI-5 (24 ♀♀ CWEM), same locality, 2-i-90, #GG-Hi-9 (28 ♀♀ CWEM), same locality, 2-ii-90, #'s GY-Hi8, GY-Hi4 (5 ♀♀ CWEM), same locality, 10-xi-89, # GY-Gii2 (26 ♀♀ CWEM). **COSTA RICA, Guanacaste**, Loma Barbudal, 3-vi-1989, S. B. Vinson #'s 12076, 12081, 12082, 12177 (17 ♀♀ CWEM), same locality, ii-1990 S. B. Vinson #'s 13064, 13125, 13160, 13161 (20 ♀♀ CWEM). **MEXICO, Chiapas**, 10 k S Palenque, 30-v-1988, W. Mackay #'s 1056, 1063 (21 ♀♀ CWEM), same locality, 31-v-1988 #1065 (95 ♀♀ CWEM), Rancho Sagrado Corazón (Municipio Cintalpa), 2-vi-1988, W. Mackay #'s 10718, 10724 (31 ♀♀ CWEM); **Tabasco**, 10 k N Cárdenas, 28-v-1988, W. Mackay #1050 (17 ♀♀ CWEM). **USA, Louisiana, Calcasieu Parish**, Sam Houston Jones St. Park, 17-viii-1987, W&E Mackay #9724-1 (1 ♀ CWEM); **Texas, Brazos Co.**, N side of Ferrill Creek Rd., 3.94 K E of turnoff from Farm Road 2038 North, 5-viii-1987, W. Mackay #9636 (201 ♀♀ CWEM); **Cameron Co.** Anzalduas Park 15-x-1988, R. Anderson (5 ♀♀ CWEM). **VENEZUELA, Distrito Federal**, Caracas, Instituto de Estudios Avansados, 10-x-1988, W. Mackay #11136-10, (36 ♀♀ CWEM).

subtilis – Venezuela south to Bolivia, Brazil, Paraguay

Compare with
gnoma, picta, sulfurea

molesta species complex

subtilis 309

***Solenopsis subtilis* Emery**

Figs. 287-290; Map 71

molesta species complex, *tenuis* subgroup

Solenopsis subtilis Emery, 1896: 90, Plate 1, Fig. 16 (♀) PARAGUAY (without locality)

Diagnosis.

Worker. The worker is small and light brown in color with yellowish appendages. The clypeal carinae are slanted medially, anteriorly to posteriorly between the frontal carinae. The eye is small with 3-5 ommatidia. The notopropodeal suture is notch-shaped and the groove breaks the sculpture of the mesosoma. The propodeal spiracle is small at 0.024 mm in diameter.

Female (undescribed). The female is small (TL 2.7 mm), abundantly pilose and medium brown with golden brown appendages. The lateral clypeal teeth are angulate with bumps present in the extralateral position. The head and pronotum are semi-coarsely punctated. The metapleuron, petiole and postpetiole are horizontally striated. Both the petiolar peduncle and postpetiole lack a tooth or flange ventrally.

Male. Unknown.

Worker Description.

Measurements (n=2). TL 1.44-1.56 (1.50); HL 0.420-0.432 (0.426); HW 0.360; EL 0.042; ED 0.030; SL 0.300; FSL 0.126; CI 83.3-85.7 (84.5); SI 69.4-71.4 (70.4); PL 0.072-0.078 (0.0750); PW 0.102; PI 70.6-76.5 (73.5); PPL 0.078-0.084 (0.081); PPW 0.120-0.126 (0.123); PPI 61.9-70.0 (65.9); WL 0.282-0.300 (0.291); PSL 0.024; PSW 0.024.

Small; concolorous light brown, yellowish appendages; head quadrate, longer than wide, finely punctate; lateral clypeal teeth developed, but short, extralateral teeth reduced to bumps; clypeal carinae well defined; scapes long, thin (0.036 mm at widest diameter), nearly reaching posterior border of head; minor funicular segments 3-8 long; eyes black, small, 3-5 ommatidia; pronotum smooth and shiny; notopropodeal suture well depressed, notch-like, groove breaks sculpture of mesosoma; mesopleuron smooth and shiny; posterior propodeal margin rounded; propodeal spiracle round, small; metapleuron horizontally striated; petiole wider than postpetiole viewed laterally; petiolar node triangular, peduncle

subtilis – Venezuela south to Bolivia, Brazil, Paraguay

lacking tooth but with thin flange ventrally; postpetiolar node semicircular, lacking tooth or flange ventrally.

Moderately hairy, pilosity yellow; long (0.090-0.120 mm), erect and suberect hairs scattered on body surfaces; hairs on petiole, postpetiole, gaster curve posteriorly.

Female Description.

Measurements (n=3). TL 2.64-2.76 (2.70); HL 0.516-0.540 (0.526); HW 0.432-0.462 (0.442); EL 0.162-0.168 (0.164); ED 0.144-0.150 (0.146); MOL 0.048-0.054 (0.050); MOD 0.048-0.060 (0.054); SL 0.360-0.372 (0.364); FSL 0.168-0.180 (0.174); CI 82.8-85.6 (84.0); SI 68.9-69.8 (69.2); PSL 0.054; PSW 0.048; PL 0.102-0.114 (0.108); PW 0.192-0.210 (0.198); PI 53.1-56.3 (54.6); PPL 0.150; PPW 0.222-0.228 (0.226); PPI 65.8-67.6 (66.4); WL 0.648-0.720 (0.680).

Small; medium brown with golden brown appendages; head quadrate, semi-coarsely punctated, straight posterior border; lateral clypeal teeth angulate; bumps at extralateral position; clypeal carinae well defined; frontal lobes lack horizontal striae; scapes do not reach posterior lateral corner of head; eye moderately large, medial ocellus small; pronotum semi-coarsely punctated, smooth and shiny between punctures, mesopleuron lacking sculpturing; metapleuron horizontally striated; propodeal spiracle small; posterior propodeal margin weakly angulate; both petiole and postpetiole horizontally striated, peduncle lacking tooth or flange ventrally.

Abundantly hairy; pilosity yellow; erect and suberect hairs of various lengths (0.030-0.120 mm) cover all body surfaces.

Biology and habitat. *Solenopsis subtilis* has been collected in leaf litter extractions from lowland forest, cloud forest, transition montane/cloud forest, and montane evergreen forest between 1000- 1800 m.

Distribution. Bolivia (Cochabamba), Brazil (Amazonas, Pará); Paraguay (Asunción); Venezuela, (Distrito Federal).

Discussion. *Solenopsis subtilis* may be confused with *S. sulfurea*, another member of the South American *tenuis* subgroup. The workers of *S. sulfurea* have an elongated clypeus, weakly defined clypeal carinae and an eye with a maximum of three ommatidia, while *S. subtilis* workers have a compact clypeus, well defined clypeal carinae and a slightly larger eye with a maximum of five ommatidia. Additionally, the female of *S. sulfurea* is golden brown, slender bodied; with 4 teeth present on the clypeus and the petiole and postpetiole have punctate/roughened sculpturing when viewed laterally. The female of *S. subtilis* is me-

Compare with
gnoma, *picta*, *sulfurea*

molesta species complex

subtilis 311

dium brown with golden brown appendages, has a clypeus with two teeth present and the petiole and postpetiole are horizontally striated.

The workers of *Solenopsis subtilis* are nearly identical to those of *S. picta*, a species found in North America, in the southern Gulf Region, but are much lighter in color. The females of the two species are different as the female of *S. picta* lacks striae on the petiole and postpetiole.

Solenopsis subtilis is similar to the Galápagos species, *S. gnoma*, as well, but can be distinguished as *S. gnoma* has an elongated clypeus. Additionally, if a female is collected, the petiole and postpetiole of *S. gnoma* has roughened sculpturing.

The workers from Bolivia are here considered *S. subtilis* however vary from the type in being lighter in coloration (yellow to golden yellow vs. light brown), having more developed lateral clypeal teeth and a less thickened petiole when viewed laterally. Color is a variable character within the thief ants as well as clypeal teeth development as seen with *S. clytemnestra* for example.

Type series. *Solenopsis subtilis* Emery, syntypus, 1896, MUSEO GENOVA, Coll. C. Emery [dono 1925], Paraguay (Balzan) (3 syntypes ♀ ♀ seen MCSN).

Materials examined. Type series and **BOLIVIA, Cochabamba**, 109K East of Cochabamba at Lagunitas, 17°06'22"S 65°40'57"W, 01-ii-1999, R. Anderson #18642, (36 ♀ ♀ CWEM); 109K East of Cochabamba at Lagunitas, 17°06'22"S 65°40'57"W, 01-ii-1999, R. Anderson #18640 (4 ♀ ♀ CWEM); 109K East of Cochabamba at Lagunitas, 17°06'22"S 65°40'57"W, 01-ii-1999, R. Anderson #18637 (32 ♀ ♀ CWEM); 109K East of Cochabamba at Lagunitas, 17°06'22"S 65°40'57"W, 01-ii-1999, R. Anderson #18636 (2 ♀ ♀ CWEM); 109K East of Cochabamba, 17°06'47"S 65°43'55"W, 08-ii-1999, R. Anderson #18633, (4 ♀ ♀ CWEM); 67.5K East of Villa Tunari Valle Sajita, 17°06'19"S 64°46'57"W, 07-ii-1999, R. Anderson #18628 (2 ♀ ♀ CWEM); 109K East of Cochabamba, 17°06'47"S 65°43'55"W, R. Anderson #18631 (9 ♀ ♀ CWEM); 105K East of Cochabamba at Río Carmen Mayo, 17°08'47"S 65°43'55"W, 01-ii-1999, R. Anderson #18624 (2 ♀ ♀ CWEM); 109K East of Cochabamba at Lagunitas, 17°06'22"S 65°40'57"W, 01-ii-1999, R. Anderson #18645 (3 ♀ ♀ CWEM); 109K East of Cochabamba at Lagunitas, 17°06'22"S 65°40'57"W, 01-ii-1999, R. Anderson #18647 (1 ♀ CWEM); 108k East of Cochabamba at Lagunitas, 17°06'22"S 65°40'57"W, 1-ii-1999, R. Anderson #18648, (12 ♀ ♀ CWEM); 105k East of Cochabamba at Río Carman Mago 1-ii-1999, R. Anderson #18621 (2 ♀ ♀, 1 ♀ CWEM); R. Anderson #18629 (2 ♀ ♀, 1 ♀ CWEM); 109K East of Cochabamba at Lagunitas, 17°08'47"S 65°43'55"W, 01-ii-1999, R. Anderson #18639 (2

subtilis – Venezuela south to Bolivia, Brazil, Paraguay

312 *subtilis*

molesta species complex

Compare with
gnoma, picta, sulfurea

♂♂, 1 ♀ CWEM). **PARAGUAY**, Asunción, Joergensen (Santschi types det 191)
(2 ♂♂ MCZC).

subtilis – Venezuela south to Bolivia, Brazil, Paraguay

Compare with
bicolor

wasmannii species complex

succinea 313

***Solenopsis succinea* Emery**

Figs. 291-296; Map 72

wasmannii species complex

Solenopsis succinea Emery, 1890: 52-53 (♀ ♂) COSTA RICA: Jiménez [also described as new by Emery, 1894, 56]; combination in *Solenopsis (Diagyne)*, Santschi, 1923: 267

Solenopsis succinea r. *nicai* Forel, 1913: 222 (♀) BRAZIL: São Paulo; Santschi, 1923: 267 (♀ ♂); combination in *Solenopsis (Diagyne)*, Santschi, 1923: 267, **NEW SYNONYM**

Solenopsis inermiceps Wheeler and Mann, 1914: 20-21, Fig. 7 (♀) HAITI: Pétionville (synonymy by Creighton, 1930)

Diagnosis.

Worker. The workers are relatively large (2.2 mm total length), nearly as long as the female (3.5 mm total length) and male (2.9 mm total length). The head is quadrate and the eyes have at least two ommatidia. Erect and suberect hairs are sparsely scattered on all body surfaces. The minor funicular segments are long at ≈ 0.2 mm. The anterior border of the clypeus is straight, lacking the lateral and extralateral teeth.

Female. The female is relatively large. It is golden yellow with the gaster a slightly lighter yellow. The head is nearly quadrate with small cephalic punctures. It has a 10 segmented antenna. The mandibles have two teeth present at the uppermost portion. No carinae are present on the clypeus, the lateral teeth are only present as bumps and the extralateral teeth are absent.

Male. The male very similar to the female. It is large, golden yellow with the gaster a lighter yellow. The head is nearly quadrate with small punctures present. The antenna has 11 segments.

Worker Description.

Measurements (n=9). TL 2.04-2.28 (2.21); HL 0.540-0.600 (0.575); HW 0.504-0.570 (0.549); EL 0.030-0.042 (0.039); ED 0.030-0.036 (0.035); SL 0.390-0.432 (0.405); FSL 0.180-0.210 (0.196); CI 90.0-98.9 (95.5); SI 66.3-74.4 (70.6); PL 0.120-0.150 (0.134); PW 0.174-0.186 (0.181); PI 66.7-80.7 (73.9); PPL 0.138-0.168 (0.147); PPW 0.192-0.216 (0.207); PPI 65.7-77.8 (71.4); WL 0.420-0.480 (0.473); PSL 0.042-0.066 (0.053); PSW 0.042-0.060 (0.051).

succinea – Guatemala south to Brazil: São Paulo, Caribbean

Concolorous yellow or orange; relatively large; head square; eyes round, at least two ommatidia; antennae, including minor segments 3-8 of funiculus long (0.19 mm total length); anterior margin of clypeus straight; clypeal carinae poorly defined; lateral and extralateral clypeal teeth absent; posterior border of head straight; notopropodeal suture well depressed, mesopleuron and metapleuron lacking striae; posterior propodeal margin rounded; propodeal spiracle large and round; petiole and postpetiole wide, petiolar peduncle lacking tooth, but with angle.

Not hairy, few erect and suberect hairs present, including on gaster, suberect hairs sparse throughout body surfaces.

Female Description.

Measurements. Not measured.

Large, golden yellow with lighter yellow gaster; head nearly quadrate with small punctures; mandibles with two teeth present basally; clypeal carinae absent; lateral teeth present as bumps, extralateral teeth absent; eyes large, extend past lateral border of head by 0.060 mm, approximately 50-100 ommatidia; notopropodeal suture weakly depressed; petiole wider than postpetiole viewed laterally; petiole round pyramidal; postpetiole circular as seen from above.

Fine erect hairs on all body surfaces; head, mesosoma, petiole and postpetiole and gaster are covered in erect and suberect hairs.

Male Description.

Measurements (n=1). TL 2.88; HL 0.438; HW 0.444; EL 0.210; ED 0.180; MOL 0.054; MOD 0.060; SL 0.168; FSL 1.08; CI 101; SI 38.4; PSL 0.066; PSW 0.060; PL 0.120; PW 0.210; PI 57.1; PPL 0.162; PPW 0.264; PPI 61.4; WL 0.720.

Large, golden yellow; head nearly quadrate with small punctures; mandibles with two teeth basally; clypeal carinae absent; lateral teeth present as bumps, extralateral teeth absent; eye large, extends 0.060 mm past border of head; antennae eleven segmented; notopropodeal suture weakly depressed, but does break sculpture of mesosoma; petiole wider than postpetiole viewed laterally; petiole rounded pyramidal, postpetiole with circular node viewed dorsally; petiole lacking subpeduncular process.

Hairy, erect and suberect hairs present on all body surfaces.

Biology and habitat. *Solenopsis succinea* was collected in a tropical rainforest in Guatemala. Foragers were found on rocky loam soil and nesting in a tree stump at 68 m in elevation.

Compare with
bicolor

wasmanii species complex

succinea 315

Distribution. Guatemala (Petén), Costa Rica (Jiménez), Argentina, (Santa Fé) (Kempf, 1972), Brazil (São Paulo), Haiti and St. Vincent (Kempf 1972).

Discussion. The lack of clypeal carinae and its large size, together with the 10-segmented antenna of the female and 11 segmented of the male make this species relatively easy to identify and it would be unlikely to be confused with others, except for *S. bicolor*. However, *S. succinea* is recognized by its unusual clypeal form.

Forel (1913) separated *S. succinea* race *nicai* on the basis of several characteristics, with the only important one being the slightly more flattened promesonotum. Direct comparison of the worker types of both taxa show that the petioles and postpetioles are identical in shape. The punctures on the head and the remainder of the body are of about equal densities in both taxa. The notopropodeal sutures are approximately equally depressed. The males do not appear to differ in any significant way, the female of *S. succinea* race *nicai* is unknown. Therefore we do not recognize this race as valid.

Solenopsis inermiceps was considered to be a synonym by Creighton (1930). Unfortunately, we have only been able to find a single, headless worker cotype. It appears to be closely related to *S. succinea*, but differs in being much smaller (referred to by Wheeler and Mann, 1914). The other three workers in the type series were not found, but Wheeler and Mann (1914) mention that they are larger. Based on the description and lack of material, the synonymy is left in place. A single worker from Saint Vincent (CWEM) suggests *S. inermis* is not conspecific, but a final decision must await the discovery of other type specimens or until more specimens are collected from Haiti.

Type series. *Solenopsis succinea* Emery, Costa Rica, Jiménez (lectotype ♀, 1 paralectotype ♀, 1 paralectotype ♀ and 1 paralectotype ♂ [here designated] MCSN). *Solenopsis succinea* Emery r. *nicai* Forel Brazil, São Paulo (Ihering von) 15.892 (7 cotypes ♀ ♀ MHNG). *Solenopsis inermiceps* W.M. Mann, Haiti, Grande Riviere, Wm. M. Wheeler. (M.Z.C. 1 Cotype ♀ 20432 MCZC),

Material examined. Type series and **GUATEMALA, Peten**, Paso Caballos, Estación Biológica Las Guacamayas, 24-vii-2004, 17°14'49.7"N 90°17'33.3"E, J. Pacheco GCR-19-2 (2 ♀ ♀ CWEM).

succinea – Guatemala south to Brazil: São Paulo, Caribbean

***Solenopsis sulfurea* (Roger)**

Figs. 297-302; Map. 73

molesta species complex, *tenuis* subgroup

Diplorhoptrum sulfurea Roger, 1862: 296 (♀) SOUTH AMERICA (type locality likely found from Venezuela to the Guianas, Kempf, 1972); combination in *Solenopsis*, Mayr, 1863: 407

Solenopsis albidula Emery, 1906: 129, Fig. 12 (♀ ♀ ♂) ARGENTINA: Buenos Aires, **NEW SYNONYM**

Solenopsis albidula var. *postbrunnea* Forel, 1913: 220 (♀) BRAZIL: São Paulo, **NEW SYNONYM**

Solenopsis albidula var. *flava* Santschi, 1929, 298 (♀ ♀) ARGENTINA, Buenos Aires, La Plata, **NEW SYNONYM**

Diagnosis.

Worker. The worker can be concolorous yellow to pale yellow or bicolored with a yellow body and brown gaster. The lateral clypeal teeth are present and well developed, while the extralateral teeth are absent, but small angles are present in their position interrupting the outline of the clypeal margin. The scape is relatively long at 0.300 mm. The petiole has a small node that is triangular in shape with a minute tooth ventrally on peduncle.

Female. The female is golden brown in color and slender in overall appearance. The head is elongate with all four well-developed clypeal teeth, while the clypeal carinae are weakly defined. The petiole and postpetiole are covered in roughened/punctate sculpturing. The petiolar peduncle has a well-developed tooth ventrally that is translucent apically.

Male. The male is medium brown in color. The head is smooth and shiny with the anterior clypeal margin slightly convex, lacking teeth or bumps. The petiole and postpetiole are covered with striae. The postpetiolar node is nearly twice as high as the petiolar node.

sulfurea – Venezuela south to Argentina, Paraguay and Brazil

Worker Description.

Measurements (n=10). TL 1.22-1.46 (1.34); HL 0.372-0.468 (0.416); HW 0.288-0.408 (0.335); EL 0.030-0.054 (0.038); ED 0.030-0.036 (0.031); SL 0.246-0.300 (0.280); FSL 0.090-0.120 (0.108); CI 73.8-87.2 (80.6); SI 57.7-72.5 (67.4); PL 0.084-0.090 (0.088); PW 0.084-0.120 (0.095); PI 75.0-100 (93.8); PPL 0.090-0.096 (0.092); PPW 0.096-0.126 (0.109); PPI 71.4-100.0 (84.2); WL 0.300; PSL 0.018; PSW 0.024.

Small; concolorous yellow to bicolored with brown gaster; head much longer than wide, finely punctate; lateral clypeal teeth well developed, extralateral teeth slightly angulate; clypeal carinae poorly defined; eyes small, three ommatidia; scape long, reaching $\frac{3}{4}$ distance to posterior-lateral border of head; pronotum and mesopleuron smooth and shiny; posterior propodeal margin rounded (viewed laterally); propodeal spiracle small, round; metapleuron horizontally striated; petiole wider than postpetiole (viewed laterally); petiolar node small, triangular, peduncle with minute tooth ventrally; postpetiolar node rounded, semicircular, lacking tooth or flange ventrally.

Moderately hairy, pilosity yellow; erect and suberect hairs scattered on body surfaces; hairs on mesosoma 0.060 mm in total length; hairs on petiole and postpetiole curve posteriorly.

Female Description.

Measurements (n=3). TL 4.08-4.20 (4.14); HL 0.630; HW 0.480-0.492 (0.484); EL 0.180-0.198 (0.188); ED 0.150-0.162 (0.159); MOL 0.042-0.048 (0.044); MOD 0.048-0.054 (0.050); SL 0.378-0.390 (0.386); FSL 0.210-0.216 (0.212); CI 76.2-78.1 (76.8); SI 60.0-61.9 (61.3); PSL 0.036-0.042 (0.041); PSW 0.036-0.042 (0.038); PL 0.150-0.156 (0.152); PW 0.210; PI 71.4-74.3 (72.4); PPL 0.240; PPW 0.258; PPI 93.0; WL 0.720-0.750 (0.728).

Moderately large; concolorous golden brown; head elongate, much longer than wide, surface finely punctate; lateral clypeal teeth well developed, space between tips of teeth wide (0.090 mm), extralateral teeth well developed; clypeal carinae weakly defined; scape yellow, long, not reaching posterior border of head; medial ocellus small; eyes large; mesosoma slender; pronotum and dorsopropodeum in same plane, with dorsal margin straight line viewed laterally; pronotum and mesopleuron smooth and shiny; posterior propodeal margin rounded (viewed laterally); metapleuron with scattered striae above and below spiracle; petiole wider than postpetiole (viewed laterally); petiolar node robust, round, triangular, peduncle with well-developed tooth ventrally, translucent apically; sides of petiole and postpetiole with striated sculpturing.

Moderately dense, pilosity yellow; erect and suberect hairs scattered on body surfaces; hairs on petiole and postpetiole long (0.012-0.015 mm), curve posteriorly.

sulfurea – Venezuela south to Argentina, Paraguay and Brazil

Male Description.

Measurements (n=4). TL 3.00-3.36 (3.12); HL 0.420; HW 0.432-0.438 (0.434); EL 0.180-0.198 (0.188); ED 0.162-0.174 (0.167); MOL 0.054-0.060 (0.057); MOD 0.060; SL 0.180; FSL 0.600-0.660 (0.615); CI 102-104 (103); SI 42.9; PSL 0.042-0.048 (0.045); PSW 0.036-0.042 (0.039); PL 0.102; PW 0.180-0.210 (0.195); PI 48.6-56.7 (52.6); PPL 0.162-0.180 (0.173); PPW 0.240-0.258 (0.246); PPI 67.5-75.0 (70.1); WL 0.720.

Moderately large; concolorous medium brown; head wider than long, smooth and shiny; anterior clypeal margin convex, lacking teeth or bumps; eyes black, large; medial ocellus black, small; mesosoma smooth and shiny; posterior propodeal margin rounded (viewed laterally); propodeal spiracle small; petiolar node arched with small bump ventrally; postpetiole semicircular, twice as high as petiolar node; sides of both petiole and postpetiole with thin, broken striae.

Moderately dense, pilosity yellow; erect and suberect hairs scattered on body surfaces; most hairs long (0.120 mm).

Biology and habitat. *Solenopsis sulfurea* was collected in a humid subtropical tall forest in leaf litter in Paraguay.

Distribution. Argentina, Brazil, Guianas, Paraguay and Venezuela.

Discussion. The workers of *S. sulfurea* are similar to *S. subtilis* (Venezuela south Paraguay) and the Galápagos species, *S. gnoma*. *Solenopsis sulfurea* can be distinguished from *S. subtilis* as it has an elongated clypeus, while the clypeus of *S. subtilis* is compact. If a female is collected, the petiole and postpetiole of *S. subtilis* are horizontally striated; roughened with *S. sulfurea*. *Solenopsis gnoma* also has an elongated clypeus, but has well defined clypeal carinae; weakly defined with *S. sulfurea*. Moreover, if a female is collected, the head is not conspicuously elongate and the clypeal margin only has two well defined teeth with *S. gnoma*.

The types of *S. sulfurea* are nearly identical to the types of *S. albidula* and only differ in having a larger eye and less developed lateral clypeal teeth. These appear to be minor differences and we propose synonymy of *S. albidula*.

It is difficult to understand why both the varieties *flava* and *postbrunnea* were named. *Solenopsis albidula flava* is identical in morphology to the nominal and similar in size, with the only difference being that *flava* is a pale yellow compared to a canary yellow of the nominal. *Solenopsis albidula* var. *postbrunnea* is identical in form and size to the nominal and only differs in having slightly smaller lateral clypeal teeth and being bicolored with a brown gaster. These characters

sulfurea – Venezuela south to Argentina, Paraguay and Brazil

Compare with
gnoma, *subtilis*

molesta species complex

sulfurea 319

are highly variable and it appears that these varieties are just color morphs of this variable species and are thusly synonymized.

Type series. *Diplorhoptrum sulfurea* not found. *Solenopsis albidula* Emery Syntypus 1906, MUSEO GENOVA coll. C. Emery (dono 1925), Argentina, Buenos Aires, Nunez, 11-xi-98 (lectotype ♀, 2 paralectotype ♀♀, 3 paralectotype ♀♀ and 3 paralectotype ♂♂ [here designated] MCSN). *Solenopsis albidula* var. *postbrunnea* Forel Forel coll. Brazil, São Paulo (lectotype ♀ and 2 paralectotype ♀♀ [here designated] MHNG). *Solenopsis albidula* var. *flava* Santschi Sammlung Dr. F. Santschi Kairouan Argentina, Buenos Aires, La Plata (C. Bruch) (lectotype ♀, 6 paralectotype ♀♀ and 1 paralectotype ♀ (broken) [here designated] NHMB). *Solenopsis albidula* var. *flava* Santschi cotype 1-2 20910, M.Z.C. (lectotype ♀ and 1 paralectotype ♀MCZC).

Material examined. Type series and **BRAZIL**, **Bahia**, Bondar (2 ♀♀ MCZC). **PARAGUAY**, **Canindeyú**, Reserva Natural Bosque Mbaracayu, Jejuimi 24°06'S 55 °30'W, 12-ii-1997 A. Wild #AW0440, 20-ii-1997 A. Wild, #AW0503, 25-iii-1997 A. Wild #AW0506, 11-iii-1997 A. Wild #AW0483, 11-x-1997 A. Wild #AW0333 (9 ♀♀ CWEM); **Neembucu**, Pilar, 18-x-1982, J-L Perret (3 ♀♀ CWEM); **Alto Paraná**, Pto. Bertoni, 11-xi-1982, U. Mahnert (3 ♀♀ CWEM); **Central**, C. Thompson, 10-xi-1979, U. Mahnert (3 ♀♀ CWEM).

sulfurea – Venezuela south to Argentina, Paraguay and Brazil

320 *tennesseensis*

pygmaea species complex

Compare with

minutissima, *pygmaea*, *subterranea*

***Solenopsis tennesseensis* Smith**

Figs. 303-304; Map 74

pygmaea species complex

Solenopsis (Diplorhoptrum) tennesseensis M. R. Smith, 1951: 814 (♀) USA: Tennessee, Hamilton County; Replacement name for *longiceps* M. R. Smith, 1943: 210 [junior primary homonym of *longiceps* Forel, 1907:, 202-203]

Diagnosis.

Worker. The head is elongate and flat dorsally. The anterior clypeal margin has well developed lateral teeth, but the extralateral position carries only bumps. This species is very hairy, with erect and suberect hairs on all body surfaces. The minor funicular segments are short at 0.079 mm in total length. The eyes are minute and light brown, with at least one ommatidium.

Female and Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.08-1.50 (1.30); HL 0.360-0.390 (0.366); HW 0.252-0.282 (0.269); EL 0.024-0.030 (0.029); ED 0.024-0.030 (0.025); SL 0.210-0.240 (0.226); FSL 0.072-0.102 (0.079); CI 70.0-75.0 (73.5); SI 58.3-66.7 (61.6); PL 0.060-0.078 (0.071); PW 0.090-0.108 (0.103); PI 58.8-72.2 (68.4); PPL 0.078-0.108 (0.097); PPW 0.102-0.120 (0.114); PPI 72.2-90.0 (85.1); WL 0.222-0.282 (0.254); PSL 0.024-0.030 (0.028); PSW 0.024.

Head elongate, much longer than wide, flat dorsoventrally; lateral clypeal teeth well developed; extralateral teeth present as bumps; clypeal carinae weakly developed; scape short, barely reaching past half length of head; minor segments of funiculus 3-8 short; eyes small, round, light brown, one ommatidium; notopodeal suture weakly depressed; mesopleuron lacking striae; metapleuron with horizontal striae; propodeal spiracle small; peduncle short; petiole wider than postpetiole viewed laterally; postpetiole with rounded node (viewed dorsally); gaster flat, elongate.

Hairy, suberect hairs on head same length; mandibles very hairy with suberect hairs; gaster hairy, hairs on dorsum of first tergum scattered, of various lengths (longest hairs approximately 0.050 mm).

tennesseensis – USA: Tennessee, Texas, Florida, México: San L. Potosí, N. León

Compare with *pygmaea* species complex *tennesseensis* 321
minutissima, *pygmaea*, *subterranea*

Biology and habitat. *Solenopsis tennesseensis* nests under stones as well as in the soil. Areas with dense populations have about five nests per square meter (unpublished data). This species is generally completely subterranean and can usually be collected only with subterranean Vienna sausage baits. Occasionally *S. tennesseensis* can be found in extractions of leaf litter. It is found in habitats ranging from urban lawns to thorn shrubland.

Distribution. USA (Tennessee, Florida and Texas) south to México (Tabasco).

Discussion. The length and form of the gastral hairs separate this species from similar species that have shorter hairs (less than 0.050 mm) such as *S. pygmaea*, *S. minutissima* and those with short minor funicular segments such as *S. subterranea*. The workers of *S. tennesseensis* are especially difficult to distinguish from the workers of *S. pygmaea*, differing in being slightly larger and slightly less hairy.

Type series. *Solenopsis tennesseensis* Smith, Tennessee, Hamilton Co., Smith (paratype #563441, seen MCZC and #28092, seen USNM).

Material examined. MEXICO, San Luis Potosí, Ciudad Valles, 9-vi-1998, W. Mackay # 10940-9 (3 ♀♀ CWEM); Tabasco, 10 k N Cárdenas, 28-v-1988, W. Mackay #'s 10504, 10506, 10508, 10510, 10511, 10512, 10514 (65 ♀♀ CWEM). USA, Florida, Polk Co., Davenport, 11-iv-1990, M. Deyrup (4 ♀♀ Deyrup Collection); Texas, Brazos Co., Van of Riet Site, 21-vii-1999, K. Helms #'s 1-2, 97 (3 ♀♀ CWEM), Allen Site, K. Helms #'s 89, 90, 91 (3 ♀♀ CWEM), Coulter Airfield, #'s 25-27 (3 ♀♀ CWEM), Brazos Site, K. Helms #'s 7, 24 (2 ♀♀ CWEM), Riverside Campus (TAMU), K. Helms #'s 3-4 (2 ♀♀ CWEM), El Paso Co., El Paso, Chamizal National Monument, numerous dates during 1998-2001 (hundreds ♀♀ CWEM).

tennesseensis – USA: Tennessee, Texas, Florida, México: San L. Potosí, N. León

322 *tenuis*

molesta species complex

Compare with
corticalis, *gnoma*, *picea*, *picta*

***Solenopsis tenuis* Mayr**

Figs. 305-310; Map 75

molesta species complex, *tenuis* subgroup

Solenopsis tenuis Mayr, 1878: 874-875 (♂ ♀) BRAZIL: Amazonia ; Forel, 1913: 222 (♂); G. C. Wheeler & J. Wheeler, 1955: 135 (l)

Solenopsis tenuis var. *minuiscens* Forel, 1912: 8 (♀) BRAZIL: São Paulo, Santos, **NEW SYNONYM**

Diagnosis.

Worker. This is a minute, thinly bodied, concolorous pale to medium brown species. The head is quadrate and the eyes are relatively large with 5-7 ommatidia. The minor funicular segments are short, ranging from 0.08 to 0.10 mm in total length. The lateral clypeal teeth are poorly developed with the anterior clypeal border straight between the carinae. The propodeum is finely striated basally.

Female. The female is medium brown in color. The lateral clypeal teeth are poorly defined and the extralateral teeth are absent. The head is longer than wide and finely punctate. What is striking about this female is that the propodeal spiracle is large with a width of 0.100 mm.

Male. The male is a small black specimen. The median ocellus is large (0.060 mm maximum diameter), the lateral ocelli are about ½ the diameter of the median ocellus. They are separated by a distance of 0.070 mm. The mandible is small, with two well-developed teeth (apicalmost) and two poorly developed teeth (basalmost). The anterior face of the petiole is nearly straight, meeting the posterior face at a relatively sharp angle. The apex of the petiole is concave when viewed from the front.

Worker Description.

Measurements (n=6). TL 1.14-1.32 (1.22); HL 0.360-0.408 (0.373); HW 0.294-0.342 (0.308); EL 0.036-0.048 (0.038); ED 0.030-0.036 (0.031); SL 0.240-0.276 (0.256); FSL 0.078-0.108 (0.086); CI 80.0-83.8 (82.6); SI 66.2-76.7 (68.7); PL 0.060; PW 0.084-0.096 (0.088); PI 62.5-71.4 (68.4); PPL 0.084-0.102 (0.093); PPW 0.102-0.120 (0.112); PPI 75.0-94.4 (83.2); WL 0.240-0.300 (0.271); PSL 0.030-0.036 (0.031); PSW 0.024-0.030 (0.029).

tenuis – México south to Brazil

Compare with
corticalis, *gnoma*, *picea*, *picta*

molesta species complex

tenuis 323

Small; concolorous pale brown to dark brown; head slightly longer than wide, finely punctate; lateral clypeal teeth poorly developed, extralateral teeth absent; clypeal carinae weakly defined; scapes long, nearly reach posterior border of head; minor funicular segments 3-8 short; eyes moderately large, 5-7 ommatidia; pronotum smooth and shiny; mesopleuron smooth and shiny; posterior propodeal margin rounded; propodeal spiracle moderately large, round; metapleuron horizontally striated; petiole wider than postpetiole viewed laterally; both petiole and postpetiole smooth and shiny, lacking tooth or flange ventrally.

Moderately hairy, pilosity yellow and light brown; erect and suberect hairs scattered throughout body surfaces; scape with numerous appressed and suberect hairs; hairs on petiole long 0.063-0.120 mm in total length, hairs on petiole and postpetiole curve posteriorly.

Female Description.

Measurements (n=2). HL 0.636-0.642 (0.639); HW 0.600; EL 0.192-0.204 (0.198); ED 0.204-0.210 (0.207); MOL 0.042-0.048 (0.045); MOD 0.048-0.054 (0.051); SL 0.450; CI 93.5-94.3 (93.9); SI 70.1; PSL 0.096-0.102 (0.099); PSW 0.096-0.102 (0.099); PL 0.144; PW 0.228-0.240 (0.234); PI 60.0-63.2 (61.6); WL 0.900-0.960 (0.930).

(Female description based on broken types). Moderately large; concolorous medium brown; head longer than wide, wider posteriorly than anteriorly, giving triangular appearance, finely punctate; lateral clypeal teeth poorly developed, extralateral teeth absent; clypeal carinae poorly defined; frontal lobes vertically striated; scape long, nearly reaching posterior border of head; eyes large, extend 0.102 mm past lateral edge of head; medial ocellus small, without pigment; mesosoma smooth and shiny; posterior propodeal margin rounded viewed laterally; propodeal spiracle relatively large, circular; metapleuron horizontally striated; petiolar peduncle lacking tooth or flange ventrally; petiolar spiracle relatively large, maximum diameter 0.030 mm.

Abundantly hairy, pilosity light brown and yellow; erect and suberect hairs of various lengths covering all body surfaces; suberect hairs on dorsum of head 0.120 mm; hairs on dorsum of mesosoma ranging from 0.060-0.150 mm; hairs on petiole up to 0.180 mm, curve posteriorly.

Male Description.

Measurements. Not measured.

Small; concolorous black; head wider than long, smooth and shiny; anterior clypeal margin convex, lacking teeth or carinae; eye relatively small; lateral ocelli about ½ diameter of median ocellus, relatively large, separated by 0.07 mm; mesosoma smooth and shiny; anterior face of petiole nearly straight; apex of petiole concave when viewed anteriorly.

tenuis – México south to Brazil

Abundantly hairy, pilosity light brown and yellow; erect and suberect hairs covering all body surfaces; hairs on petiole and postpetiole curve posteriorly.

Biology and habitat. *Solenopsis tenuis* nests underground and under logs. Brood and sexuals are found in nests in June in rocky shale soils (México). They were collected in subterranean traps and traps in vegetation baited with Vienna sausage in México and Venezuela. They were also collected with cards baited with tuna. They have been collected in pitfall traps and litter extractions which indicates that they forage above ground. Habitats range from riparian oak/cottonwood forest, transitional dry tropical forest/wet montane forest, wet montane cloud forest, oak ridge forest, pine with hardwoods, montane hardwood forests, to virgin tropical rain forest.

Distribution. México (Colima, Nuevo León and San Luis Potosí) south to Panamá (Chiriquí); Colombia (Valle del Cauca, Huila), Venezuela (Santa Fé) to Brazil (Amazonia).

Discussion. The workers of *S. tenuis* are similar to those of *S. picta* (SE USA), but can be separated by the longer scapes. Workers could be confused with *S. corticalis* (México south to Brazil), but are often darker in coloration and the lateral clypeal teeth are more sharply developed. Workers may be confused with *S. picea* (México south to Brazil), but the minor segments of the funiculus are shorter (usually > 0.12 mm in *S. picea*). *Solenopsis tenuis* is similar to the Galápagos species, *S. gnoma*, but can be distinguished as *S. gnoma* is markedly smaller in total length in both the worker and female castes. Additionally, *S. gnoma* has coarser cephalic punctures and more developed lateral clypeal teeth.

Series consisting of only workers cannot always be correctly identified. If females are available, they are distinguished being dark brown, with the eye relatively large, occupying about ½ of the length of the side of the head and the head nearly completely smooth and shiny, with a few, scattered, insignificant punctures. It is difficult to separate females from those of *S. castor* (México south to Bolivia), but where the distributions commonly overlap (Central America), it is usually concolorous medium brown including the appendages, whereas the female of *S. castor* is dark brown to black, with brownish-yellow appendages.

Solenopsis tenuis var. *minuiscens* is proposed as a synonym of *S. tenuis*. The only difference is that *S. minuiscens* is lighter in coloration and thusly only a color variant.

Compare with

molesta species complex

tenuis 325

corticalis, *gnoma*, *picea*, *picta*

Type series. *Solenopsis tenuis* worker Mayr Brazil, Amazonia (lectotype ♀, 6 paralectotype ♀♀ and 2 paralectotype ♀♀ [here designated] (NHMW), and 3 paralectotype ♂♂ [here designated] (MHNG), Rosario Santa Fe (Bruch) # 23b. *Solenopsis tenuis* Mayr var. *minuiscens* Forel, Brazil, Lorntos (Ris) (Typus, ♀ Coll. Forel [seen] MHNG).

Material examined. Types series and BELIZE, **Orange Walk**, Rio Bravo Conservation Area, 30-iv-1996 R. Anderson # 17703 (2 ♀♀ CWEM). **COLOMBIA**, **Cauca**, Isla Gorgona, 23-x-1989, M. Baena # GAP-Eii6 (5 ♀♀ CWEM); **Huila**, 4 k NE Rivera, 30-xii-1986, W. Mackay (2 ♀♀ CWEM); **Valle del Cauca**, Bosque Yotoco, 1575m, 23-vi-1989, W. Mackay # 11627 (1 ♀ CWEM); **COSTA RICA**, **Guanacaste**, Cacao Field Station, 1150m, 15-ii-1996, R. Anderson # 17670 (3 ♀♀ CWEM), Loma Barbudal, 3-vi-1989, ii-1990, S. Vinson #'s 12296, 13079, 13171 (4 ♀♀ CWEM), Maritza Field Station, 13-i-1996, R. Anderson #'s 17667, 17668, 17670 (10 ♀♀ CWEM), same locality, 03-v-1995, R. Anderson #17714 (2 ♀♀ CWEM), same locality, 17-ii-1996, R. Anderson # 17734 (1 ♀ CWEM), Pitilla Field Station, 14-xi-1996, R. Anderson (2 ♀♀ CWEM); **Puntarenas**, Osa Peninsula, Fundación Neotropical, 23-vi-1997, R. Anderson # 18687 (7 ♀♀ CWEM), Cerro Helado, 17 k NE Rincón, 24-vi-1997, R. Anderson # 18689 (5 ♀♀ CWEM). **MEXICO**, **Colima**, 19 k NE Comala, 1219m, 1-viii-1988, R. Anderson # 88-19 (1 ♀ CWEM); **Nuevo León**, El Salto (Zaragoza), 10-11-vi-1988, W. Mackay #'s 11011-3, 11011-4, 11015-5 (49 ♀♀ CWEM); **San Luis Potosí**, 13 k N Tamazunchale, 08-vi-1988, W. Mackay #10930 (1 ♀ CWEM); **Tabasco**, 10 k N Cárdenas, 28-v-1988, W. Mackay # 10497 (1 ♀ CWEM). **PANAMA**, **Chiriquí**, Bocas del Toro, 9-vi-1995, R. Anderson # 17841 (1 ♀ CWEM), Fortuna Hydrological trail, 1100m, 09-vi-1995, R. Anderson #'s 17785, 17786 (7 ♀♀ CWEM), La Fortuna, Finca La Suisse 10-vi-1995, R. Anderson #'s 17770, 17789 (3 ♀♀ CWEM). **VENEZUELA**, **Aragua**, Parque Nacional Pittier, Rancho Grande, 19-x-1988, W. Mackay # 11232-5 (1 ♀ CWEM).

tenuis – México south to Brazil

***Solenopsis terricola* Menozzi**

Figs. 311-314; Map 76

brevicornis species complex*Solenopsis terricola* Menozzi, 1931: 267-269, Fig. 5 (♂ ♀) COSTA RICA: Puente de las Mulas**Diagnosis.**

Worker. This is a small (1.23 mm TL), bicolored (concolorous pale brown in the Caribbean) species. The body is dark brown to black, strongly contrasting with the yellow appendages. The head is elongated with straight sides. This species has moderately small eyes, but with at least five ommatidia. The mesopleuron and metapleuron are punctated. The petiole and postpetiole are at least partially punctated or with roughened sculpturing.

Female. The female is small and medium brown in color with lighter colored appendages. Vertical striae extend from the frontal lobes up the dorsum of the head to the medial ocellus. The propodeum, petiole and postpetiole are covered in roughened sculpturing.

Male. Unknown.

Worker Description.

Measurements (n=5). TL 1.20-1.32 (1.23); HL 0.360-0.408 (0.384); HW 0.300-0.348 (0.320); EL 0.042-0.048 (0.046); ED 0.036; SL 0.204-0.210 (0.206); FSL 0.060-0.078 (0.072); CI 78.1-89.2 (83.4); SI 50.0-56.7 (53.8); PL 0.060-0.066 (0.064); PW 0.084-0.090 (0.088); PI 66.7-78.6 (72.8); PPL 0.084; PPW 0.108-0.120 (0.118); PPI 70.0-77.8 (71.6); WL 0.270-0.300 (0.282); PSL 0.030-0.036 (0.031); PSW 0.030.

Small, bicolored, head, mesosoma and gaster dark brown to black, legs and antennae yellow; head elongated, sides of head straight, posterior margin straight; eyes black with at least five ommatidia; anterior clypeal margin concave between teeth, lateral clypeal teeth poorly developed, medial tooth and extralateral teeth absent; frontal lobes vertically striated (often difficult to see); scape short, extends slightly more than half-length of head to posterior lateral corner; mesopleuron and metapleuron punctate; petiole wider than postpetiole viewed laterally; petiole and postpetiole partially punctate, both lacking tooth or flange ventrally.

terricola – Costa Rica, Panamá, Santa Lucia

Compare with
azteca, *brevicornis*

brevicornis species complex

terricola 327

Short (~0.020 mm), suberect and long (0.050 mm), erect hairs sparse on head; antennae hairy; scape has few suberect hairs; mesosoma, petiole and postpetiole with scattered suberect hairs; head with several small punctures, about equal in diameter to hairs that originate from them, surfaces between punctures smooth and shiny.

Female Description.

Measurements (n=5). TL 2.28-3.18 (2.65); HL 0.438-0.558 (0.481); HW 0.390-0.480 (0.418); EL 0.132-0.162 (0.150); ED 0.102-0.132 (0.113); MOL 0.036-0.042 (0.041); MOD 0.042-0.048 (0.047); SL 0.300-0.342 (0.308); FSL 0.120-0.168 (0.145); CI 85.5-89.0 (86.9); SI 53.8-68.5 (64.5); PSL 0.042-0.054 (0.052); PSW 0.036-0.054 (0.050); PL 0.096-0.132 (0.107); PW 0.180-0.228 (0.189); PI 53.3-57.9 (56.2); PPL 0.138-0.180 (0.154); PPW 0.198-0.240 (0.212); PPI 65.7-75.8 (72.3); WL 0.570-0.720 (0.606).

Small, concolorous medium brown with yellowish appendages; head longer than wide, coarsely punctate; lateral clypeal teeth angulate, wide space between tips of teeth (0.096 mm), extralateral teeth absent; clypeal carinae well defined; frontal lobes vertically striated, striae extend nearly to level of medial ocellus; medial ocellus small; scape short; eyes large, extend 0.060 mm past lateral margin of head; pronotum and mesopleuron smooth and shiny; posterior propodeal margin rounded; propodeal spiracle small, round; metapleuron with roughened sculpturing; petiole wider than postpetiole viewed laterally; petiolar node with roughened sculpturing, peduncle lacking tooth or flange ventrally; postpetiolar node with roughened sculpturing lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; erect and suberect hairs on all body surfaces; hairs on pronotum uniform in size (many 0.120 mm in length); hairs on petiole, postpetiole and first gastral tergum curve posteriorly.

Biology and habitat. *Solenopsis terricola* was collected in Berlese extractions of litter from transitional dry tropical forest, mountain hardwood, bamboo/cloud, wet cloud, wet montane forests and in cloud forest transition litter in Costa Rica at 600-4000 m. This species was collected at 950 m in Riparian oak forest litter in Panamá at 950 m.

Distribution. Costa Rica (Puente de las Mulas, Guanacaste), Panamá (Cerro Campana); Caribbean (Dominica, Santa Lucia).

Discussion. *Solenopsis terricola* is similar to *S. azteca* (Honduras to Venezuela, Caribbean) and *S. brevicornis* (México to Brazil). It can be distinguished from *S. azteca* by the punctures on the side of the mesopleuron (completely smooth and polished in *S. azteca* or with weak sculpture along the lower, anterior

terricola – Costa Rica, Panamá, Santa Lucia

border of the mesopleuron). *Solenopsis terricola* is dark, mahogany brown, with yellow antennae and legs (in Central America), which separates it from the concolorous brown *S. brevicornis*. It is concolorous brown in the Caribbean (Santa Lucia and Dominica), similar to the color of *S. brevicornis*, which has not been collected on these islands. Both *S. terricola* and *S. brevicornis* have the mesopleuron at least partially punctated, but the side of the petiole of *S. terricola* is mostly smooth and glossy (except basally) and is completely punctate in *S. brevicornis*. *Solenopsis terricola* has striated frontal lobes, a trait absent in both *S. azteca* and *S. brevicornis*. Moreover, the apex of the petiolar node is rounded in *S. terricola*, but angulate with *S. brevicornis*.

Type series. *Solenopsis terricola* Menozzi, Costa Rica, Puente de las Mulas (lectotype ♂ and 2 paralectotype ♀♀ [here designated] IEGG).

Material examined. Type series and **COSTA RICA**, **Guanacaste**, Cocoa Field Station, 1100-1200 m, 4-v-1995, R. Anderson #17710 (15 ♂♂ CWEM), same locality #'s 17690, 17726 (1 ♂, 2 ♀♀ CWEM), same locality, 1150 m, 15-ii-1996, #'s 17670, 17673 (5 ♂♂ CWEM), same locality, Maritza Field St., 13-15-ii-96, R. Anderson #'s 17667, 17668 (35 ♂♂ CWEM), same locality, 03-v-1995, R. Anderson # 17714, 17715, 17716 (16 ♂♂ CWEM), same locality, 04-v-1995, #'s 17711, 17713, 17714, 17722 (22 ♂♂, 2 ♀♀ CWEM), same locality, 850-875m, 13-v-1996, #'s 17663, 17666, 17678, 17730, 17634, 17635, 17636, 17637 (69 ♂♂, 2 ♀♀ CWEM), Pitilla Field Station, 600 m 02-v-1995, R. Anderson #'s 17720, 17721, 17722, 17723 (24 ♂♂ CWEM), same locality, 1000 m, 14-ii-1996, #'s 17679, 17692, 17694, 17733, 17741 (90 ♂♂ CWEM); **Puntarenas**, Cerro Helado, 17 k NE Rincón, 8°45'30"N 83°25'0"W, 24-vi-1997, 24-vi-1997, R. Anderson # 18689 (7 ♂♂, 1 dealate ♀ CWEM), Neotropical Foundation, 23-vi-1997, R. Anderson # 18687 (3 ♂♂ CWEM). **DOMINICA**, Emerald Pool, 12-vi-2004, J. Wetterer # 187 (1 ♂ CWEM). **PANAMA**, **Chiriquí**, Cerro Campana, 5-vi-1995, R. Anderson #'s 17833, 17836 (13 ♂♂ CWEM). **SANTA LUCIA**, Barre Le L'Isle, 1.4 km W of trail, 17-xi-2003, J. Wetterer # 61 (3 ♂♂ CWEM; 15-xi-2003, JK Wetterer # 47 (2 ♂♂ CWEM); Enbas Saut, forest trailhead, 13.843°N 61.007°W, 9-vii-2006, J. Wetterer # 800 (1 ♂ CWEM).

Compare with
leptanilloides

fugax species complex

tetracantha 329

***Solenopsis tetracantha* Emery**

Figs. 315-320; Map 77

fugax species complex

Solenopsis tetracantha Emery, 1906: 131, Fig.13 (♂ ♀) ARGENTINA: Buenos Aires; Santschi, 1917: 281 (♂)

Solenopsis tetracantha var. *videns* Forel, 1912: 4 (♂) ARGENTINA: La Plata,

NEW SYNONYM

Diagnosis.

Minor worker. This is a small shiny, yellow species. The head is noticeably elongate and resembles species of the *pygmaea* complex, but can be distinguished by the fine head punctures instead of coarse punctures present in the *pygmaea* group. The anterior clypeal margin is also elongate and the clypeal carinae are well defined with the lateral clypeal teeth present and well developed, but the extralateral clypeal teeth are only angulate. The eye is small with only one or two ommatidia. The posterior margin of the propodeum is rounded. The petiole is barely wider than the postpetiole in profile and has a tooth ventrally.

Major worker. This is one of the very few species that is dimorphic. The major is concolorous golden yellow and slightly darker than the minor worker. The head is noticeably elongate and coarsely punctate. Both the lateral and extralateral teeth are well developed. The eye is small with one ommatidium. The scapes are short and barely extend past the middle of the head. The pronotum has a flat dorsal slope. The petiole is thick, robust and the node extends laterally, with a subpeduncular tooth.

Female. The female is medium brown in color. All four clypeal teeth are present and well developed. The clypeal carinae are weakly defined. The propodeum is horizontally striated. The petiolar peduncle has a well-developed tooth ventrally.

Male. Not seen.

tetracantha – Argentina: La Plata

Minor Worker Description.

Measurements (n=4). TL 1.32-1.44 (1.40); HL 0.390-0.462 (0.424); HW 0.300-0.330 (0.318); EL 0.018-0.030 (0.024); ED 0.018-0.024 (0.022); SL 0.228-0.312 (0.266); FSL 0.090-0.132 (0.104); CI 70.1-78.6 (75.2); SI 58.5-67.5 (62.5); PL 0.066-0.078 (0.072); PW 0.090-0.120 (0.107); PI 60.0-80.0 (68.4); PPL 0.078; PPW 0.114-0.132 (0.123); PPI 59.1-68.4 (63.6); WL 0.276-0.300 (0.289); PSL 0.024-0.030 (0.027); PSW 0.024.

Small, concolorous golden yellow; head elongate, much longer than wide; coarsely punctate; anterior clypeal margin elongate, extends anteriorly; clypeal carinae well defined; lateral clypeal teeth well developed, extralateral teeth angulate; scape barely exceeding head medially; eye small with one ommatidium; pronotum flat dorsally; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; posterior margin of propodeum rounded; petiole barely wider than postpetiole in profile, with sharp peduncular tooth ventrally.

Moderately hairy with some hair present on all body surfaces; pilosity yellow, mainly suberect hairs of different lengths; head more heavily pilose than rest of body; hairs on petiole and postpetiole curve posteriorly.

Major Worker Description.

Measurements (n=1). TL 1.92; HL 0.570; HW 0.450; EL 0.036; ED 0.030; SL 0.312; FSL 0.138; CI 78.9; SI 54.7; PL 0.108; PW 0.162; PI 66.7; PPL 0.120; PPW 0.168; PPI 71.4; WL 0.444; PSL 0.030; PSW 0.030.

Moderately large, concolorous golden brown; head noticeably elongate; lateral clypeal teeth well developed, elongate, extending 0.030 mm past anterior margin, extralateral teeth reduced, smaller than lateral teeth; clypeal carinae well defined; eye small, one ommatidium; scape barely exceeds past middle of head; pronotum flat dorsally; posterior propodeal margin angulate; metapleuron horizontally striated; petiole robust, thickened laterally, peduncle with sharp tooth ventrally; postpetiole oval viewed dorsally.

Hairy, pilosity yellow; most hairs erect and suberect (0.060 mm) covering all body surfaces; hairs on petiole and postpetiole curve posteriorly.

Female Description.

Measurements (n=2). TL 5.40; HL 0.810-0.822 (0.816); HW 0.660-0.720 (0.690); EL 0.240-0.258 (0.249); ED 0.222-0.228 (0.225); MOL 0.072; MOD 0.072-0.078 (0.075); SL 0.540; FSL 0.300-0.312 (0.306); CI 80.3-88.9 (84.6); SI 65.7-66.7 (66.2); PSL 0.066-0.072 (0.069); PSW 0.060-0.078 (0.069); PL 0.228-0.240 (0.234); PW 0.330; PI 69.1; PPL 0.360; PPW 0.402; PPI 89.6; WL 1.08-1.20 (1.14).

Compare with
leptanilloides

fugax species complex

tetracantha 331

Moderately large; concolorous medium brown; head longer than wide, coarsely punctate; lateral clypeal teeth and extralateral teeth well developed; clypeal carinae weakly defined; scape long, nearly reaching posterior border of head; eyes large; medial ocellus small; pronotum coarsely punctate, smooth and shiny between punctures; propodeum horizontally striated below spiracle; petiole and postpetiole horizontally striated; petiolar peduncle with well-developed tooth ventrally.

Moderately hairy, pilosity yellow; erect and suberect covering all body surfaces, hairs on pronotum 0.012 mm in length.

Biology and habitat. *Solenopsis tetracantha* has been collected in a nest of *Acromyrmex lundii* in La Plata, Argentina (Forel 1912).

Distribution. Argentina.

Discussion. Forel (1912) states that the variety *videns* is separated from the nominal by having shorter lateral teeth and an eye with two ommatidia. The degree of development of the lateral teeth is a variable characteristic and one vs. two ommatidia is a minor character, thus this variety is not recognized.

This minor worker is similar to *S. leptanilloides* but *S. leptanilloides* has a head that is much more elongate and is a smaller species. Additionally, *S. leptanilloides* is a pale yellow, monomorphic species.

Type series. *Solenopsis tetracantha* Emery, Emery 1906, Museo Civico coll. C. Emery (dono 1925), Argentina, La Plata (Bruch leg), Nunez, 21.vi.99 (lectotype ♀, 2 paralectotype ♀♀ and 2 paralectotype ♀♀ [here designated] MCSN). *Solenopsis tetracantha* v. *videns* Forel, Forel Coll., Argentina, La Plata (D'Bruch) (lectotype ♀ [here designated] MHNG).

Material examined. Type series.

tetracantha – Argentina: La Plata

332 *texana*

molesta species complex

Compare with

abdita, *carolinensis*, *molesta*, *patriciae*, *pollux*, *salina*

***Solenopsis texana* Forel**

Figs. 321-327; Map 78

molesta species complex, *pollux* subgroup

Solenopsis pollux var. *texana* Emery, 1895b: 278 (♀) USA: Texas; Forel, 1901a: 345 (♀ ♂); G. C. Wheeler & J. Wheeler, 1955: 136 (1); combination in *S. (Diplorhoptrum)*, Creighton, 1950: 238; raised to species, Forel, 1901a: 345

Solenopsis texana subsp. *catalinae* W. M. Wheeler, 1904: 269-270 (♀ ♀) USA: Catalina Island, **NEW SYNONYM**

Diagnosis.

Worker. This species is minute and concolorous pale yellow to medium brown. The minor funicular segments are short at 0.100 mm in total length. The lateral clypeal teeth are angular and the extralateral teeth are solely present as bumps. The petiole is smooth and shiny with a ventral angle.

Female. It is necessary to have a female as part of the series, in order to correctly identify this species. The female is small, medium brown to yellowish-brown, with relatively small eyes (0.160 mm in greatest diameter). The metapleuron has horizontal striae and the sides of the petiole and postpetiole are finely striate, with scattered punctures. They are easily recognized by the color and the relatively small size of the eye.

Male. The male is dark brown with pale brown appendages, with a head wider than long and developed clypeal carinae. The subpeduncular process is developed into a small angle. The dorsum of the petiole is low and rounded and the apex of the postpetiole is flattened.

Worker Description.

Measurements (n=8). TL 1.23-1.35 (1.28); HL 0.390-0.438 (0.409); HW 0.312-0.360 (0.339); EL 0.036; ED 0.030; SL 0.252-0.300 (0.274); FSL 0.096-0.120 (0.109); CI 80.0-89.6 (82.8); SI 63.2-70.4 (66.8); PL 0.060-0.090 (0.072); PW 0.090-0.102 (0.095); PI 66.7-88.2 (75.3); PPL 0.078-0.102 (0.089); PPW 0.114-0.126 (0.119); PPI 68.4-85.0 (74.8); WL 0.270-0.300 (0.287); PSL 0.030; PSW 0.024-0.030 (0.028).

texana – USA south to Colombia

Compare with

molesta species complex

texana 333

abdita, *carolinensis*, *molesta*, *patriciae*, *pollux*, *salina*

Yellowish-brown, gaster slightly darker; head rectangular, longer than wide, sides nearly straight, posterior border concave; four teeth or bumps on anterior clypeal margin, lateral teeth angular, extralateral teeth represented by simply swollen regions, clypeal carinae well defined; scape extends about $\frac{3}{4}$ length of distance to posterior lateral corners of head; minor funicular segments 3-8 ranging from 0.108-0.120 mm in total length; eye small (maximum diameter 0.030 mm); mesosoma deeply impressed at notopropodeal suture, groove breaks sculpture of mesosoma; punctures on mesosoma and gaster fine with surfaces between punctures smooth and shiny, pronotum and mesopleuron smooth and shiny, metapleuron with horizontal striae; posterior border of propodeum rounded, propodeal spiracle small (0.024 mm diameter); petiole wider than postpetiole (in profile) with rounded node, ventral process on peduncle of petiole formed into small angle, postpetiolar node oval, wider than petiolar node (viewed dorsally); sculpture of petiole and postpetiole smooth and shiny.

Hairy; scapes with numerous, erect and suberect hairs (0.020 mm); head with erect hairs (0.060 mm); mesosoma with several erect hairs (up to 0.100 mm); hairs on petiole, postpetiole and gaster similar to those on dorsum of mesosoma; hairs on tibiae suberect or appressed.

Female Description.

Measurements (n=4). TL 3.12-3.84 (3.54); HL 0.558-0.600 (0.579); HW 0.480-0.516 (0.492); EL 0.174-0.204 (0.185); ED 0.150-0.162 (0.153); MOL 0.048-0.066 (0.060); MOD 0.060-0.072 (0.069); SL 0.360-0.420 (0.387); FSL 0.186-0.210 (0.197); CI 82.0-88.7 (85.0); SI 62.5-70.1 (66.8); PSL 0.060-0.066 (0.062); PSW 0.048-0.054 (0.053); PL 0.120-0.138 (0.129); PW 0.198-0.252 (0.225); PI 52.4-63.6 (57.7); PPL 0.168-0.198 (0.182); PPW 0.252-0.288 (0.273); PPI 60.9-71.4 (66.6); WL 0.720-0.840 (0.780).

Medium to light brown, head and gaster slightly darker; head rectangular, longer than wide, posterior border slightly concave medially; clypeal carinae and lateral teeth well-developed, extralateral teeth poorly developed and present only as swollen regions; frontal lobes vertically striated; eyes small; ocelli small (maximum diameter of medial ocellus 0.06 mm), diameter about $\frac{1}{2}$ length of distance to lateral ocellus; scape extending more than $\frac{3}{4}$ length to posterior lateral corner of head; scutum with punctures similar to those on head, most other surfaces smooth and glossy, sides of propodeum with parallel striae, petiole and postpetiole finely striated, with scattered punctures; petiole wider than postpetiole when viewed in profile, petiolar node triangular, ventral peduncular process poorly developed, consisting of elongate tooth, postpetiole wider than petiolar node (viewed dorsally), oval, globose, postpetiole lacking tooth or flange ventrally.

texana – USA south to Colombia

Hairy; pilosity as in worker, except hairs slightly longer (hairs on scape up to 0.100 mm, those on head to 0.130 mm, hairs on dorsum of mesosoma dense, up to 0.120 mm, hairs on petiole, postpetiole and gaster similar to those on mesosoma; very coarse cephalic punctures, diameters about five times width of hair arising from them.

Male Description.

Measurements (n=1). TL 2.58; HL 0.360; HW 0.372; EL 0.192; ED 0.162; MOL 0.048; MOD 0.066; SL 0.18; FSL 0.720; CI 103.0; SI 50.0; PSL 0.048; PSW 0.054; PL 0.120; PW 0.162; PI 74.1; PPL 0.162; PPW 0.204; PPI 79.4; WL 0.660.

Dark brown, with pale brown appendages; head wider than long, posterior lateral margin above eye rounded; clypeal carinae developed, lateral clypeal teeth poorly developed; eyes relatively small; maximum diameter of median ocellus 0.054 mm; subpeduncular angle present, dorsum of petiole low and rounded; punctures on head and scutum small, remainder of ant smooth and glossy, except sides of propodeum, which are finally striated.

Hairy, scape with few suberect hairs, hairs on dorsum of head long (up to 0.070 mm) hairs on dorsum of mesosoma abundant (up to 0.100 mm), hairs on petiole, postpetiole and gaster similar to those on mesosoma.

Biology and habitat. *Solenopsis texana* nests underground, especially under stones; one nest was in a trunk. One colony was collected under a stone in a *Brachymyrmex* sp. nest. This species nests in soils ranging from light brown clay to rocky loam. It is occasionally found in hollow twigs with *Pseudomyrmex* sp., with *Tapinoma* sp. and *Camponotus tepicanus*. Brood was collected in nests in May and September. A loose female was collected in July suggesting flights occur then. Many specimens were collected in pitfall traps. It has been collected in a subterranean pitfall trap, or in litter extractions. Many other specimens were found in surface, subterranean and vegetation baits, including mealworms, fire ant bait and Vienna sausages as well as tuna fish baits.

Specimens were found in a variety of plant communities, including arid thorn shrubland, grasslands with scattered oaks, beech/magnolia forest, pine/hardwood forest, hardwood/oaks, riparian oak/cottonwood, disturbed rain forest, wet transitional tropical forest, montane hardwood/cloud forest transition, dense second growth tropical forest, old growth dry tropical forest, and in a cypress swamp, ranging from 10-2540 m in elevation.

Compare with *molesta* species complex
abdita, *carolinensis*, *molesta*, *patriciae*, *pollux*, *salina*

texana 335

Distribution. USA (Arkansas, Arizona, California, Louisiana, Mississippi, New Mexico, Tennessee, Texas and Virginia) south into Eastern México (Coahuila, Nuevo León, San Luis Potosí, Tabasco and Tamaulipas), Costa Rica (Guanacaste), Panamá and Colombia (Bolívar and Cauca).

Discussion. Without females, identification is very difficult, as workers are similar to those such as *S. carolinensis*, *S. abdita* and *S. pollux*.

They are most difficult to separate from *S. carolinensis* as they are nearly morphologically identical and their distributions overlap. The posterior tibial hairs are mostly appressed in *S. texana*, whereas they are mostly suberect in *S. carolinensis*, although this characteristic is highly variable. If more than half of the specimens in a series have suberect hairs present on the posterior tibiae, the series is more than likely to be *S. carolinensis*. They are separate species, as the females are very different (with the eyes of *S. carolinensis* being very large), correct identifications of workers are extremely difficult.

Distinction from *S. abdita* is easier, as *S. texana* has a relatively longer scape, a relatively narrower petiole and is lighter in coloration (compared to the darker brown *S. abdita*). Moreover, *S. abdita* is reportedly only found in Florida, where *S. texana* apparently does not occur.

Solenopsis pollux is similar morphologically, and the two species overlap extensively in distribution. Workers of *S. pollux* have more than ten erect hairs on the promesonotum, whereas in *S. texana* there are nearly always fewer than 10 erect hairs, so in most cases, workers can be separated.

This species is also similar to *S. salina*, but can be separated as its cephalic punctures are fine and the lateral clypeal teeth are usually straight, while the cephalic punctures of *S. salina* are moderately coarse and the lateral clypeal teeth are often bent inward.

Workers of *S. texana* in México can be easily confused with *S. patriciae*. *Solenopsis texana* workers are slightly less hairy, usually with fewer than 15 erect hairs on the first gastral tergum when viewed in profile, and most are shorter than 0.035 mm in length, whereas there are more than 15 in *S. patriciae* and most are longer than 0.036 mm in length. If there are females in a series, it can be easily recognized as they are larger (see key) and brown in color, as compared to the smaller dark brown females of *S. patriciae*. *Solenopsis texana* is much more common in México than is *S. patriciae* (which is known only from the type locality in Tabasco) so a questionable series is probably *S. texana*.

This species could be confused with *S. molesta* as well. The minor funicular segments of *S. texana* are short, being less than 0.10 mm, while these segments of *S. molesta* are typically 0.15 mm in total length. The lateral clypeal teeth are poorly developed, but well developed with *S. molesta*.

texana – USA south to Colombia

336 *texana*

molesta species complex

Compare with

abdita, *carolinensis*, *molesta*, *patriciae*, *pollux*, *salina*

Solenopsis texana catalinae differs in being less pilose and slightly lighter in color. These differences are insignificant and this subspecies is synonymized.

Type series. *Solenopsis pollux* var. *texana* Emery, Texas (lectotype ♀, 3 paralectotype ♀♀ [here designated], cotype #164 (MHNG) and 1 paralectotype ♀ (MHNW)).

Material examined. Type series and **COLOMBIA**, **Bolívar**, Zambrano 110m, # 395 (1 ♀ CWEM); **Cauca**, Isla Gorgona, 2-i-1990, M. Baena # GG-Hi9 (4 ♀♀ CWEM). **COSTA RICA**, **Guanacaste**, Cocoa Field Station, 1100-1200m, 4-v-1995, R. Anderson #'s 17710, 17733 (2 ♀♀ CWEM), Loma Barbudal, 3-vi-1989, S. Vinson #'s 12127, 12155, 12177, 12193, 12194, 12216, 12220, 12222, 12223, 12224, 12292 (33 ♀♀ CWEM), same locality, ii-1990, S. Vinson #'s 13053, 13057, 13096, 13098, 13099, 13123, 13180 (26 ♀♀ CWEM), Estación Maritza, 600m, 10°58'N 85°30'W, 3-4-v-1995, R. Anderson #'s 17711, 17715, 17716 (3 ♀♀ CWEM), Parque Nacional Santa Rosa, 300m, 10°52'N 85°36'W, 4-v-1995, R. Anderson #'s 17717, 17719 (6 ♀♀ CWEM), Pitilla Field Station, 1000m, 14-ii-1996, R. Anderson # 17692 (1 ♀ CWEM). **MEXICO**, **Coahuila**, 8 k S Saltillo, 22-vii-1988, Francisco Perez D. #40 (7 ♀♀ CWEM); **Nuevo León**, Chipinque Park, 29-ix-1990, J. Garcia Pérez (3 ♀♀ CWEM), El Salto (Zaragoza), 11-vi-1988, W. Mackay #'s 11010-8 (10 ♀♀ CWEM); **San Luis Potosí**, Ciudad Valles, 9-vi-1988, W. Mackay #'s 10935, 10937, 10939-2 (27 ♀♀ CWEM), Matehuala, 10-vi-1988, W. Mackay #'s 10968-4 (9 ♀♀ CWEM); **Tabasco**, 10 k N Cárdenas, 10m, 28-v-1988, W. Mackay #'s 10520, 10521 (6 ♀♀ CWEM); **Tamaulipas**, Gomez Farias, 25-ix-1987, W. Mackay #10077 (1 ♀ CWEM). **PANAMA**, **Chiriquí** Cerro Campana, 950m, 5-vi-1996, R. Anderson # 17833 (1 ♀ CWEM). **UNITED STATES**, **Alabama**, **Marion Co.**, Haleyville, 7-vi-1998, Mackay family # 18123 (1 ♀, 1 ♀ CWEM); **Arkansas**, **Cross Co.**, Village Creek State Park, 14-vii-1988, R. Anderson (1 ♀ CWEM), **Pulaski Co.**, Pinnacle Mountain State Park, 13-iii-1989, R. Anderson #12765 (6 ♀♀ CWEM); **Arizona**, **Cochise Co.**, 3 mi w of Portal, Sunny Flat, 5-viii-2001; **Florida**, **Levy Co.**, 10 mi S Bronson, 31-i-2001, M. Deyrup (12 ♀♀, 3 dealate ♀♀ Deyrup collection, CWEM); **Louisiana**, **Calcasieu Parish**, Sam Houston Jones State Park, 17-viii-1987, W. Mackay #'s 9702, 9711, 9713, 9716, 9718, 9719, 9722-9728, 9738-9745 (153 ♀♀ CWEM), **Iberia Parish**, New Iberia, 19-viii-1987, W. Mackay #'s 9739, 9754, 9756, 9758, 9761, 9767, 9780, 9783, 9784, 9786 (61 ♀♀ CWEM); **St. Mary Parish**, Morgan City, 20-viii-1987, W. Mackay #9817 (1 ♀ CWEM); **Mississippi**, Oktibbeha Co., 4 k NE Starkville, 27-viii-1987, W. Mackay #9938-9947 (45 ♀♀ CWEM); **New Mexico**, **Taos Co.**, 20-vi-1993, D. Fagerlund (1 ♀

texana – USA south to Colombia

Compare with

molesta species complex

texana 337

abdita, *carolinensis*, *molesta*, *patriciae*, *pollux*, *salina*

CWEM); **Tennessee**, **Hamilton Co.**, 28-29-xi-1940, #T-15656 (21 ♀♀ USNM), Chattanooga, Lookout Mt., 11-vi-1998, Mackay family # 18252 (14 ♀♀ CWEM); **Texas**, **Bandera Co.**, Lost Maples State Natural Area, 28-30-iv-1988, R. Anderson (9 ♀♀ CWEM), **Brazos Co.**, Brazos Site, 03-vii-1999, K. Helms #'s 8, 9, 11, 12, 14, 15, 16, 18, 19, 20, 21, 22, 17, 23 (15 ♀♀ CWEM), Deer Lick Creek, 16-vii-1987, W. Mackay #'s 9320, 9329 (3 ♀♀ CWEM), same locality, 08-vii-1999, #'s 57, 60, 61, 62, 64, K. Helms (5 ♀♀ CWEM), same locality, 03-vii-1999, K. Helms #'s 63, 68, 76-78, 82-84, 93-96 (12 ♀♀ CWEM) Anderson Site, 3-vii-1999, K. Helms #'s 13, 31-34, 38, 40-42, 44-50, 52, 59 (19 ♀♀ CWEM), Peach Creek, 22-vii-1987, W. Mackay # 9356F (1 ♀ CWEM), 10 k N Kurten, 5-viii-1987, W. Mackay #'s 9558, 9563, 9580, 9624, 9625, 9661, 9633, 9642, 9659, 9660, 9669, 9670, 9679, 9680, 9681, 9682, 9687 (56 ♀♀ CWEM), College Station, Foster Lane, 17-vi-1987, W. Mackay #'s 19218, 19227, 19235, 19239 (6 ♀♀ CWEM), **Brewster Co.**, Big Bend National Park, Cattail Falls, 6-iv-1989, R. Anderson (10 ♀♀ CWEM), **Brooks Co.**, 13 k S Falfurrias, 28-vii-1987, W. Mackay # 9443 (1 dealate ♀ CWEM), **Cameron Co.**, Sabal Palm Grove, 12-14-x-1988, R. Anderson (20 ♀♀ CWEM), **Gonzalez Co.**, Palmetto State Park, 17-18-iv-1989, R. Anderson #12754 (22 ♀♀ CWEM), **Hidalgo Co.**, Anzalduas Co. Park, 15-16-x-1988, R. Anderson (18 ♀♀ CWEM), Bentsen Rio Grande Park, 19-viii-1981, A. Hook # 2981 (4 ♀♀ USNM), **Houston Co.**, Big Slough Wilderness Area, 9-v-1988, R. Anderson #'s 12759, 12760 (334 ♀♀, 1 ♀ CWEM), **Sabine Co.**, 14.5 k E Hemphill, 8-iii-1989, R. Anderson (50 ♀♀, 2 dealate ♀♀ CWEM), 14 k E Hemphill, 11-v-1988, R. Anderson #'s 12763, 12764 (143 ♀♀ CWEM), **San Patricio Co.**, Welder Wildlife Refuge, 18-19-iv-1989, R. Anderson (9 ♀♀ CWEM), **Tyler Co.**, Big Thicket Natural Preserve, 12-v-1988, 8-iii-1989, R. Anderson # 12756, 12757 (3 ♀♀, 1 dealate ♀ CWEM), Spurger, 24-iv-1988, R. Anderson #12761 (8 ♀♀ CWEM), **Walker Co.**, Huntsville State Park, 23-iv-1989, W. Mackay #11400 (64 ♀♀ CWEM), same locality, 14-iv-1988, R. Anderson # 12762 (52 ♀♀ CWEM); **Virginia**, **Rockingham Co.**, without locality 08-v-199, R. Youngman # DGN-2-1991 (4 ♀♀ USNM).

texana – USA south to Colombia

***Solenopsis thoracica* Santschi**

Figs. 328-333; Map 79

fugax species complex*Solenopsis thoracica* Santschi, 1923: 261 (♂ ♂) CHILE; incorrect junior synonym of *patagonica*, Kusnezov, 1960b: 338, **NEW STATUS****Diagnosis.**

Minor worker. The minor is concolorous yellow and the eye has seven ommatidia. All four clypeal teeth are present and well developed. The minor funicular segments 3-8 are long for thief ants at 0.240 mm in total length. The petiolar peduncle has a well-developed tooth ventrally.

Major worker. This is one of very few species that is dimorphic. The major worker is golden brown and large in total length (3.00 mm). The head is coarsely punctate. All four clypeal teeth are present and well developed. The minor funicular segments 3-8 are long at 0.276 mm. The eye is large with 8-10 ommatidia. The other characters are similar to those of the minor (i.e. metapleuron horizontally striated and petiolar peduncle with well-developed tooth ventrally).

Female. Unknown.

Male. The male is large at 5.00 mm in total length. The head is much wider than long, giving it an oblong appearance. The head is covered in striae that follow the outline of the head. The anterior clypeal border is straight, lacking teeth. The propodeum has horizontal striae basally and roughened sculpturing above the spiracle.

Minor Worker Description.

Measurements (n=2). TL 2.16; HL 0.570-0.600 (0.585); HW 0.480-0.540 (0.510); EL 0.060-0.078 (0.069); ED 0.048-0.060 (0.054); SL 0.414-0.438 (0.426); FSL 0.180-0.210 (0.195); CI 84.2-90.0 (87.1); SI 72.6-73.0 (72.8); PL 0.090; PW 0.180; PI 50.0; PPL 0.120; PPW 0.180; PPI 66.7; WL 0.420-0.450 (0.435); PSL 0.048; PSW 0.048.

Moderately large; concolorous yellow; head longer than wide, coarsely punctate; lateral clypeal teeth well developed, extralateral teeth well developed; clypeal carinae well defined; frontal lobes vertically striated; scapes long, do not reach posterior margin of head; minor funicular segments long; eyes, black, relatively large, with seven ommatidia; pronotum and mesopleuron smooth and shiny; metapleuron horizontally striated; posterior propodeal margin with slightly angled

thoracica – Chile: Cayutue

Compare with
patagonica

fugax species complex

thoracica 339

slope viewed laterally; petiole wider than postpetiole viewed laterally; petiolar node extends laterally, peduncle with well-developed tooth ventrally; postpetiolar node globose, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow; head with numerous erect hairs (0.054 mm); hairs on mesosoma long (many 0.120 mm); hairs on petiole and postpetiole curve posteriorly.

Major Worker Description.

Measurements (n=3). TL 2.88-3.24 (3.04); HL 0.750-0.780 (0.762); HW 0.660-0.720 (0.680); EL 0.066-0.078 (0.074); ED 0.048-0.060 (0.056); SL 0.540-0.552 (0.544); FSL 0.240-0.282 (0.260); CI 87.3-92.3 (89.2); SI 70.8-72.0 (71.4); PL 0.120; PW 0.240; PI 50.0; PPL 0.174-0.180 (0.176); PPW 0.210-0.240 (0.230); PPI 72.5-82.9 (76.8); WL 0.600-0.630 (0.610); PSL 0.048-0.054 (0.052); PSW 0.048.

Large; concolorous golden brown; head quadrate, longer than wide, coarsely punctate; lateral and extralateral clypeal teeth well developed; clypeal carinae weakly defined; frontal lobes vertically striated; scapes long, reaching $\frac{3}{4}$ length of head; minor funicular segments 3-8 long; eyes large, 8-10 ommatidia; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; metapleuron horizontally striated; posterior propodeal margin with angled slope viewed laterally; petiole robust, wider than postpetiole viewed laterally; petiolar peduncle with well-developed tooth ventrally.

Abundantly hairy, pilosity white and yellow; erect and suberect hairs covering all body surfaces; hairs on mesosoma long (many 0.150 mm); hairs on petiole and postpetiole curve posteriorly.

Male Description.

Measurements (n=1). TL 5.04; HL 0.660; HW 0.720; EL 0.282; ED 0.240; MOL 0.072; MOD 0.078; SL 0.282; FSL 1.44; CI 109; SI 42.7; PSL 0.096; PSW 0.09; PL 0.180; PW 0.408; PI 44.1; PPL 0.360; PPW 0.450; PPI 80.0; WL 1.56.

Large; concolorous dark brown; head wider than long, oval/oblong; fully covered in striae that follow contour of cephalic capsule; anterior clypeal margin straight, clypeal carinae present; eyes large; medial ocellus small; roughened sculpturing next to sutures on mesosoma; metapleuron horizontally striated basally, with roughened sculpturing above spiracle; petiole wider than postpetiole viewed laterally; petiolar node extends laterally (viewed from above), lacking tooth or flange ventrally.

Moderately hairy, pilosity yellow; long erect and suberect (0.300 mm) scattered on head, mesosoma, petiole and postpetiole.

thoracica – Chile: Cayutue

Biology and habitat. Unknown.

Distribution. Known from the type locality in Chile.

Discussion. *Solenopsis thoracica* is one of the few species that is dimorphic. It is further distinguished as it is a relatively large thief ant as both the minor worker and the major are about 2 and 3 mm in total length separating them from all other dimorphic species of thief ants.

We recognize it as a valid species as the male is much larger than that of *S. patagonica* (5 mm total length, versus 3 mm in *S. patagonica*). *Solenopsis patagonica* appears to be monomorphic. The minor worker of *S. thoracica* can be separated from that of *S. patagonica* as it is much larger (total length 2.16 mm versus 1.6 mm in *S. patagonica*).

Type series. *Solenopsis thoracica* Santschi, Sammlung Dr. F. Santschi, Kairouan, Chile, Cayutue, Lago Todos los Santos (Wolfhugel) (6 ♀♀, 1 ♂ types NHMB), *Solenopsis thoracica* Santschi, Chile, Wm. M. Wheeler. (1 ♀, 1 ♂ types, M.C.Z. Type 1-2, 20944 MCZC).

Material examined. Type series.

Compare with
subterranea

pygmaea species complex

tonsa 341

***Solenopsis tonsa* Thompson**

Figs. 334-336; Map 80

pygmaea species complex

Solenopsis tonsa Thompson, 1989: 272-275, Figs. 29-32 (♀ ♂) USA: Florida

Diagnosis.

Worker. This species is easily recognized as having an elongate, yet robust and ventrally concave head, which is densely hairy and coarsely punctate. The eyes are minute, with about one ommatidium. The body is densely pilose and covered in erect and suberect hairs. The petiole is robust with a small peduncular tooth ventrally.

Female and Male. Not seen.

Worker Description.

Measurements (n=5). TL 1.38-1.74 (1.56); HL 0.390-0.402 (0.398); HW 0.312-0.348 (0.331); EL 0.024-0.030 (0.025); ED 0.024; SL 0.240-0.252 (0.242); FSL 0.078-0.084 (0.083); CI 78.8-86.6 (83.1); SI 59.7-62.7 (60.8); PL 0.078-0.084 (0.083); PW 0.096-0.120 (0.112); PI 65.0-87.5 (74.9); PPL 0.108-0.120 (0.110); PPW 0.114-0.120 (0.119); PPI 90.0-100.0 (92.9); WL 0.300-0.312 (0.305); PSL 0.024-0.030 (0.026); PSW 0.024.

Concolorous pale yellow; head elongate, ventrally concave; lateral clypeal teeth sharp, extralateral teeth absent; clypeal carinae well developed; scape short, extends $\frac{2}{3}$ length to posterolateral corner of head; eyes small, circular, with about one ommatidium; notopropodeal suture weakly depressed; propodeal spiracle small; posterior propodeal margin rounded, only slightly angulate; petiole slightly wider than postpetiole viewed dorsally; petiolar peduncle with small ventral tooth.

Abundantly pilose; head, mesosoma and gaster covered with short (0.020 mm) erect and suberect hairs equal in length; head densely hairy except for narrow central strip.

Biology and habitat. Thompson (1982) states that nothing is known of the biology of *S. tonsa*. We collected it in subterranean Vienna sausage baits at 1500 feet elevation in light brown moist sandy soils in a forest in Texas.

Distribution. USA, Florida and Texas.

tonsa – USA: Texas, Florida

Discussion. *Solenopsis tonsa* is similar to *S. subterranea* and may be confused as both species have densely hairy bodies. *Solenopsis tonsa* is easily separated by its robust, thickened head viewed laterally compared to the more slender head of *S. subterranea*. Additionally, the petiole of *S. tonsa* is much more robust with a small tooth present at the subpeduncular process; absent in *S. subterranea*. The distributions probably overlap in Texas.

Dr. Trager suggests what we consider to be *S. tonsa* may not be conspecific with the real *S. tonsa*, as our specimens have hairs over the surface of the head and *S. tonsa* has a non pilose medial strip on the head.

Type series. We were not able to locate the types of *S. tonsa* in any of the museums where they were reportedly deposited by Thompson (1989), as they were borrowed by Thompson in 1989 (S. Cover and M. Deyrup, pers. comm.). A series of specimens collected from Texas was identified as *S. tonsa* (based on Thompson's description and figures) as our only alternative.

Material examined. Texas, Rusk Co. 30K Nacogdoches, 3 June 1990, W. Mackay #'s 13405, 13407 (40 ♀♀ CWEM).

Compare with
molesta

molesta species complex

validiuscula 343

***Solenopsis validiuscula* Emery**

Figs. 337-340; Map 81

molesta species complex, *molesta* subgroup

Solenopsis molesta var. *validiuscula* Emery, 1895b: 278 (♀) USA: California, San Jacinto and Los Angeles; G. C. Wheeler & J. Wheeler, 1955: 135 (1); (subspecies of *molesta*, Creighton, 1950: 237), **NEW STATUS**

Diagnosis.

Worker. These are relatively large, typically dark brown ants with moderately coarse cephalic punctures. The space between the tips of the lateral clypeal teeth is wide at 0.09 mm. A well-developed tooth is present ventrally on the petiolar peduncle.

Female. The females are easily recognized as medium brown ants with a small median ocellus (0.080 mm maximum diameter) and relatively large eyes (0.240 mm). The space between the tips of the lateral clypeal teeth is wide at 0.144 mm. The scape is long and reaches the posterior border of the head.

Male (undescribed). The males are dark brown with a small medium ocellus (0.102 mm), separated from the lateral ocellus by about two diameters and large eyes (maximum diameter 0.32 mm). The scape is short, approximately as long as the first 1.5 funicular segments.

Worker Description.

Measurements (n=5). TL 1.50-1.80 (1.64); HL 0.450-0.498 (0.475); HW 0.384-0.432 (0.407); EL 0.036-0.048 (0.042); ED 0.030-0.036 (0.032); SL 0.300-0.330 (0.318); FSL 0.138-0.150 (0.144); CI 82.5-87.5 (85.6); SI 62.5-70.7 (66.9); PL 0.078-0.096 (0.082); PW 0.090-0.132 (0.116); PI 65.0-86.7 (70.9); PPL 0.120; PPW 0.132-0.150 (0.138); PPI 80.0-90.9 (87.1); WL 0.300-0.360 (0.323); PSL 0.030-0.036 (0.031); PSW 0.030-0.036 (0.031).

Moderately large; concolorous dark brown; head longer than wide, finely punctate; lateral clypeal teeth angulate, extralateral teeth absent; clypeal carinae well defined; eyes small, 3-5 ommatidia; scape does not reach posterior border of head; minor funicular segments 3-8 long; pronotum punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; posterior propodeal margin nearly flat; propodeal spiracle small, rounded; metapleuron horizontally striated; petiole and postpetiole similar in size viewed laterally; petiolar node rounded, pe-

validiuscula – USA: southwestern states, México: northwestern states

duncle with well-defined tooth ventrally, translucent basally; postpetiolar node oval.

Moderately hairy; pilosity yellow; erect and suberect hairs covering all body surfaces; longest hairs on mesosoma 0.120 mm; hairs on petiole, postpetiole and first tergum of gaster curve posteriorly.

Female Description.

Measurements (n=3). TL 5.16-5.52 (5.36); HL 0.762-0.768 (0.766); HW 0.720; EL 0.222-0.240 (0.228); ED 0.162-0.180 (0.168); MOL 0.072-0.084 (0.078); MOD 0.078; SL 0.522-0.540 (0.534); FSL 0.288-0.300 (0.296); CI 93.8-94.5 (93.9); SI 67.9-70.9 (69.7); PSL 0.078-0.084 (0.080); PSW 0.054; PL 0.180; PW 0.360-0.420 (0.388); PI 42.9-50.0 (46.6); PPL 0.300; PPW 0.420; PPI 71.4; WL 1.08-1.20 (1.14).

Large, concolorous medium brown; head square, barely longer than wide, finely punctate; lateral clypeal teeth well developed; extralateral teeth absent; space between lateral clypeal teeth wide at 0.144 mm; clypeal carinae well defined; scapes long, nearly reaching posterior border of head; minor funicular segments 3-8 long; eyes black, large; medial ocellus small; pronotum punctate, smooth and shiny between punctures; metapleuron smooth and shiny; posterior propodeal margin rounded; metapleuron horizontally striated; petiole wider than postpetiole viewed laterally; petiolar peduncle with well-developed tooth ventrally; petiole and postpetiole horizontally striated.

Abundantly hairy; pilosity yellow; erect and suberect hairs covering all body surfaces; longest hairs on pronotum 0.240 mm; hairs on petiole and postpetiole curve posteriorly.

Male Description.

Measurements (n=2). TL 3.28-3.70; HL 0.468-0.516; HW 0.502-0.516; EL 0.276-0.288; ED 0.196-0.216; MOL 0.072-0.078; MOD 0.078-0.114; SL 0.114-0.120; FSL 0.710-0.720; CI 97.3-110.3; SI 14.0-25.6; PSL 0.066-0.084; PSW 0.066-0.072; PL 0.180-0.216; PW 0.252-0.264; PI 72.0-83.3; PPL 0.216-0.254; PPW 0.300-0.324; PPI 66.7-84.7; WL 1.284-1.428.

Moderate sized, brown; head narrowed posteriorly, mostly smooth and shining; clypeal teeth absent, clypeal carinae absent; scapes short; minor funicular segments long; eyes black, large; pronotum shiny, mesopleuron and metapleuron smooth; scutum and scutellum smooth and glossy; posterior propodeal margin rounded; petiole longer than postpetiole (side view); petiolar peduncle with small ventral tooth; side of petiole finely punctated, side of postpetiole mostly shining.

Abundantly hairy, especially head, dorsum of mesosoma, petiole and postpetiole and gaster.

validiuscula – USA: southwestern states, México: northwestern states

Biology and habitat. These ants nest under stones and occasionally under logs in sagebrush/weedy communities, pine/oak forests, pinyon juniper forests, grassy clearings in pine/fir forests and are most common in ponderosa pine forests (ranging from 1200-9000 m) and riparian pine forests. In New Mexico, they have been found nesting under rocks near *Camponotus* and *Lasius* and reproductives have been found in August and September (Mackay and Mackay 2001). Brood and sexuals were found in nests in July and August in Colorado. It was found together with *Camponotus* spp. (especially *C. vicinus*) and *Lasius niger* in Colorado and *Myrmica hamulata*, *Formica argentea*, *Lasius sitiens* and *L. pallitarsis* in New Mexico. Gregg (1963) lists them from a number of Colorado plant communities, ranging from grasslands to shrublands and deciduous and coniferous forests, with sexuals collected in nests from July to October. They feed on carrion. They are found in fine sand/clay, moist brown loam rocky clay soils, rocky light brown loam, and rocky sandy soils.

Distribution. USA (Arizona, California, Colorado and New Mexico), México (Coahuila, Colima), Canada (British Columbia).

Discussion. *Solenopsis validiuscula* is similar to *S. molesta*, but can be separated on the basis of color (as *S. molesta* workers are typically yellow), size (*S. molesta* workers are smaller, 1.5–1.7 mm total length) and cephalic punctures (*S. molesta* typically have fine cephalic punctures). Moreover, the space between the tips of the lateral clypeal teeth of the females and workers of *S. molesta* is shorter compared to *S. validiuscula*. This species does not appear to be a synonym of *S. molesta*, based on the above characteristics and as the females are distinctly different, in size of the ocelli, cephalic punctures and in color. *Solenopsis validiuscula* has been listed as *S. truncorum* throughout the literature, based on the misidentification of this species by Creighton (1950). Actually *S. truncorum* is here considered to be a synonym of *S. carolinensis*.

We collected an interesting series of workers and winged females from Canada (British Columbia, Jasper National Park, 19.30k N Jasper, Moberly Homestead, 1013m, 26-vii-2011, W&E Mackay # 24858 (34 ♀♀, 32 alate ♀♀ CWEM, nest in soil, spruce/aspen forest, rocky loam), which appear to be *S. validiuscula*, but differ in having the lateral clypeal teeth more closely spaced (0.066 – 0.078 mm apart) and with smaller eyes. They will tentatively be considered *S. validiuscula*, although they are far from the known distribution of the species.

Type series. Not found.

validiuscula – USA: southwestern states, México: northwestern states

Material examined. **MEXICO, Coahuila**, 55 k SE Arteaga, 24-ix-1987, W. Mackay # 10021 (18 ♀♀ CWEM); **Colima**, 19 k NE Comala, 1219m, 1-viii-1988, R. Anderson # 88-19 (7 ♀♀ CWEM). **USA, Arizona, Apache Co.**, Apache National Forest, 1.7 mi NE Hannagan Meadow, 8950 ft., 11-ix-1994, R. Johnson #'s AZ 550, AZ 580 (21 ♀♀ Johnson Collection), same locality, 5 mi E HWY 180 on USFS Rd 249, 8630 ft., 11-ix-1994, R. Johnson # AZ 549 (9 ♀♀ Johnson Collection), Coconino Co., Coco. Nat'l For, Blue Ridge Rd @ 1 mi S. Buck Springs, 15-v-1995, R. Johnson #AZ 665 (12 ♀♀ Johnson collection), same locality, Blue Ridge, Rim & Buck Springs Rd., 7800 ft., 34°24'N 111°10'W, 15-v-1995, R. Anderson #'s AZ 652, AZ 655 (12 ♀♀ Johnson Collection), San Francisco Peak, 8000', 35°17.57'N 111°42.38'W, 11-ix-1997, R. Johnson # AZ 1186 (7 ♀♀ Johnson Collection), **Cochise Co.**, Chiricahua Mts., 7000 - 9000' 27-vi-1970, W. Mackay (3 ♀♀ CWEM), Chiricahua Mts., ½ mi W SWRS, 23-vii-1994, R. Johnson #AZ 508 (24 ♀♀ Johnson collection), same locality, 9-vii-1993, R. Johnson #AZ 250 (15 ♀♀ Johnson collection), **Gila Co.**, Pine Mts., USFS Rd. 651 @ 2.2 mi. S Sulphide del Rey Pound, 6-12-iv-1997, R. Johnson #'s AZ 964, 967 (17 ♀♀, 1 ♀ Johnson collection), Rd. 580@ 0.5 mi S Madera Peak, 16-vii-1997, R. Johnson #AZ 1204 (14 ♀♀, 1 ♀ Johnson collection), 615C @ Pinal Peak, 15-iv-2000, R. Johnson #AZ 1928, 1930 (18 ♀♀ Johnson collection), **Maricopa Co.**, Tempe 1190 m, 13-vi-1996, R. Johnson # AZ 752 (18 ♀♀ Johnson collection), **Santa Cruz Co.**, Pajarito Mts., Sycamore Canyon Trailhead, 28-vii.1996, R. Johnson #AZ 1209 (17 ♀♀ Johnson collection), **Yavapai Co.** Prescott National Forest Bradshaw Mts. Walker Rd. @ 6.8 mi S Hwy 69, 17-vii-1998, R. Johnson #1459-62 (22 ♀♀, 13 ♀♀ and 11 ♂♂ Johnson collection); **Colorado, Boulder Co.**, 3 mi E Nederland, 17-viii-1982, W&E Mackay #'s 6417, 6419, 6430, 6432 (1 ♀♀, 18 alate ♀♀, 17 ♂♂ CWEM); **New Mexico, Bernalillo Co.**, Albuquerque, 20-viii-1962, B. Pullen (9 ♀♀, 2 alate ♀, 1 ♂ CWEM), **Colfax Co.**, 16 k E Eagle Nest, 9-viii-1986, W&E Mackay #'s 8593, 8598 (14 ♀♀, 9 alate ♀♀, 5 ♂♂ CWEM), 41 k E Eagle Nest, 9-viii-1986, W&E Mackay # 8613 (7 ♀♀, 3 alate ♀♀, 1 ♂ CWEM), **Grant Co.**, 77 k E Silver City, 25-vii-1986, W&E Mackay # 8326 (5 ♀♀ CWEM), 88 k E Silver City, 24-vii-1986, W&E Mackay # 8312 (3 ♀♀ CWEM), **Los Alamos Co.**, Los Alamos, 30-vi-1986, W&E Mackay # IIB (2 ♀♀ CWEM), 4 k N Los Alamos, 19-viii-1986, W&E Mackay #'s 8739, 8754 (11 ♀♀, 1 dealate ♀ CWEM), 8k N Los Alamos, 19-viii-1986, W&E Mackay # 8776 (6 ♀♀, 3 ♀♀, 3 ♂♂ CWEM), Rio Grande near Los Alamos, 1680m, W&E Mackay (22 ♀♀, 1 dealate ♀, 1 alate ♀, 1 ♂ CWEM), **Mora Co.**, Coyote Creek State Park, 6-vii-1986, W&E Mackay # 8157 (4 ♀♀ CWEM), 2 k E Wagon Mound, W&E Mackay # 8747 (1 alate ♀ CWEM), **Rio Arriba Co.**, 7 k S Cebolla, 2-viii-1986, W&E Mackay #'s 8456, 8466 (5 ♀♀

validiuscula – USA: southwestern states, México: northwestern states

Compare with
molesta

molesta species complex

validiuscula 347

CWEM), **Sandoval Co.**, Bandelier National Monument, 21-viii-1986, W&E Mackay # 8803 (2 ♀ ♀ CWEM), 4 k W Cuba, 16-viii-1986, W&E Mackay # 8684 (9 ♀ ♀ CWEM), 11 k E Cuba, 16-viii-1986, W&E Mackay (4 ♀ ♀ CWEM), **San Miguel Co.**, 20 k NW Las Vegas, 6-vii-1986, W&E Mackay # 8104 (1 ♀ CWEM), **Santa Fe Co.**, Santa Fe, 5-vii-1986, W&E Mackay # 8077 (6 ♀ ♀ CWEM), **Taos Co.**, 14 k SE Tres Piedras, 29-vi-1986, W&E Mackay #'s 8013, 8014 (8 ♀ ♀ CWEM), 6 k SW Tres Piedras, 28-vi-1986, W&E Mackay # 8003 (3 ♀ ♀ CWEM), 20 k S Taos, 9-viii-1986, W&E Mackay # 8564 (6 ♀ ♀ CWEM).

validiuscula – USA: southwestern states, México: northwestern states

***Solenopsis vinsoni* Pacheco & Mackay, NEW SPECIES**

Figs. 341-346; Map 82

fugax species complex**Diagnosis.**

Minor and *Major*. This is a dimorphic species in which the majors are slightly larger than the minors (see dimensions in key). The majors can be recognized as the extralateral teeth are moderately developed, but are much smaller than the pair of lateral teeth. The punctures on the head are coarse, greater in diameter than the hairs that arise from them. The dorsum of the head is also nearly covered with poorly defined rugulae. The scapes are relatively short (0.260 in the major, 0.220 mm in the minor), the minor segments of the antenna are relatively short (0.110 in the major, 0.080 in the minor). The eye of the major is relatively large (0.06 mm greatest diameter), almost as long as the distance from the anterior border to the insertions of the mandibles. The top of the mesosoma is mostly covered with punctures and poorly defined rugulae, the side of the pronotum is moderately smooth and shining, the mesopleuron is smooth and glossy (slight sculpturing along the anterior edge), the metapleuron is longitudinally striated, the propodeum mostly smooth and glossy. The petiole and postpetiole are both sculptured with punctures and very fine rugulae.

The minor worker has several additional differences from the major worker. The extralateral teeth are poorly developed, the head is mostly smooth and glossy, with scattered, coarse punctures (much larger in diameter than the width of the hairs arising from them). The eye is relatively small (maximum diameter about 0.03 mm), much smaller than the distance from the anterior border to the insertions of the mandibles. The mesosoma, petiole and postpetiole are mostly smooth and moderately to strongly shiny. Both the majors and the minors are yellow or pale brownish-yellow.

Female. The gyne is medium brown with lighter brown appendages. The head is elongate with straight sides and is covered in vertical striae. The propodeum is completely covered in thin rugulae with an angulate posterior edge. The petiole and postpetiole are covered in rugulae. A minute tooth is present ventrally on the petiolar peduncle. The gaster of the gyne is noticeably longer than the remainder of the body.

Male. Unknown.

vinsoni – southern México to Colombia: Valle del Cauca

Minor Worker Description.

Measurements (n=5). TL 1.14-1.26 (1.19); HL 0.348-0.360 (0.353); HW 0.300-0.318 (0.306); EL 0.030-0.036 (0.034); ED 0.030; SL 0.216-0.240 (0.222); FSL 0.084; CI 83.3-89.7 (86.7); SI 60.0-66.7 (62.9); PL 0.060-0.066 (0.064); PW 0.102; PI 58.8-64.7 (62.4); PPL 0.090-0.108 (0.097); PPW 0.120; PPI 75.0-90.0 (81.0); WL 0.258-0.270 (0.268); PSL 0.024; PSW 0.024.

Small; concolorous golden yellow to brown; head quadrate, longer than wide, coarsely punctate; lateral clypeal teeth well developed, extend 0.024 mm past anterior clypeal margin, extralateral teeth reduced, angulate; clypeal carinae well defined; frontal lobes vertically striated; scapes short, barely surpass midpoint of dorsum of head; minor funicular segments 3-8 short; eyes small, 3-5 ommatidia; pronotum coarsely punctate, smooth and shiny between punctures; mesopleuron smooth and shiny; notopropodeal suture well depressed, notch-shaped, groove breaks sculpture of mesosoma; posterior propodeal margin viewed laterally angulate, posteropropodeum sloped; propodeal spiracle small, round; anterior and posterior faces of petiolar node straight, node mostly smooth and shiny, minute tooth ventrally on peduncular process; postpetiolar node globus, horizontally rugose, lacking tooth or flange ventrally.

Abundantly hairy, pilosity light brown, yellow; erect and suberect hairs of various lengths covering all body surfaces; uniform hairs on head (0.030 mm in total length); hairs on dorsum of petiole (0.060-0.090 mm); hairs on petiole, postpetiole and gaster curve posteriorly.

Major Worker Description.

Measurements (n=5). TL 1.68-1.74 (1.70); HL 0.480-0.522 (0.505); HW 0.402-0.456 (0.431); EL 0.048-0.060 (0.050); ED 0.036-0.048 (0.042); SL 0.264-0.282 (0.274); FSL 0.102-0.114 (0.107); CI 83.8-87.4 (85.2); SI 50.6-57.5 (54.2); PL 0.084-0.102 (0.091); PW 0.138-0.156 (0.149); PI 53.8-68.0 (61.4); PPL 0.132-0.138 (0.134); PPW 0.138-0.180 (0.166); PPI 75.9-95.7 (81.8); WL 0.330-0.360 (0.348); PSL 0.030; PSW 0.030.

Moderately small; head heart-shaped, concave posterior-medially, covered in rugulae, follow contour of head, coarsely punctate; lateral clypeal teeth well defined, extralateral teeth reduced, angulate; clypeal carinae well defined; frontal lobes vertically striated; eyes moderately large, 5-8 ommatidia; scapes yellowish brown, short, barely surpass midpoint of head; minor funicular segments 3-8 short; dorsum of pronotum with rugulae, coarsely punctate; mesopleuron smooth and shiny; notopropodeal suture well depressed, notch-like, groove breaks sculpture of mesosoma; posterior propodeal face angulate viewed laterally; propodeal spiracle small, round; metapleuron horizontally striated; anterior and posterior faces of petiole nearly straight, node with rugulae, small tooth present ventrally on subpeduncular process; postpetiole globose, rugose.

vinsoni – southern México to Colombia: Valle del Cauca

Abundantly hairy, pilosity light brown to yellow; uniform length, erect hairs on head (0.060 mm); hairs of various lengths on dorsum of mesosoma viewed laterally (0.030-0.120 mm); hairs on petiole, postpetiole and gaster curved posteriorly.

Female Description.

Measurements (n=3). TL 3.72-3.84 (3.76); HL 0.522-0.528 (0.526); HW 0.420; EL 0.162; ED 0.132-0.138 (0.136); MOL 0.036; MOD 0.042; SL 0.300; FSL 0.156-0.162 (0.158); CI 79.5-80.5 (79.9); SI 56.8-57.5 (57.0); PSL 0.036-0.042 (0.040); PSW 0.036-0.042 (0.038); PL 0.132; PW 0.198; PI 66.7; PPL 0.180; PPW 0.234; PPI 76.9; WL 0.66.

Moderately small; concolorous medium brown with lighter brown appendages; head elongate, sides straight, coarsely punctate; lateral clypeal teeth well developed, extralateral teeth reduced, angulate; clypeal carinae well defined; frontal lobes vertically striated; scape yellow, reaches medial ocellus; medial ocellus without pigment; pronotum coarsely punctate, smooth and shiny; propodeum sculptured with rugulae, posterior margin angulate (viewed laterally); propodeal spiracle small, round; petiole and postpetiole sculptured with rugulae; petiole with small subpeduncular tooth, postpetiole with flange ventrally; gaster large, longer in length than remainder of body.

Abundantly hairy, pilosity yellow and light brown; erect hairs of various lengths (0.030-0.120 mm) on dorsum of head; hairs on dorsum of mesosoma (0.060-0.120 mm); hairs on petiole, postpetiole and gaster curve posteriorly.

Biology and habitat. Workers of *S. vinsoni* were collected in litter samples, as well as with subterranean baits of Vienna sausage in Costa Rica (600-1200m wet montane cloud forest) and México (10 m tropical forest). Additional specimens were collected from litter extractions in low montane forest, transitional bamboo cloud forest, upper montane and wet cloud forest, montane hardwood forest. Specimens from Colombia were collected in subterranean Vienna sausage traps in clay soils in virgen tropical forest. Additionally, *S. vinsoni* was collected in Guatemala by subterranean bait of Vienna sausage in riparian tropical rain forest in clay soil at 177 m.

Distribution. México (Tabasco) south to Colombia.

Discussion. The major worker could only be confused with workers of *S. rugiceps* based on the sculpturing of the head. It can be easily separated by the sculptured mesosoma, petiole and postpetiole (predominantly smooth and glossy in *S. rugiceps*). Additionally the notopropodeal suture is weakly depressed

Compare with
rugiceps

fugax species complex

vinsoni 351

(strongly depressed in *S. rugiceps*). Although the sculpturing of the head is similar in the two species, they do not appear to be closely related.

The minor workers will key to the *fugax* species complex. They are unlikely to be confused with any of the other species in the complex, due to their relatively small size and the uniform hairs of 0.03 mm present on the head.

Type series. Holotype 2♂ (MCZC), 5 paratype 2♂♂ and 54 paratype ♀♀ (AMNH, CASC, CWEM, IAVH, LACM, MCZC, MZSP, USNM), **COSTA RICA, Guanacaste**, Loma Barbudal, 3-vi-1989, S. B. Vinson # 12039; 1 paratype ♀ (CWEM), **PANAMA**, P. Pelon Rd. Quebabra Juan Grande FIT 19-v-95, R. Anderson, Chaboo, Hayford Jolly # 17849.

Material examined. Type series and **COLOMBIA**, Valle del Cauca, Bosque Yotoco, 23-vi-1989, W. Mackay # 11593, 11652 (5 2♂♂, 15 ♀♀ CWEM), 24-vi-1989, W. Mackay # 11593 (2 2♂♂ CWEM). **COSTA RICA, Guanacaste**, Cacao Field Station, 20-ii-1996, R. Anderson 17731 (1 CWEM), Maritza Field Station, 800m, 3-v-1995, R. Anderson # 17715 (1 CWEM), Pitilla Field Station, 600 m, 2-v-1995, R. Anderson #'s 17722, 17723 (2 ♀ CWEM); **Puntarenas**, 21 k NE Estación Biológica Alturas, 20-vi-1996, R. Anderson # 18863 (1 ♀ CWEM), Estación Biológica Las Cruces, 4 k S San Vito, 19-vi-1996, R. Anderson # 18662 (1 2♂ CWEM), 6 k SW Estación Biológica Las Cruces, 22-vi-1998; **San José**, Cerros de Escasa, 13-vi-1997, R. Anderson # 18860 (1 ♀ CWEM), **GUATEMALA, Cobán**, Parque Nacional Laguna Lachua, 43 km E Chisec, 15°57'10.9" N 90°40'28.2" W, 17-vii-2004, J. Pacheco # GCR-16-22, 23, 24, 25, (5 2♂♂ and 6 ♀♀ CWEM); **MEXICO, Chiapas**, 10 k S Palenque, 31-v-1998, W. Mackay # 10633 (2 ♀♀ CWEM); **Tabasco**, 10 k N Cárdenas, 28-v-1988, W. Mackay #'s 10502, 10505, 10509, subterranean trap, vienna sausage (2 2♂♂ and 20 ♀♀ CWEM). **PANAMA, Chiriquí**, Fortuna area, Finca La Suisse, 12-vi-1995, R. Anderson # 17779 (1 ♀ CWEM), Fortuna hydrological trail, 9-vi-1995, Bocas del Toro, La Fortuna area, 9-v-1995, R. Anderson # 17846 (1 ♀ CWEM), **Panamá**, Pelón road, Quebrada Juan Grande, 19-v-1995, R. Anderson # 17849 (2 ♀♀ CWEM).

***Solenopsis wasmannii* Emery**

Figs. 347-354; Map 83

wasmannii complex

Solenopsis wasmannii (often incorrectly spelled as *wasmanni*) Emery, 1894: 151-153 (♀) PARAGUAY: Villa Encarnación and Villa Rica [here restricted]; Emery, 1906: 122 (♀ ♂)

Solenopsis wasmannii subsp. *transformis* Forel, 1911: 298 (♀ ♀) PARAGUAY: San Bernardino, **NEW SYNONYM**

Solenopsis wasmannii st. *transformis* var. *robustior* Santschi, 1923: 265 (♀) ARGENTINA: Córdoba, Alta Gracia. [unavailable name], **material referred here**

Diagnosis.

Major and minor worker. The workers are polymorphic and the largest majors are moderately large in total length at over 5 mm. The minor workers have five well-developed clypeal teeth and quadrate heads with fine punctation, while the larger workers tend to have blunt, rounded teeth, often lacking the medial tooth and with an enlarged head that is coarsely punctate. The eyes are large, ranging from approximately 8 to 18 ommatidia. Both the mesopleuron and meta-pleuron are horizontally striated. The minor workers lack a tooth or flange ventrally on the petiolar peduncle, but it is present in the larger workers.

Female. The female is large (6-9 mm total length) and concolorous brown in coloration. Four clypeal teeth are present but reduced. The frontal lobes are vertically striated, in which the striae extend halfway between the frontal lobes and medial ocellus of the head. The propodeum, petiole and postpetiole are striated. The petiolar peduncle has a thin flange along the ventral surface.

Male. The male is large (approximately 5 mm total length) and dark brown with lighter brown appendages. The head, propodeum, petiole and postpetiole are striated. The medial ocellus is large at a maximum diameter of 0.120 mm. The petiolar node is triangular and the peduncle has a bump ventrally.

Worker Description.

Measurements (n=10). TL 1.80-5.28 (3.62); HL 0.600-1.32 (0.991); HW 0.480-1.26 (0.921); EL 0.060-1.62 (0.518); ED 0.048-0.102 (0.073); SL 0.390-0.600 (0.505); FSL 0.180-0.300 (0.247); CI 80.0-100 (91.0); SI 42.3-65.0 (53.5);

wasmannii – Chile, Argentina, Bolivia, Paraguay

Compare with
Pheidole

wasmannii species complex

wasmannii 353

PL 0.120-0.240 (0.168); PW 0.180-0.540 (0.357); PI 33.3-66.7 (50.5); PPL 0.132-0.330 (0.237); PPW 0.204-0.582 (0.397); PPI 52.6-78.9 (62.5); WL 0.420-1.08 (0.766); PSL 0.048-0.120 (0.080); PSW 0.042-0.084 (0.064).

Polymorphic, with major workers large; golden yellow to medium brown; head quadrate, longer than wide, finely punctate in minor workers; head enlarged, wider posteriorly than anteriorly, coarsely punctated; minor workers with five well-developed clypeal teeth, larger majors with four reduced clypeal teeth, with medial tooth often absent; frontal lobes vertically striated in all forms, weakly defined in minor workers and well defined in major workers; scape reaches $\frac{3}{4}$ length to posterior lateral corner of head in minor workers and barely surpasses half-length of head in major workers; minor segments long; eye large, with approximately 8-18 ommatidia; pronotum finely punctate in minor workers, coarsely punctate in major workers, smooth and shiny between punctures; mesopleuron horizontally striated in all sized workers; notopropodeal suture well depressed, notch-like in all forms, groove breaks sculpture of mesosoma; posterior edge of propodeum angulate, more defined in major workers; propodeal spiracle large, oval in all sizes; metapleuron horizontally striated; petiole wider than postpetiole viewed laterally in all forms; petiolar node lacking sculpturing, peduncle lacking tooth or flange ventrally in minor workers (small bump present); petiole striated, peduncle with well-developed tooth ventrally in major workers; postpetiolar node striated, postpetiole lacking tooth or flange ventrally in minor workers; postpetiolar node lacking sculpturing, with poorly defined flange ventrally in major workers.

Abundantly hairy, pilosity yellow to light brown; erect hairs of various lengths (0.030-0.180 mm), facing different directions on all body surfaces; hairs on minor workers curve posteriorly on petiole and postpetiole.

Female Description.

Measurements (n=6). TL 6.24-9.00 (7.22); HL 1.05-1.15 (1.09); HW 1.02-1.26 (1.11); EL 0.360-0.408 (0.368); ED 0.270-0.360 (0.291); MOL 0.084-0.168 (0.102); MOD 0.102-0.138 (0.110); SL 0.648-0.840 (0.706); FSL 0.360-0.540 (0.418); CI 94.7-114 (101); SI 61.4-75.7 (64.6); PSL 0.120; PSW 0.108-0.114 (0.111); PL 0.240; PW 0.540-0.600 (0.580); PI 40.0-44.4 (41.5); PPL 0.360-0.480 (0.407); PPW 0.630-0.720 (0.683); PPI 54.5-66.7 (59.5); WL 1.92-2.40 (2.10).

Large; concolorous yellow to golden-brown; head as wide as long, wider posteriorly than anteriorly, semi-coarsely punctate; mandible with five teeth on masticatory margin; four clypeal teeth blunt, reduced; clypeal carinae weakly defined; frontal lobes vertically striated, extending half-length of head in front of medial ocellus; scapes wide 0.120 mm at maximum diameter, long, extending $\frac{3}{4}$ length of head; minor funicular segments 3-8 long (average 0.400 mm); eyes large, extend 0.036 mm past side of head; medial ocellus large, without pigment;

wasmannii – Chile, Argentina, Bolivia, Paraguay

lateral ocelli 0.120 mm distant from medial ocellus; pronotum semi-coarsely punctate, smooth and shiny between punctures; posterior propodeal margin rounded; propodeal spiracle large, oval; petiolar node robust, wider than postpetiole viewed laterally; petiolar node striated, peduncle with well-developed flange ventrally; petiolar spiracle large (0.072 mm); petiolar node striated, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow to light brown; erect and suberect hairs of various lengths (0.060-0.240 mm) covering all body surfaces; hairs on petiole, postpetiole and gaster curve posteriorly.

Male Description.

Measurements (n=2). TL 4.92-5.76 (5.34); HL 0.660-0.732 (0.696); HW 0.720-0.822 (0.771); EL 0.432-0.462 (0.447); ED 0.276-0.342 (0.309); MOL 0.090-0.120 (0.105); MOD 0.108-0.126 (0.117); SL 0.192-0.258 (0.225); FSL 1.26-1.32 (1.29); CI 109-112 (111); SI 29.1-35.2 (32.2); PSL 0.120; PSW 0.120; PL 0.120; PW 0.444-0.522 (0.483); PI 22.9-27.0 (25.0); PPL 0.240; PPW 0.480-0.540 (0.510); PPI 44.4-50.0 (47.2); WL 1.68-2.04 (1.86).

Large; concolorous dark brown, lighter brown appendages; head wider than long, striated, semi-coarsely punctate; anterior clypeal margin straight, lacking teeth or carinae; eyes large, extend 0.060 mm past sides of head; scape long, minor funicular segments long; medial ocellus large, without pigment; lateral ocelli 0.060 mm distant from medial ocellus; pronotum semi-coarsely punctate, smooth and shiny between punctures; posterior margin of propodeum slightly angulate; propodeal spiracle large, round; propodeum striated; anterior and posterior face of petiolar node meet at sharp apex, node triangular, striated, peduncle lacking tooth or flange but with bump ventrally; postpetiole striated, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow to light brown; funicular segments with abundant appressed hairs; erect and suberect hairs of various lengths (0.120-0.240 mm) on dorsum of head and mesosoma; long (0.240 mm), erect hairs on petiole and postpetiole; many hairs on pronotum, petiole, postpetiole and gaster curve posteriorly.

Biology and habitat. *Solenopsis wasmannii* was collected under a stone in a cerrado (forest) at 450 m in elevation and in a ground nest in a tropical dry forest at 1400m in elevation in Bolivia.

Distribution. Argentina (Chaco, Córdoba, Alta Gracia, Santa Fé, Tucumán, Salta, Santa Fe, Misiones), Bolivia (Bení, Santa Cruz), Brazil (Mato Grosso), Chile (Talca), Paraguay (Paraná).

wasmannii – Chile, Argentina, Bolivia, Paraguay

Discussion. *Solenopsis wasmannii* is one of few of the “smaller” *Solenopsis* that is strongly polymorphic. It is easily recognized by having five well defined clypeal teeth in the minor and medium sized workers and an enlarged head in the major workers, resembling the majors of *Pheidole*. The clypeal teeth are less defined in the largest majors giving the appearance of four teeth at times with the medial tooth very reduced.

Solenopsis wasmannii subsp. *transformis* as well as *S. wasmannii* st. *transformis* var. *robustior* are identical to *S. wasmannii* and are not recognized as valid. *Solenopsis wasmannii* is polymorphic and we believe this subspecies and variety were defined by series consisting of the larger majors of *S. wasmannii*.

Type series. *Solenopsis wasmannii* Emery 1896, Paraguay, without locality, Balzan, Museo Genova Coll. C. Emery (dono 1925) (lectotype ♀, 16 paralectotype ♀♀ [here designated] MCSN).. *Solenopsis wasmannii* st. *transformis* var. *robustior* Santschi, Argentina, Córdoba, leg. Bruch. det. Sant. 1922, Córdoba, Alta Gracia (Bruch) (M.C.Z. Cotype 29401, 3 ♀♀ MCZC, M.C.Z. Cotype 29402, Wm. M. Wheeler, 1 ♀ and 5 ♀♀ MCZC). *Solenopsis wasmannii* st. *transformis* var. *robustior* Santschi (lectotype ♀ and 24 paralectotype ♀♀ [here designated]).

Material examined. Type series and **ARGENTINA**, **La Rioja** Patquía, 1951 A. Breyer leg. (1 ♀ MCZC); **Salta**, 20-ix-98, Museo Genova Coll. C. Emery (6 ♀♀ MCSN); **Santa Fé**, Sunchales, 12-xii-98, Museo Genova Coll., C. Emery (dono 1925) (5 ♀♀, 2 ♀♀ and 2 ♂♂ MCSN), St. Fe, Silvestri, (9 ♀♀, 1 ♀ MCZC); **Tucumán**, (6 ♀♀ MCZC). **BOLIVIA**, **Santa Cruz**, Pampa Grande, 18°06'S, 64°06'W, 17-xii-1993, P. S. Ward #12409 (5 ♀♀ and 1 ♂ (MCZC), 35 km SSE Flor de Oro, 13°50'S, 60°52'W, 450m, 1-xii-1993, P. S. Ward #12221 (6 ♀♀ MCZC). **PARAGUAY**, **Paraná**, R. Fiebrig (3 ♀♀, 3 ♀♀, MCZC, det. Etershank);. **CHILE**, **Talca**, Ch 26-xi-99, Museo Genova Coll. Emery (5 ♀♀ MCSN), Villa Rica, 14-x-90, Genova, Coll. C. Emery (21 ♀♀ MCSN).

***Solenopsis westwoodi* Forel**

Figs. 355-358; Map 84

fugax species complex*Solenopsis westwoodi* Forel, 1894: 100 (♂) BRAZIL (without locality)*Solenopsis westwoodi* var. *atticola* Forel, 1912: 7 (♂) ARGENTINA: Buenos Aires, Saladillo; Santschi, 1929: 298 (♀), **NEW SYNONYM***Solenopsis westwoodi* var. *platensis* Emery, 1906: 125, Fig. 7 (♂ ♀) ARGENTINA: Buenos Aires, Villa Catalina, **NEW SYNONYM***Solenopsis wasmannii* r. *transformis* var. *innocens* Forel, 1915c: 354 (♂) ARGENTINA (without locality) [unavailable name], **material referred here****Diagnosis.***Worker.* The worker is small and medium brown. The lateral and extralateral clypeal teeth are well developed. The head is coarsely punctate and the mesopleuron is mostly smooth and glossy.*Female.* The female is relatively large and golden brown with yellowish appendages. The frontal lobes are vertically striated. The ocelli as well as the propodeal spiracle are small.*Male.* Unknown.**Worker Description.**

Measurements (n=5). TL 1.44-1.56 (1.49); HL 0.408-0.420 (0.413); HW 0.360-0.390 (0.369); EL 0.036; ED 0.030; SL 0.264-0.270 (0.269); FSL 0.108-0.114 (0.113); CI 88.2-92.9 (89.5); SI 64.3-66.2 (65.1); PL 0.084; PW 0.132-0.144 (0.139); PI 58.3-63.6 (60.4); PPL 0.120; PPW 0.132-0.138 (0.136); PPI 86.9-90.9 (88.5); WL 0.324-0.330 (0.326); PSL 0.024-0.030 (0.029); PSW 0.024-0.030 (0.026).

Small, concolorous medium brown, head longer than wide, coarsely punctate; lateral and extralateral teeth well developed; clypeal carinae well developed; scape does not reach posterior lateral corner of head; eyes small, 3-5 ommatidia; notopropodeal suture well depressed, groove breaks sculpture of mesosoma; mesopleuron mostly smooth and glossy; thin striae on metapleuron; petiolar and postpetiolar nodes robust, petiole slightly wider than postpetiole viewed laterally; small tooth present at subpeduncular process; postpetiole lacking tooth or flange ventrally.

westwoodi – Argentina, Paraguay, Brazil

Compare with
fugax

fugax species complex

westwoodi 357

Hairy, scape and head have numerous erect and suberect hairs, as does mesosoma, petiole, postpetiole and gaster, hairs of several different lengths.

Female Description.

Measurements (n=1). TL 4.02; HL 0.618; HW 0.528; EL 0.180; ED 0.162; MOL 0.054; MOD 0.060; SL 0.402; FSL 0.180; CI 85.4; SI 65.1; PSL 0.060; PSW 0.054; PL 0.138; PW 0.264; PI 52.3; PPL 0.240; PPW 0.288; PPI 83.3; WL 0.780.

Moderately large, golden brown with dark yellow appendages; head rectangular, posterior border slightly concave, semi-coarsely punctate, dense; clypeus conspicuously concave between lateral teeth; lateral clypeal teeth well-developed; clypeal carinae well defined; frontal lobes vertically striated; scape does not reach posterior border of head; eye relatively large (approximately 144 ommatidia); ocelli small, oval; pronotum semi-coarsely punctate, dense; posterior propodeal margin angulate; metapleuron horizontally striated; petiolar node striated basally, peduncle with small angle ventrally; postpetiolar node striated, lacking tooth or flange ventrally.

Abundantly hairy, pilosity yellow to light brown; erect and suberect hairs of various lengths (0.03-0.18 mm) covering all body surfaces.

Biology and habitat. *Solenopsis westwoodi* was collected in the nest of *Atta (Acromyrmex) lundii* in Buenos Aires, Argentina (Forel 1912).

Distribution. Argentina, (Buenos Aires, Saladillo, Villa Catalina); Paraguay; Brazil (types without locality).

Discussion. It would be unlikely to confuse this species with any other South American species of the *fugax* complex, as the head is predominately smooth and shiny, with many scattered, semi-coarse punctures and the hairs on the mesosoma are of different lengths. It is also a medium brown ant, which is unusual for the *fugax* species complex.

Types of the varieties *atticola* and *platensis* as well as the type of *S. wasmannii* r. *transformis* var. *innocens* are identical to that of *S. westwoodi* and are not recognized as valid.

Type series. *Solenopsis westwoodi* Forel, Mayr Type, Brazil (lectotype ♀ [here designated] (MHNG), GENOVA coll. C. Emery (dono 1925) MUSEO (1 cotype ♀ MCSN). *Solenopsis westwoodi* var. *atticola* Forel, Argentina, Buenos Aires, La Plata, (Bruch) Forel Coll. (lectotype ♀ and 3 paralectotype ♀♀ [here designated] MHNG). *Solenopsis westwoodi* var. *platensis* Emery, 1906, Argentina, Buenos Aires, Villa Catalina (lectotype ♀, 3 paralectotype ♀♀, 1 paralecto-
westwoodi – Argentina, Paraguay, Brazil

358 *westwoodi*

fugax species complex

Compare with
fugax

type ♀ [here designated] MCSN). *Solenopsis wasmannii* r. *transformis* var. *innocens* Forel, Argentina (1 ♂ cotype MHNG).

Material examined. Type series and **BRAZIL**, Blumenau, M. Witte # 144, (3 ♀ ♀ MCZC). **PARAGUAY**, without locality, Balzan (coll. C. Emery, 1 ♀ MCSN).

westwoodi – Argentina, Paraguay, Brazil

Compare with
ocellata

pygmaea species complex

whitfordi 359

***Solenopsis whitfordi* Mackay, Moreno, & Pacheco,
NEW SPECIES**

Figs. 359-361; Map 85

pygmaea species complex

Diagnosis.

Worker. This is a minute, concolorous pale yellow species. The head is elongate with coarse cephalic punctures. The eye is minute and appears to have only one ommatidium. The lateral clypeal teeth are well developed and the extralateral teeth are weakly developed. It is moderately hairy with erect and suberect hairs of various lengths on all body surfaces.

Female and Male. Unknown.

Worker Description.

Measurements (n=2). TL 1.26; HL 0.360; HW 0.270-0.288 (0.279); EL 0.018; ED 0.012; SL 0.192-0.198 (0.195); FSL 0.072; CI 75.0-80.0 (77.5); SI 53.3-55.0 (54.2); PL 0.072; PW 0.090; PI 80.0; PPL 0.078; PPW 0.096; PPI 81.3; WL 0.240; PSL 0.012; PSW 0.012.

Head elongate, with abundant coarse punctures, larger than hairs that originate from them, thickened viewed laterally (~0.180 mm dorsally-ventrally), dorsal and ventral surfaces of head flat, sides of head straight, posterior border slightly concave; predominately yellow, darker mandibles; lateral clypeal teeth well developed, medial tooth absent, extralateral bumps poorly developed, scape extends slightly more than half length of head; eye clearly visible, usually light brown, one ommatidium; mesosoma very straight in profile, punctures on mesosoma and gaster similar, surfaces between punctures smooth and glossy; petiole as in other members of complex.

Short (~0.030 mm), erect hairs sparse on head; mesosoma with erect and suberect hairs (0.03 mm); suberect hairs (0.040 mm) on first tergum of gaster.

Biology and habitat. *Solenopsis whitfordi* was collected from an extraction of soil in a creosotebush shrubland area.

Etymology. This species is named to honor of our close friend and colleague, Walter G. Whitford, who has published numerous papers on the ants of the southwest USA

whitfordi – USA: New Mexico

Locality. Known only from the type locality, the Jornada Experimental Range in New Mexico (45K NE of Las Cruces).

Discussion. This species may be confused *S. ocellata*. The greater number of longer hairs present on the first tergum of the gaster of *S. ocellata* is the distinguishing feature. *Solenopsis ocellata* has more than 20 erect hairs (many over 0.05 mm) on the first tergum of the gaster, separating it from *S. whitfordi*, which usually has fewer than 20 hairs between 0.03-0.04 mm in total length. *Solenopsis ocellata* can further be separated from *S. whitfordi* in being consistently larger in total length and having striae on the mesopleuron, a feature absent in *S. whitfordi*.

Type series. Holotype ♂ (MCZC) and 3 paratype ♀♀ (CWEM, MCZC), **UNITED STATES, New Mexico, Dona Ana Co.**, Jornada Range, 415 m N of Las Cruces, 5-x-1983, W. Mackay #1312; same locality, 11-ix-1983, W. Mackay #1112 (5 ♀♀ CWEM).

Compare with
corticalis

molesta species complex

zeteki 361

***Solenopsis zeteki* Wheeler**

Figs. 362-365; Map 86

molesta species complex, *tenuis* subgroup

Solenopsis zeteki W. M. Wheeler, 1942: 204-205 (♀) PANAMA: Panamá (Canal Zone), Red Tank

Solenopsis torresi Snelling, 2001: 514-518 (♀ ♀ ♂) USA: Puerto Rico, Mona Island, **NEW SYNONYM**

Diagnosis.

Worker. This species is pale yellow with the lateral clypeal teeth reduced to blunt angles and the extralateral teeth absent. The eyes are relatively large with the length greater than 0.030 mm. The minor funicular segments are short, typically less than 0.10 mm in total length. The propodeum, petiole and postpetiole are smooth and shiny lacking any sculpturing.

Female. The female is small and pale yellow. The lateral clypeal teeth are not well developed and are present as blunt angles. The mesosomal sculpture is smooth and shiny. What is striking about this species is the large eye (0.192 mm length and 0.156 mm diameter) for such a small gyne and separates it from most other species of the *molesta* group.

Male. Not found.

Worker Description.

Measurements (n=6). TL 1.20-1.38 (1.27); HL 0.360-0.390 (0.385); HW 0.282-0.300 (0.295); EL 0.036-0.042 (0.041); ED 0.030; SL 0.240-0.258 (0.245); FSL 0.084-0.090 (0.085); CI 72.3-83.3 (76.7); SI 61.5-71.7 (63.7); PL 0.054-0.060 (0.059); PW 0.072-0.084 (0.076); PI 71.4-83.3 (77.8); PPL 0.072-0.078 (0.077); PPW 0.078-0.102 (0.092); PPI 76.5-92.3 (84.2); WL 0.240; PSL 0.018-0.024 (0.023); PSW 0.018-0.024 (0.022).

Small, concolorous pale yellow, head quadrate, longer than wide, cephalic punctures fine; lateral clypeal processes reduced to blunt angles, space between angles wide at 0.060 mm in length; extralateral processes absent; clypeal carinae well defined; eyes relatively large, oval-shaped; scape reaches $\frac{2}{3}$ length of head; minor funicular segments 3-8 shorter than 0.10 mm in total length; mesosomal sculpture smooth and shiny; propodeal spiracle small; posterior propodeal margin

zeteki—México south to Colombia, Caribbean

rounded; petiole wider than postpetiole viewed laterally; petiolar node triangular, peduncle lacking tooth or flange ventrally; postpetiolar node oval.

Moderately hairy, erect and suberect hairs of various lengths covering all body surfaces; long (0.120 mm) suberect hairs on pronotum and propodeum; hairs on petiole and postpetiole curve posteriorly.

Female Description.

Measurements (n=2), TL 3.3-3.36; HL 0.480-0.492; HW 0.408; EL 0.192-0.252; ED 0.150-0.156; MOL 0.060-0.066; MOD 0.048-0.060; SL 0.330-0.336; FSL 0.174-0.234; CI 82.9-85.0; SI 68.3-68.8; PSL 0.048; PSW 0.036-0.042; PL 0.138-0.168; PW 0.180-0.192; PI 76.7-114.3; PPL 0.174-0.210; PPW 0.234-0.240; PPI 87.5-134.5; WL 0.660-1.008.

Small, concolorous yellow; head longer than wide, fine cephalic punctures; lateral clypeal processes blunt angles, extralateral processes absent; clypeal carinae weakly defined; scape long, reaching $\frac{3}{4}$ length of head; minor funicular segments 3-8 relatively long; eyes large; mesosoma smooth and shiny; posterior propodeal margin rounded; petiole wider than postpetiole viewed laterally; petiolar node rounded, peduncle lacking tooth or flange ventrally; postpetiolar node oval.

Hairy; numerous erect and suberect hairs of various lengths covering all body surfaces; most hairs on propodeum, petiole, postpetiole and gaster curve posteriorly.

Biology and habitat. *Solenopsis zeteki* nests in the ground, are found loose on vegetation and are collected in bait traps (surface, subterranean and vegetation Vienna sausage) and pitfall traps from 110-1000 m. In Panama, *S. zeteki* was taken from a colony nesting in a cauline swelling of *Cordia alliodora* (Wheeler 1942). In Puerto Rico, *S. zeteki* was collected in old termite galleries in a dead branch of *Leucaena leucocephala* (Snelling 2001). It occurs in arid shrubland in México and Colombia.

Distribution. México (Veracruz) south to Colombia, Puerto Rico (Mona Island) and Saint Croix.

Discussion. The *Solenopsis zeteki* worker is similar to that of *S. corticalis* in coloration, the short minor funicular segments and weakly developed lateral clypeal teeth. However, the worker of *S. zeteki* is easily separated in having a much larger eye. If females are available, the female of *S. zeteki* is easily recognized as it has a large eye (0.192 mm maximum diameter), which covers about $\frac{1}{2}$ of the side of the head, compared to the much smaller eye of the female of *S. corticalis*.

zeteki –México south to Colombia, Caribbean

The small lateral clypeal teeth could cause confusion of this species with *S. azteca* (especially in the Caribbean). However, *S. zeteki* can be distinguished from *S. azteca* as it has a longer scape and a triangular petiolar node (more robust and rounded in *S. azteca*).

This species is difficult to separate from *S. pollux*. It is usually slightly smaller, but can be approximately equal in size. The lateral clypeal teeth of *S. pollux* are well developed and the extralateral processes are developed at least into an angle. The lateral teeth are usually absent in *S. zeteki*, but may be developed into small angles. The extralateral angles of *S. zeteki* are absent or developed into a wide, slightly expanded area. Specimens from Colombia are somewhat intermediate between the two, in having small, extralateral teeth, but have much less developed lateral clypeal teeth and are considered to be *S. zeteki*.

The specimens from México are nearly identical to those of the type series, except for being slightly darker in coloration and although no females were collected, these workers will be considered to be *S. zeteki*.

Snelling (2001) reported the new species, *Solenopsis torresi*, from Puerto Rico. *Solenopsis torresi* is identical to *S. zeteki* in color, size, the size of the eye in the workers and degree of development of the clypeal teeth. Moreover, the females of the type series are identical and *S. torresi* is synonymized.

Type series. *Solenopsis zeteki*, Panama (lectotype ♀, 19 paralectotype ♀ ♀ and 4 paralectotype ♀ ♀ [here designated], type # 26289 MZCZ). *Solenopsis torresi* Snelling, , Puerto Rico, Mona Island, 29-x-1991, R. R. Snelling & J.A. Torres, 91-34, R.R. Snelling 2001 (2 paratype ♀ ♀, 1 paratype ♀ CWEM).

Material examined. **COLOMBIA, Bolívar**, Zambrano, 110m, viii-1992, Many Roit (81 ♀ ♀ CWEM); **Valle del Cauca**, Buga, El Vintula Forest, 1000m, 17-xii-1994, R. Aldana # 17193 (8 ♀ ♀ CWEM), Loboguerrero, 26-vi-1989, F. Fernández #'s 11970, 11971, 11978, 11980, 11985, 11994, 12001, 12009, 12011 (83 ♀ ♀ CWEM); **COSTA RICA, Guanacaste**, Loma Barbudal, 3-vi-1989, ii-1990, S. Vinson #'s 12072, 12142, 12306, 13066, 13088, 13091, 13097, 13120, 13135, 13152, 13177, 13180, 13186, 13187, 13188, 13189, 13195, 13200, 13202, 13203, 13210, 13218, 13219, 13232 (68 ♀ ♀ CWEM). **MEXICO, Veracruz**, Rio Metlac nr El Fortín, 17-xii-1948, E. Ross # 17236 (1 ♀ CASC), 6.5 k N Tierra Blanca, 28-v-1988, W. Mackay #10443, 10446-9, 10451-4 (88 ♀ ♀ CWEM); **NICARAGUA, León**, Frasco, 20-ix-1988, J. M. Maes (8 ♀ ♀ CWEM). **ANGUILLA**, Island Harbour, 19-v-2006, J. Wetterer # 66 (2 ♀ ♀ MCZC), Meads Bay, 17-v-2006, J. Wetterer # 11 (1 ♀ MCZC). **BARBADOS**, Bath, 21-vi-2006, J. Wetterer #'s 440, 441 (2 ♀ ♀ MCZC), Foul Bay, 18-vi-2006, J. Wetterer # 381 (1 ♀ MCZC), Gemswick, 18-vi-2006, J. Wetterer # 380 (2 ♀ ♀ MCZC), Plumtree,

zeteki –México south to Colombia, Caribbean

364 *zeteki*

molesta Future Directions

Compare with
corticalis

20-vi-2006, J. Wetterer #'s 395, 397 (2 ♂♂ MCZC), Rockless, 20-vi-2006, J. Wetterer # 399 (1 ♂ MCZC), Trents, 20-vi-2006, J. Wetterer # 410 (1 ♂ MCZC), Walkers, 22-vi-2006, J. Wetterer # 453 (2 ♂ MCZC). **SAINT MARTIN**, Cole Bay Hill, 24-v-2006, J. Wetterer # 136 (3 ♂♂, 1 ♀ MCZC), Cupecoy, 25-v-2006, J. Wetterer # 149 (2 ♂♂, 2 ♀♀ MCZC), Pigeon Pea Hill, 23-v-2006, J. Wetterer # 123 (2 ♂♂ MCZC), Saint Jean road to Mt. Fortune, 24-v-2006, J. Wetterer # 139 (1 ♂ MCZC).

zeteki –México south to Colombia, Caribbean

Conclusion

The members of the thief ant group of the genus *Solenopsis* have had a notorious reputation of being difficult to identify for over 80 years. Creighton (1930) stated “Carlo Emery once characterized the genus *Solenopsis* as the *crux myrmecologorum*.” This sentiment is further supported by Brown (Agosti *et al.* 2000), in that “the genus *Solenopsis* is there waiting, but it cannot be said that it would make a very attractive subject for a Ph.D. thesis. The hope is that a Bolton or a Shattuck will soon have the courage (and time and money) to take it on.”

This reputation is merited in that the thief ant group has been in a state of taxonomic confusion for over a century, with many available names that overestimate the species richness of the group in the New World. Additionally, many of the species descriptions are short and uninformative, lack illustrations and contain little locality data. There is a shortage of functional identification keys and a high level of expertise is required to utilize them. Although these are New World species, the majority of the types are located in European collections and are deteriorating through time. Our work should be viewed as part filter and part filing cabinet, as we address these shortfalls for all thief ant taxa that occur in the New World.

Longino (2002) and LaPolla (2004) cited the steps Hillis (1988), considered in the history of taxonomic progression, which apply to this work, 1) a typological phase when many species, subspecies, varieties, etc. are described and the number of taxa increases; 2) a biological species phase when a large number of synonymies are proposed and the number of taxa decreases; and 3) a phylogenetic species phase when the polytypic species are resolved into complexes of closely related forms and the number of taxa increases yet again. The present state of the thief ant group of *Solenopsis* falls at the beginning of the third, phylogenetic phase with the completion of this study. As seen with LaPolla (2004) in his revision of *Acropyga*, we have proposed many synonyms, some of which may be shown by future investigation to be valid species. The result of this revision should not be viewed as a definitive work, but as a foundation which provides information for continued research.

The utility of this revision is 5-fold, 1) a reduction in names to a more manageable and more realistic number that hopefully reflects the true diversity of this group in the New World, 2) taxonomic groupings that should be viewed as hypotheses of evolutionary relationships that should be tested by further studies, 3) identification keys to species and species complexes accompanied by illustrations and locality maps, 4) a digital record of aging of type specimens and 5) optimistically erasing the stigma that members of the thief ant group of *Solenopsis* are difficult to identify.

Future Directions

Taxonomy is a subdivision of systematics and consists of the following three connected procedures, 1) identification or referring an unknown specimen to a previously classified and named group), 2) classification or ordering organisms into groups and 3) nomenclature or naming groups of organisms according to the Code of Biological Nomenclature (Mayr and Ashlock 1991, Winston 1999). Thus, taxonomic procedure is the process of identifying, recognizing, researching, describing or redescribing taxa for publication according to the rules of nomenclature (Winston 1999). "Classification makes organic diversity available to the other biological fields" (Mayr and Ashlock 1991).

The use of morphological characters has dominated descriptions and classifications accomplished to date within the genus *Solenopsis*. Future researchers may wish to address the validity of the large number of synonyms or the proposed species complexes using phenetic analyses from measurements of morphometric characters. Digital micrographs were taken for a majority of the type specimens examined. These can be used for phenetic analyses or as a reference when types are not available (see Pacheco 2007). We created species complexes with a gestalt approach in which we formed groupings based on perceived similarities and distinctions between *Solenopsis* species. Examination of specimens revealed recurring patterns in character states. These shared morphological characters can be used to categorize species into assemblages (species complexes). These species complexes were created for taxonomic utility and are not equated to subgenera, as they may not reflect monophyletic lineages. Nonetheless, they should be viewed and tested as hypotheses of evolutionary relationships. Our goals were to ease the identification of these species in order to increase samples sizes in collections around the New World, in an effort to allow fresh material to be identified, dissected to view genitalic structures and to have specimens analyzed using molecular techniques. The aim of this revision was to build this foundation for future researchers to accomplish systematic analyses to resolve the relationships of the species in this fascinating group.

By strictly using phenotypic characters such as body structure, hair, etc., convergence (similarity not based on common ancestry) arises and misclassification can occur. This can also occur in cryptic species, where morphologically indistinguishable taxa are named incorrectly considered as one. Correspondingly, new advances in the field of molecular systematics and taxonomy have helped to rectify many of these errors. This was seen in Roca *et al.* (2001) where genetic analysis revealed that African elephants are two distinct species. There are forest dwelling elephants and those that roam savannas on the African continent. Both

populations are morphologically similar but genetically distinct, thus separating them into two species. Kobayashi (2000) used mitochondrial DNA as well as karyotypes in a study that revealed two genetically distinct species of a once considered highly polymorphic ladybird beetle. The use of DNA markers for phylogenetic analysis should be the focus for future researchers of the thief ants.

Lineages or classifications based on morphology are now being refined or altered by new molecular studies. Many taxa were first classified using only morphological data, but the current movement is to reanalyze these relationships using molecular characters, particularly mitochondrial genes. Sequence data or barcoding from mitochondrial genes such as the cytochrome oxidase (COI and COII) gene and cytochrome B (*cytB*), are being implemented to identify both taxonomically diverse and closely related species (Carew *et al.* 2005). The following three articles exemplify this trend, 1) Kumar *et al.* (2007) in which DNA barcoding of the COI gene was a useful tool for identifying morphologically similar mosquito species, 2) Rao *et al.* (2006) in which sequences from the mitochondrial *cytB* gene provided an accurate, rapid method of identifying two introduced, pestiferous crane fly larvae in North America and 3) Outlaw and Voelker (2006) used segments of mitochondrial genes to bring the first phylogenetic assessment of members of the flycatcher genus *Ficedula*, a notoriously difficult genus to taxonomists due to similar morphological characters among the species.

Additionally, the mitochondrial cytochrome oxidase I and II (COI, COII) genes appear to be excellent for phylogenetic comparison of ant genera and species. Moreau *et al.* (2006) used COI as well as five nuclear genes in their analyses of ant subfamily phylogeny. This was also demonstrated by Wetterer *et al.* (1998) where they used COI and COII to distinguish between genera within the ant tribe Attini. This region has also been successfully employed in other lower level phylogenetic studies of Hymenoptera and other insects (e.g., Willis *et al.* 1992, Spicer, 1995). Moreover, mitochondrial sequence data was useful in distinguishing between cryptic species of the Palearctic ant genus *Tetramorium* (Schlick-Steiner *et al.* 2006). Hopefully, these methods will facilitate molecular work on the thief ant group of *Solenopsis*.

Is the genus *Solenopsis* monophyletic? Probably not. Although, we were unable to resolve the relationships of the thief ants within *Solenopsis*, these discrepancies may be resolved as many of the missing species can now be identified and examined. Phylogenetic analyses based on morphology or DNA markers may be feasible in the future, including the resolution of the relationship of thief ants to fire ants. Moreover, species complexes have been proposed and should be tested by cladistic analysis. Within *Solenopsis*, the hierarchy of these groups should be investigated. Additionally, given the position of *Solenopsis* within the Solenopsidini and the alpha-taxonomy as revised here, its sister group(s) may be addressed.

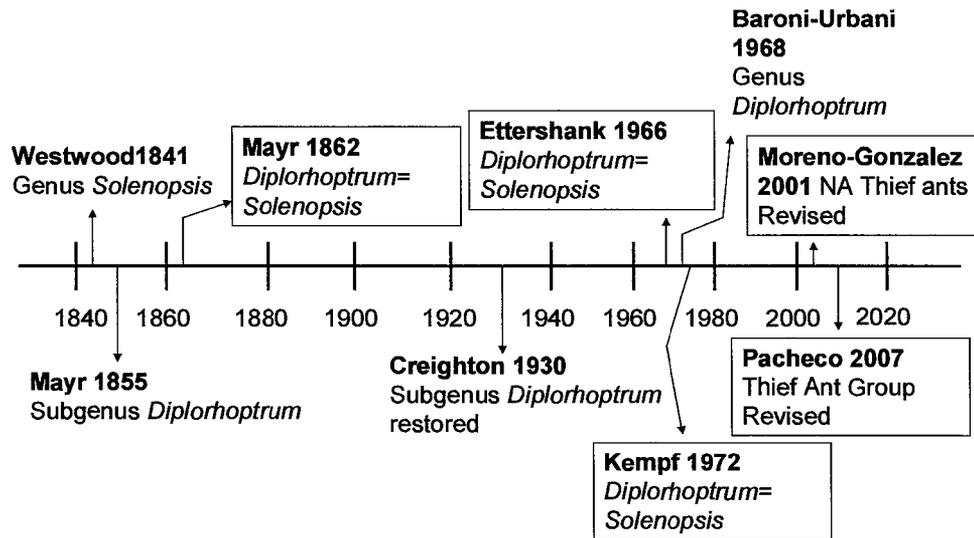


Fig. 1. The history of the taxonomic status of *Diplorhoptrum* within *Solenopsis*.

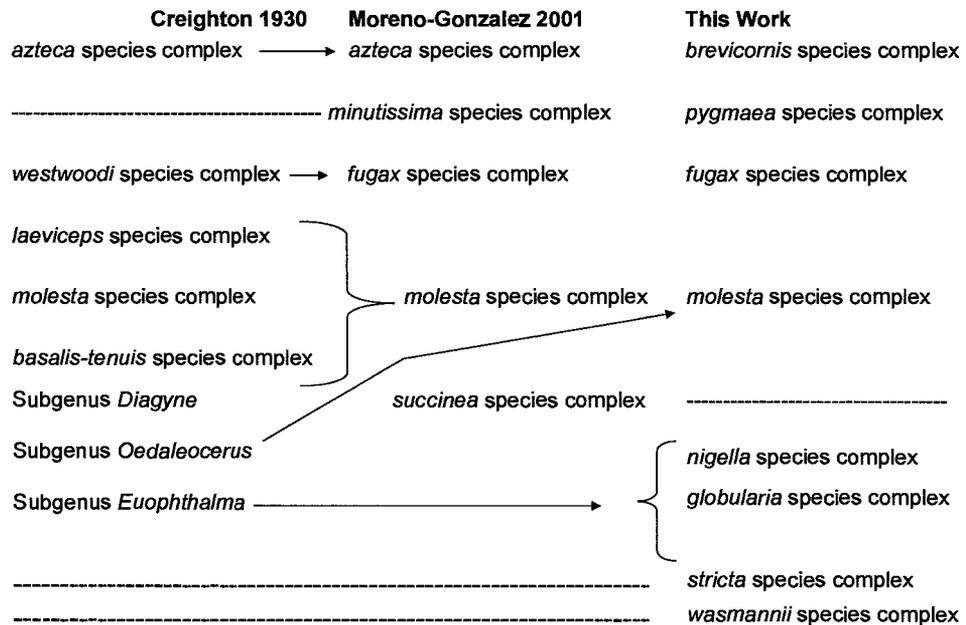


Fig. 2. Complex species history within the “Thief ants” (Modified from Moreno-Gonzalez 2001).

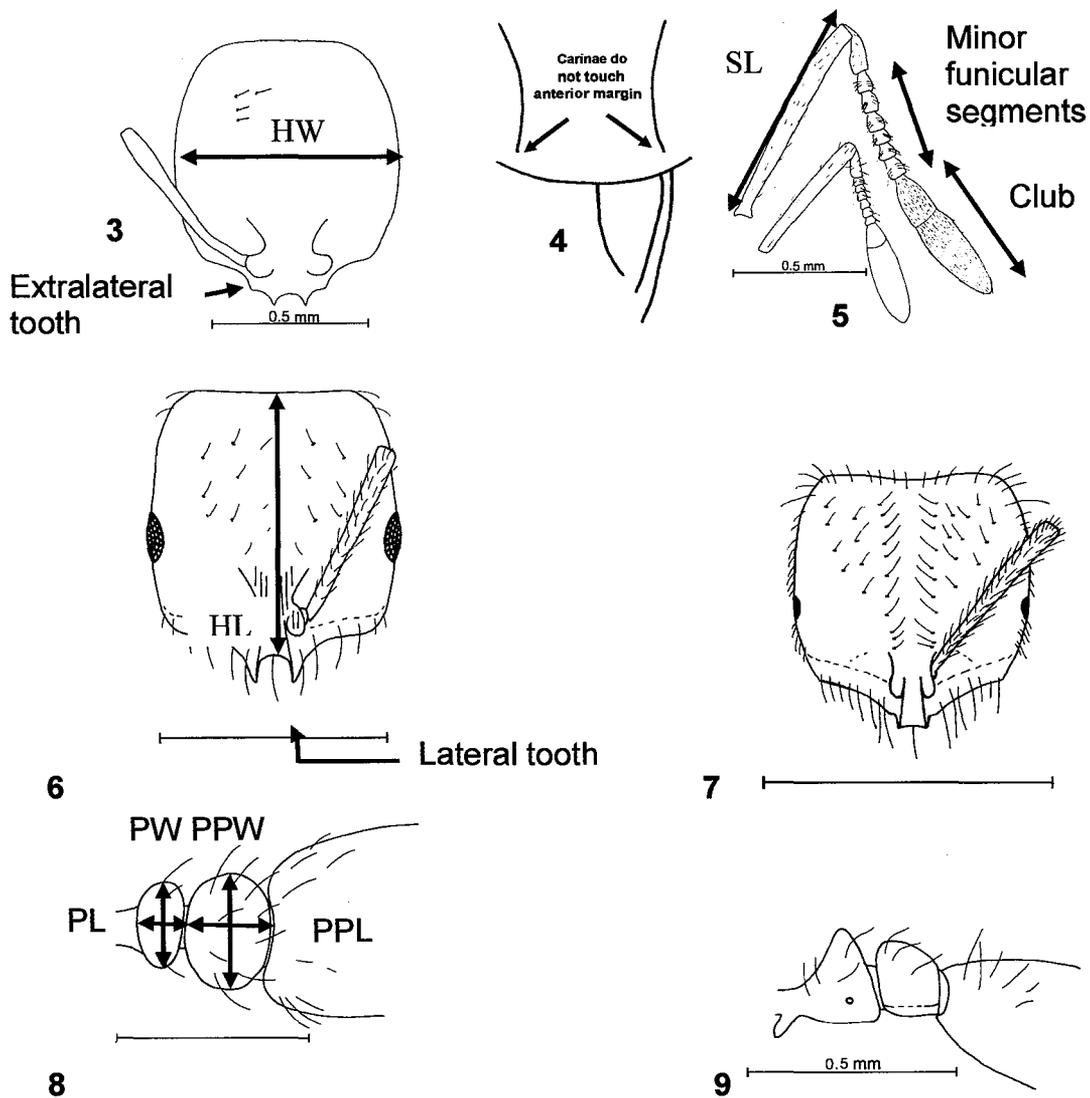


Fig. 3. Head of a worker of *S. fugax* (scale bar = 0.5 mm). **Fig. 4.** Clypeal enlargement of a worker of *S. iheringi*. **Fig. 5.** Antennae of *S. geminata* (upper) and *S. hayemi* workers. (Moreno-Gonzalez, 2001). **Fig. 6.** Head of the worker of *S. emiliae*. **Fig. 7.** Head of the worker of *S. molesta*. **Fig. 8.** Petiole and postpetiole of a worker of *S. globularia* (viewed laterally and dorsally). **Fig. 9.** Petiole and postpetiole of a worker of *S. andina*. (Abbreviations follow those in the Measurement and Indices section).

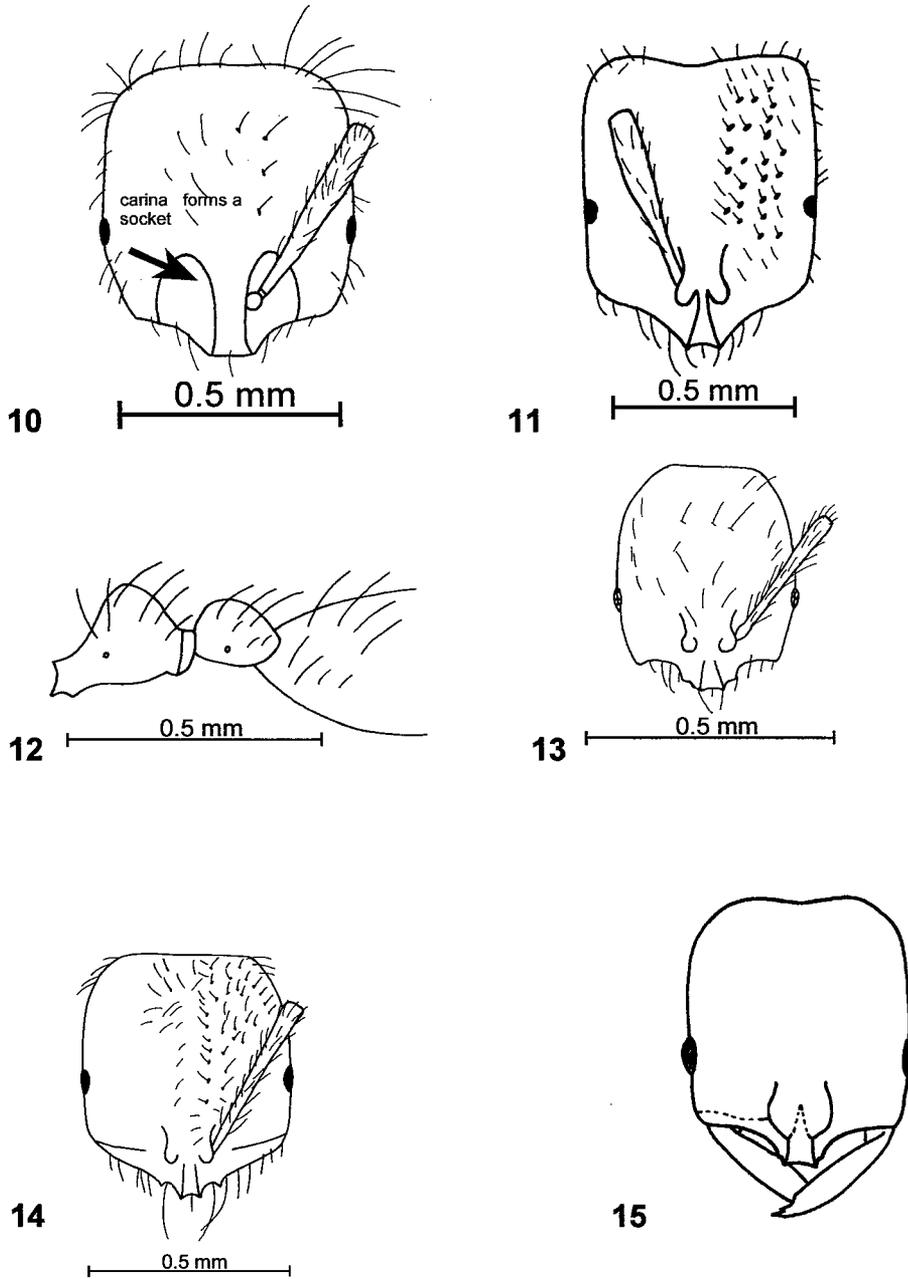


Fig. 10. Head of a worker of *S. bicolor* (lectotype of *S. spei*). **Fig. 11.** Head of a worker of *S. goeldii*. **Fig. 12.** Petiole and postpetiole of a worker of *S. stricta*. **Fig. 13.** Head of a worker of *S. franki*. **Fig. 14.** Head of a worker of *S. germani*. **Fig. 15.** Head of the worker of *S. bucki* (From Kempf, 1973).

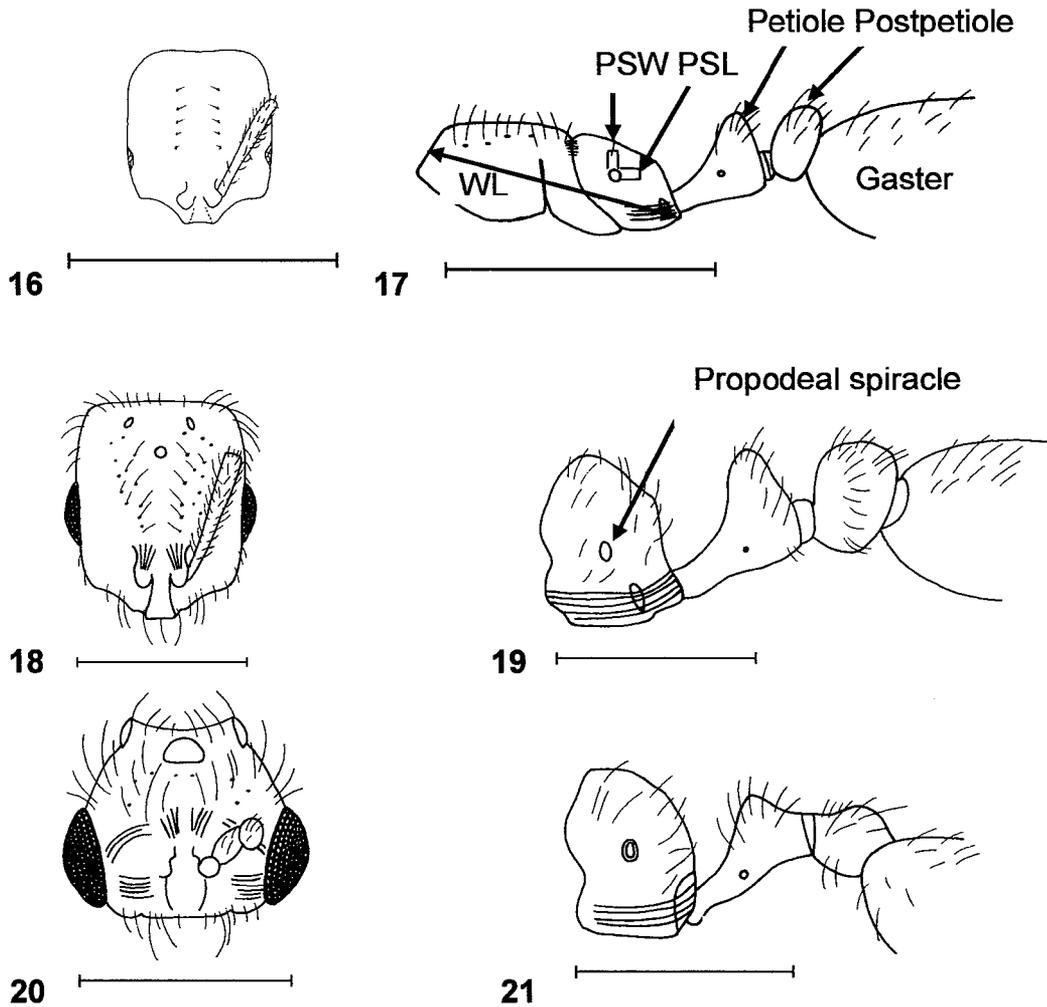


Fig. 16. Head of a worker of *S. abdita* (Modified from Moreno-Gonzalez, 2001). **Fig. 17.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. abdita*. **Fig. 18.** Head of a female of *S. abdita*. **Fig. 19.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. abdita*. **Fig. 20.** Head of a male of *S. abdita*. **Fig. 21.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. abdita* (scale bars = 0.5 mm). (Abbreviations follow those in the Measurement and Indices section).

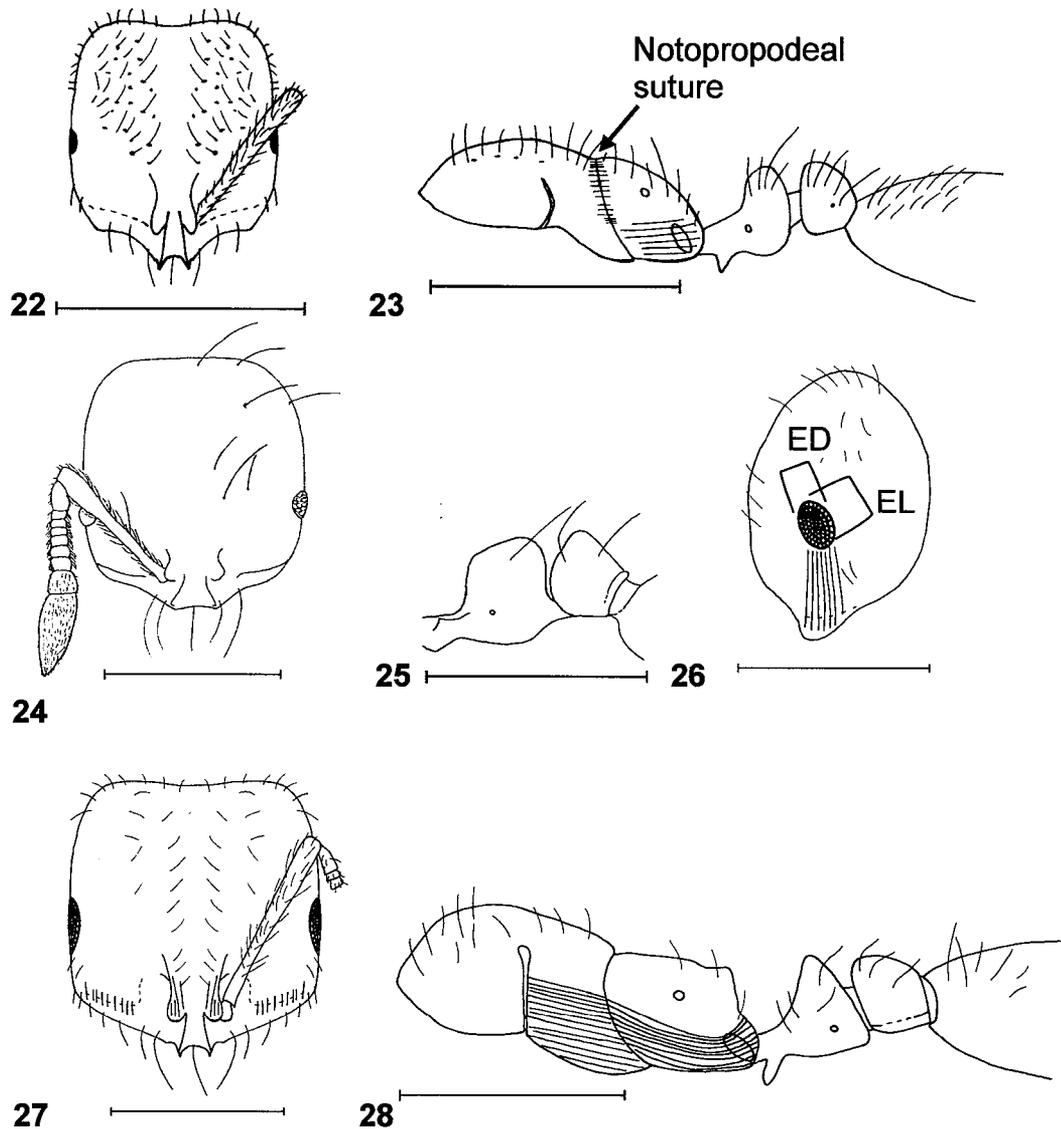


Fig. 22. Head of the worker of *S. abjectior* (holotype). **Fig. 23.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. abjectior* (holotype) (scale bars = 0.5 mm). **Fig. 24.** Head of a worker of *S. altinodis* (from Moreno-Gonzalez 2001). **Fig. 25.** Petiole and postpetiole of a worker *S. altinodis* (from Moreno-Gonzalez 2001) (scale bars = 0.5 mm). **Fig. 26.** View of side head of a worker of *S. andina* (lectotype). **Fig. 27.** Head of the worker of *S. andina* (lectotype). **Fig. 28.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. andina* (lectotype) (scale bars = 0.5 mm). (Abbreviations follow those in the Measurement and Indices section).

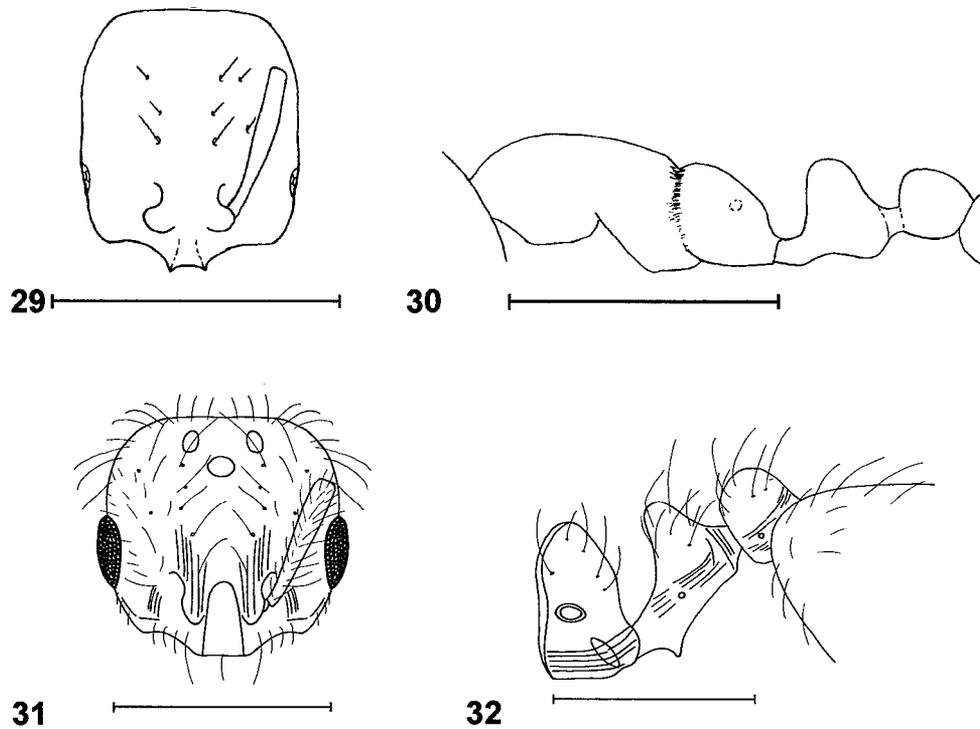


Fig. 29. Head of a worker of *S. azteca* (modified from Moreno-Gonzalez, 2001). **Fig. 30.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. azteca* (from Moreno-Gonzalez, 2001). **Fig. 31.** Head of a female of *S. azteca*. **Fig. 32.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. azteca* (scale bars = 0.5 mm).

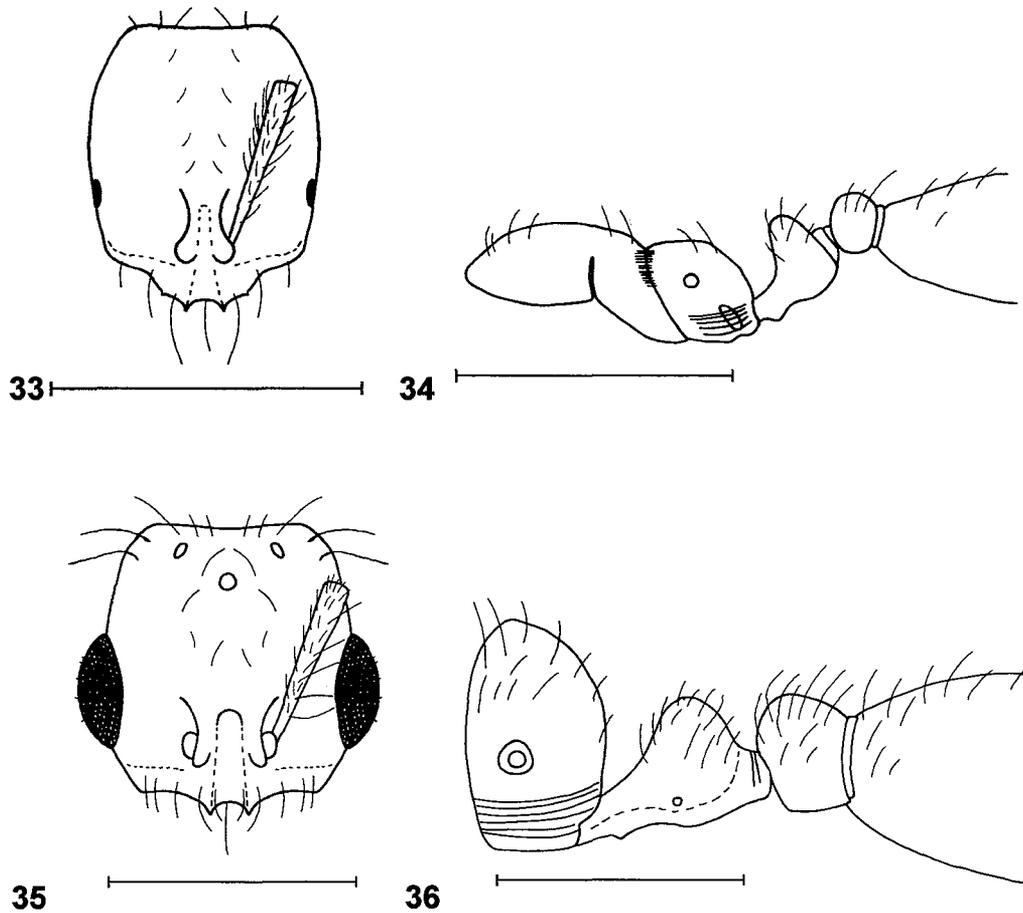


Fig. 33. Head of a worker of *S. basalis* (lectotype *S. basalis urichi*). **Fig. 34.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. basalis* (lectotype *S. basalis urichi*). **Fig. 35.** Head of a female of *S. basalis* (paralectotype *S. basalis urichi*). **Fig. 36.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. basalis* (paralectotype *S. basalis urichi*) (scale bars = 0.5 mm).

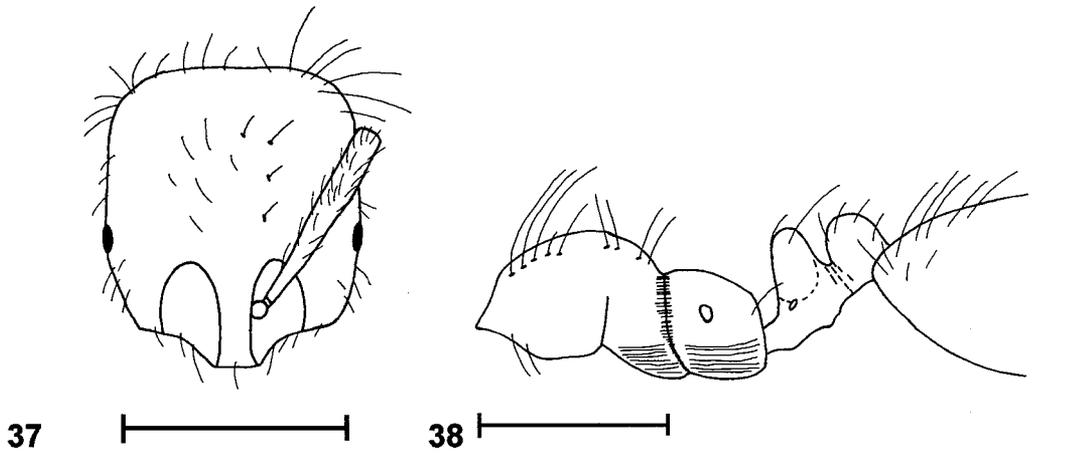


Fig. 37. Head of a worker of *S. bicolor* (lectotype of *S. spei*). **Fig. 38.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. bicolor* (lectotype *C. spei*) (scale bars = 0.5 mm).

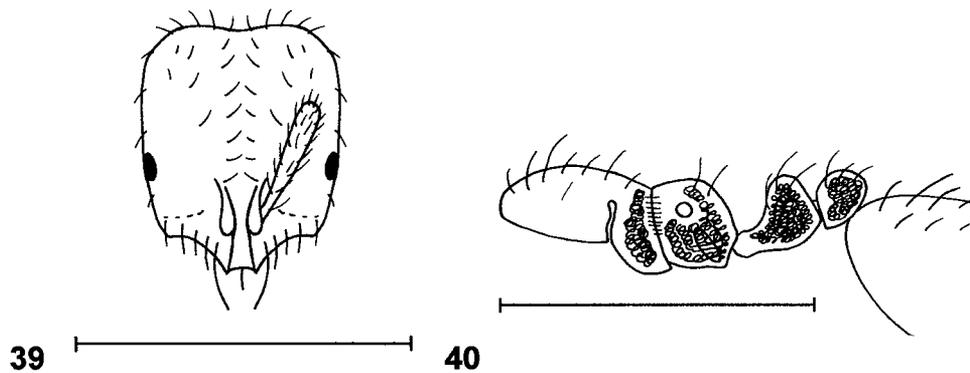


Fig. 39. Head of a worker of *S. brevicornis*. **Fig. 40.** Mesosoma of a worker of *S. brevicornis* (scale bars = 0.5 mm).

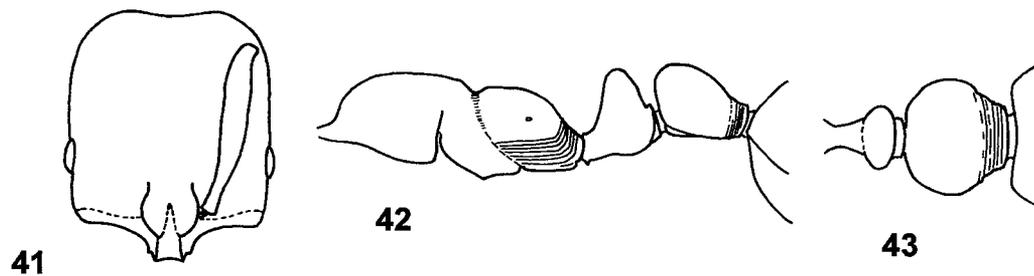


Fig. 41. Head of the worker of *S. bucki* (holotype, modified from Kempf 1973). **Fig. 42.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker of *S. bucki* (holotype, modified from Kempf 1973). **Fig. 43.** Dorsal view of petiole and postpetiole of the worker of *S. bucki* (holotype, modified from Kempf 1973).

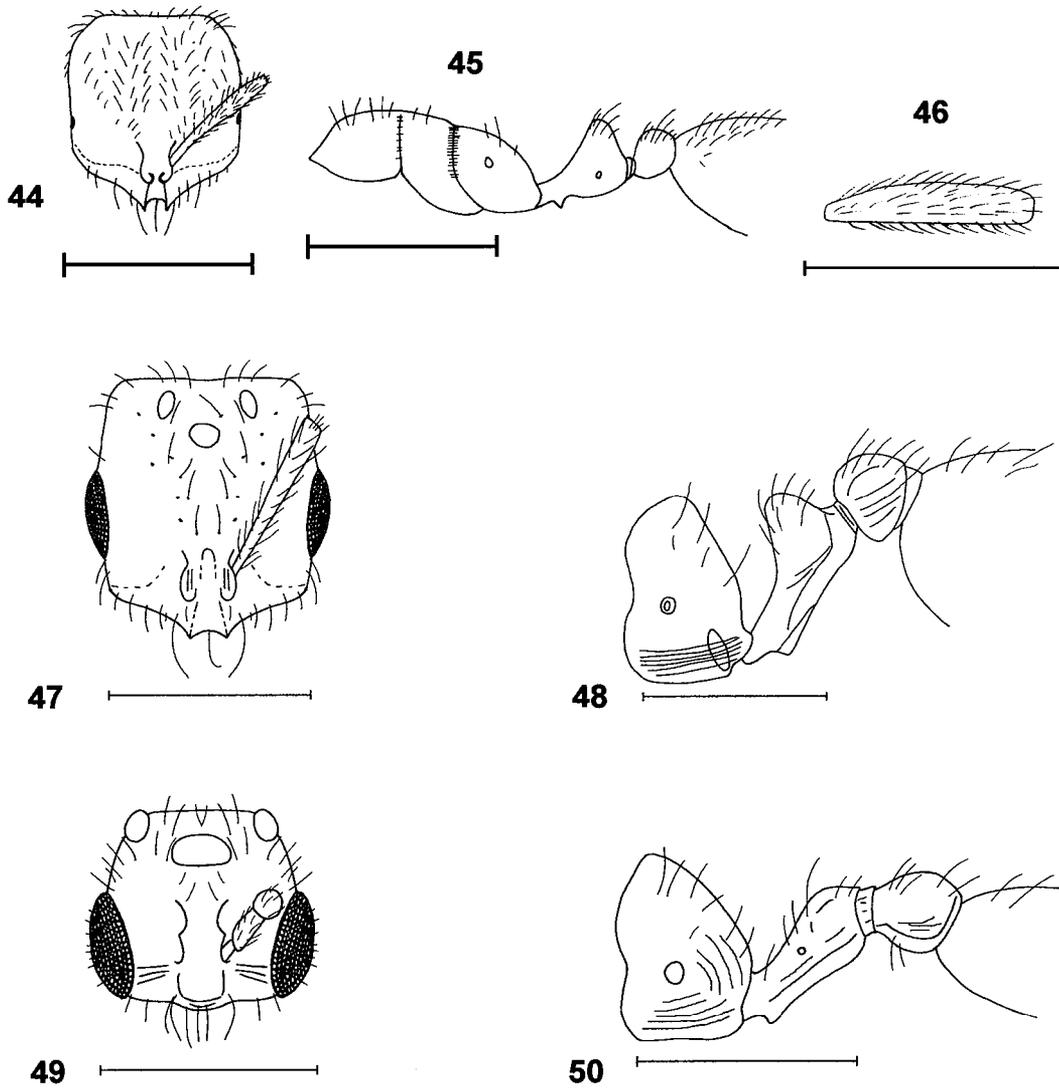


Fig. 44. Head of a worker of *S. carolinensis*. **Fig. 45.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. carolinensis*. **Fig. 46.** Posterior left tibia of a worker of *S. carolinensis* (Moreno-Gonzalez, 2001). **Fig. 47.** Head of a female of *S. carolinensis* (female of *S. truncorum*). **Fig. 48.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. carolinensis*. **Fig. 49.** Head of a male of *S. carolinensis*. **Fig. 50.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. carolinensis* (scale bars = 0.5 mm).

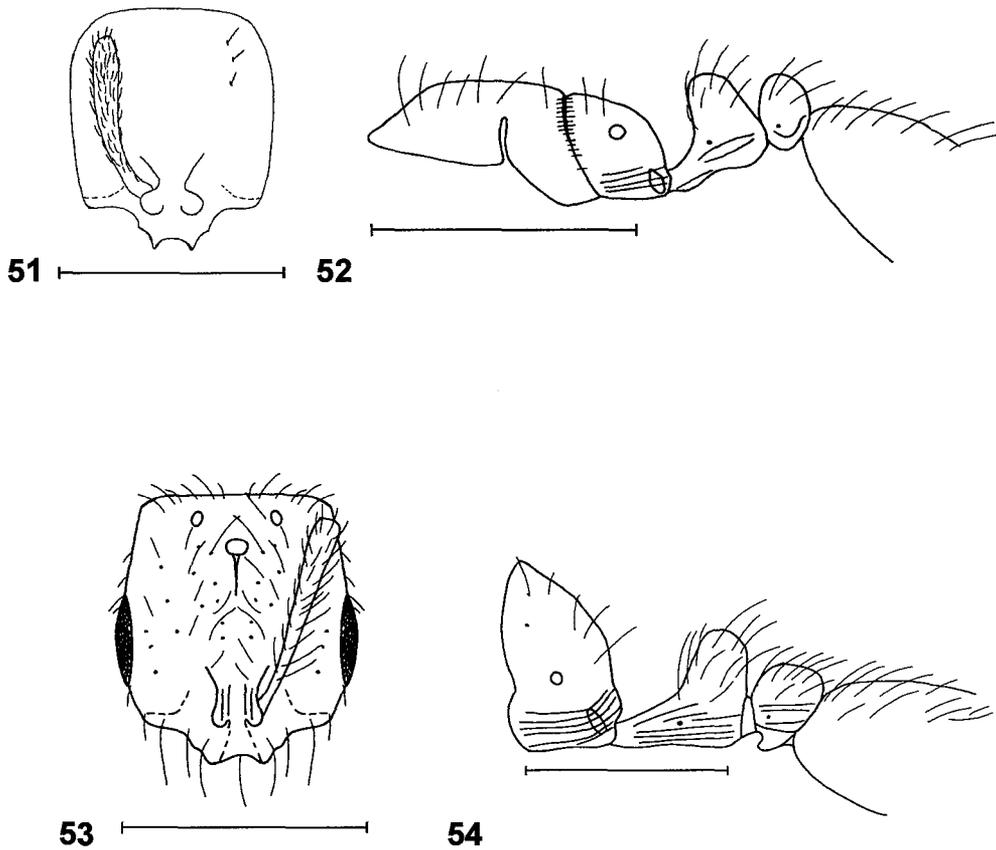


Fig. 51. Head of a worker of *S. castor* (from Moreno-Gonzalez 2001). **Fig. 52.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. castor*. **Fig. 53.** Head of a female of *S. castor*. **Fig. 54.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. castor* (scale bars = 0.5 mm).

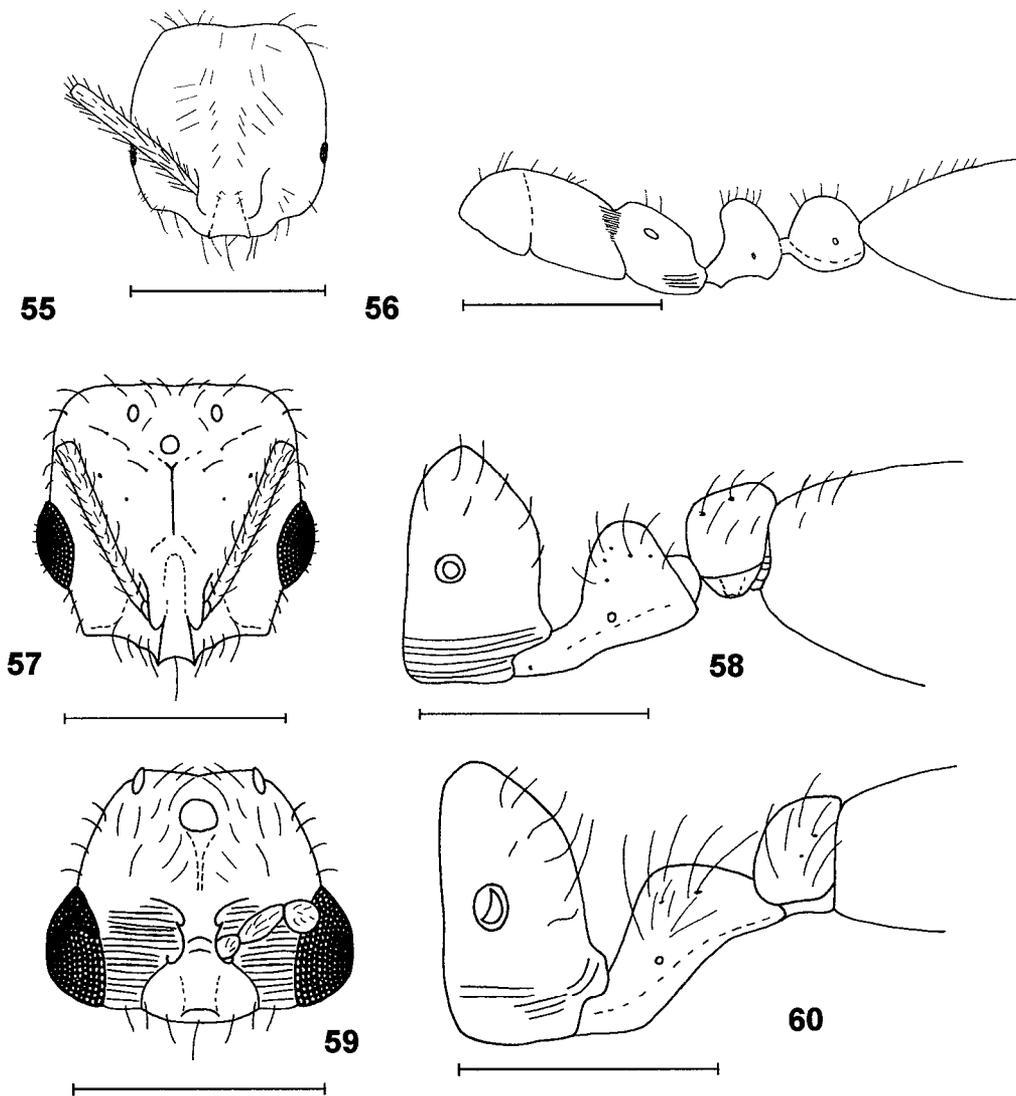


Fig. 55. Head of a worker of *S. clytemnestra* (lectotype *S. braziliiana*). **Fig. 56.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. clytemnestra* (lectotype *S. braziliiana*). **Fig. 57.** Head of a female of *S. clytemnestra* (paralectotype *S. clytemnestra leda*). **Fig. 58.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. clytemnestra* (paralectotype *S. clytemnestra leda*). **Fig. 59.** Head of a male of *S. clytemnestra* (lectotype *S. clytemnestra bruchi*). **Fig. 60.** Propodeum, petiole and postpetiole of a male *S. clytemnestra* (lectotype *S. clytemnestra bruchi*) (scale bars = 0.5 mm).

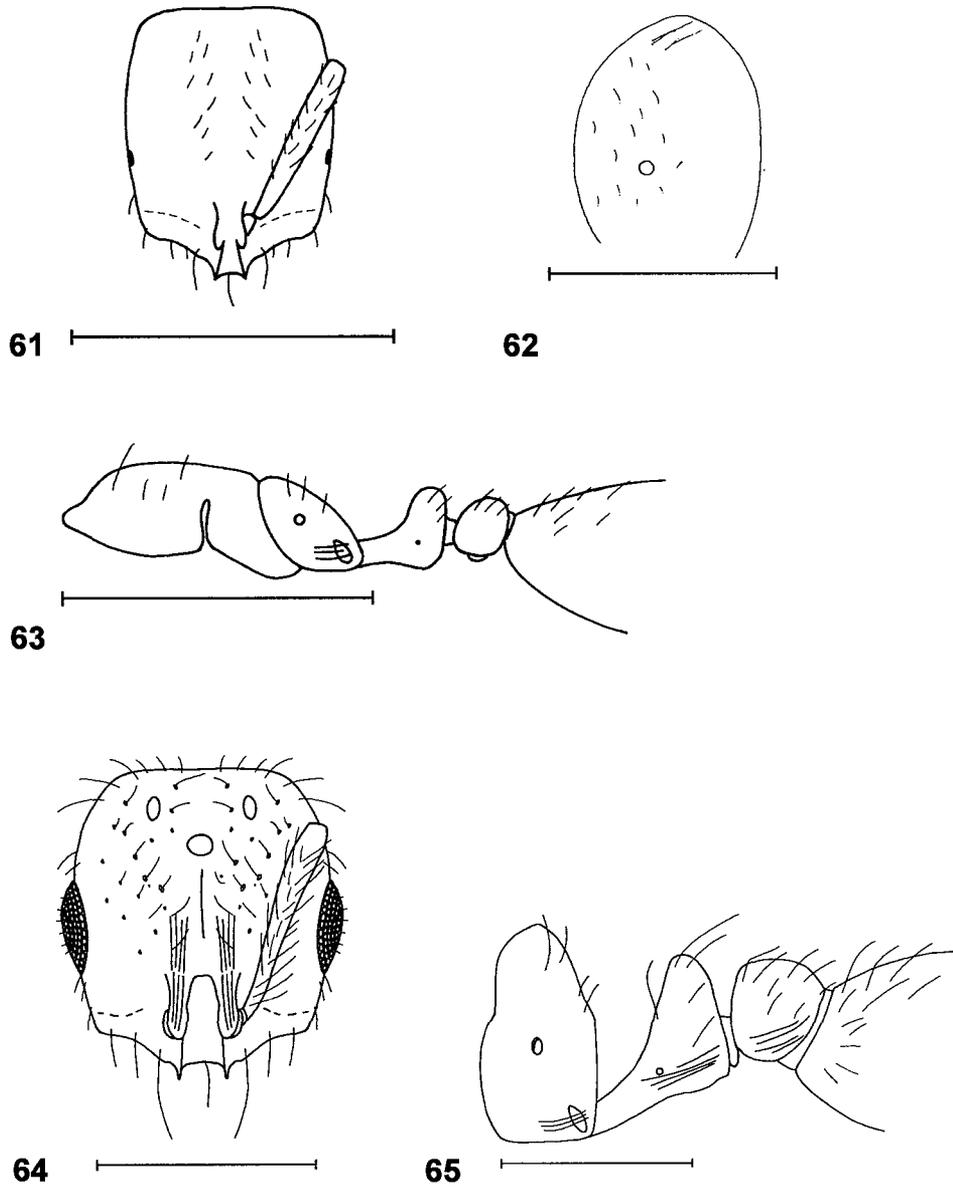


Fig. 61. Head of a worker of *S. conjurata*. **Fig. 62.** Side of the head of a worker of *S. conjurata* (from Moreno-Gonzalez 2001). **Fig. 63.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. conjurata*. **Fig. 64.** Head of a female of *S. conjurata*. **Fig. 65.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. conjurata* (scale bars = 0.5 mm).

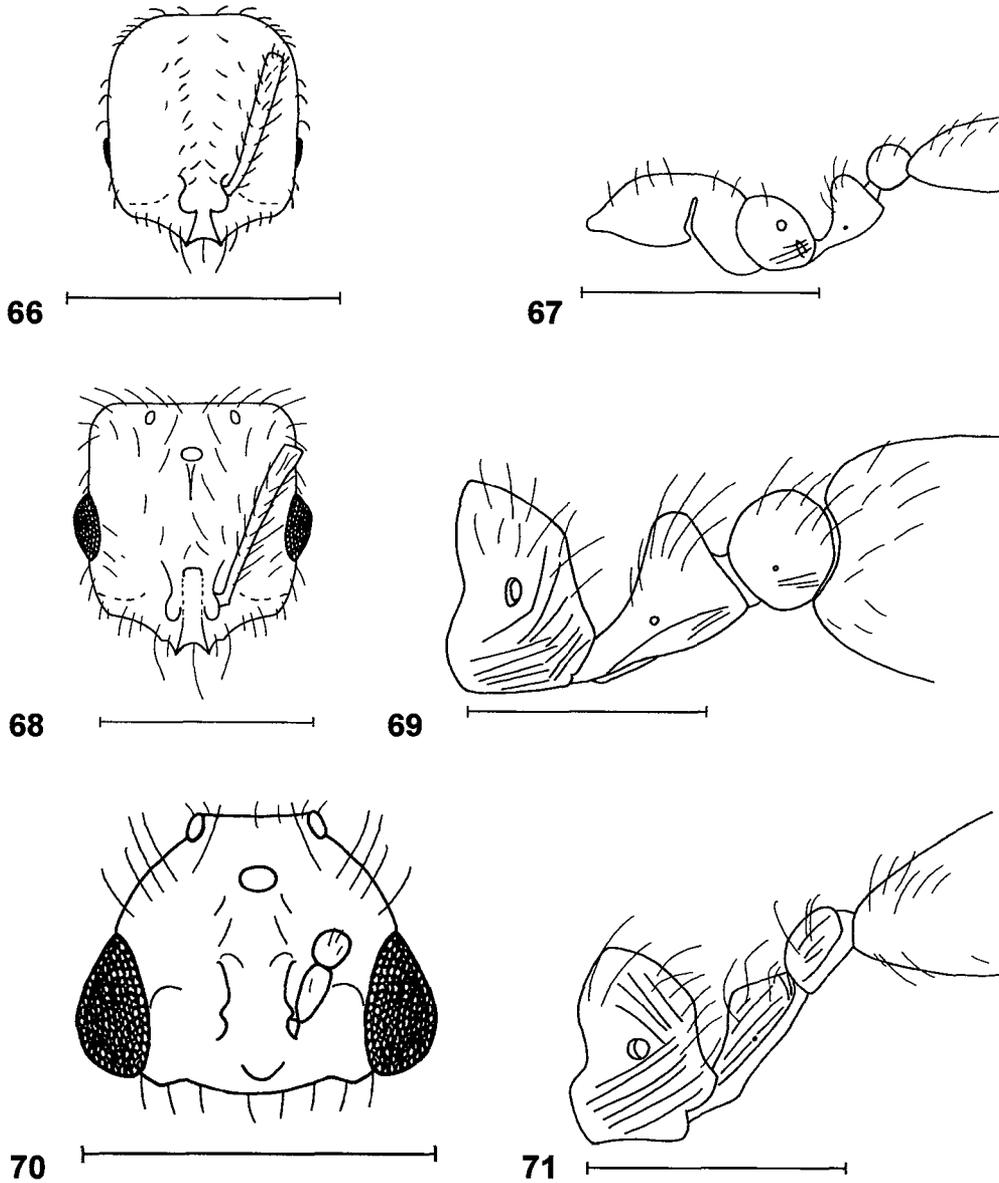


Fig. 66. Head of a worker of *S. corticalis*. **Fig. 67.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. corticalis*. **Fig. 68.** Head of a female of *S. corticalis*. **Fig. 69.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. corticalis*. **Fig. 70.** Head of a male of *S. corticalis*. **Fig. 71.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. corticalis* (scale bars = 0.5 mm).

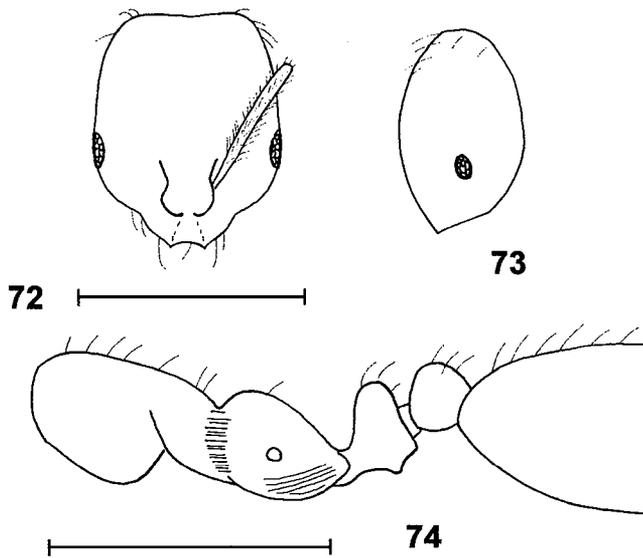


Fig. 72. Front view of the head of a worker *S. decipiens*. **Fig. 73.** side view of head of *S. decipiens*. **Fig. 74.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. decipiens* (scale bars = 0.5 mm).

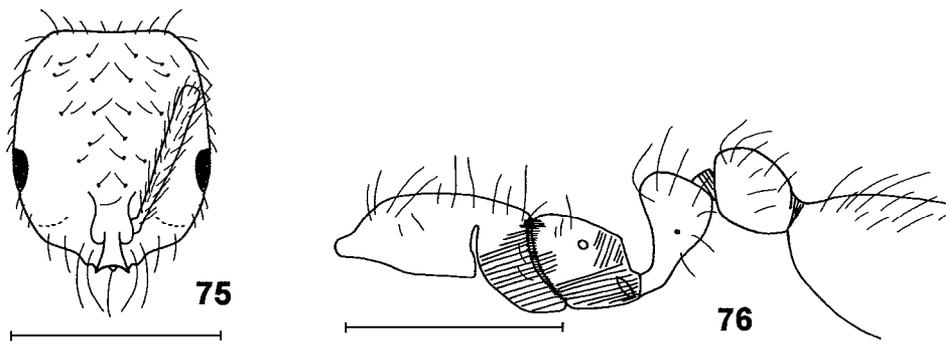


Fig. 75. Head of the worker of *S. desecheoensis* (lectotype). **Fig. 76.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker of *S. desecheoensis* (lectotype) (scale bars = 0.5 mm).

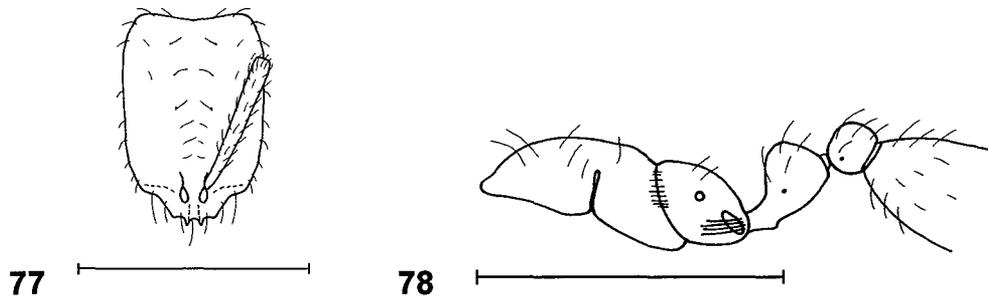


Fig. 77. Head of a worker of *S. dysderces* (paratype). **Fig. 78.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker of *S. dysderces* (paratype) (scale bars = 0.5 mm).

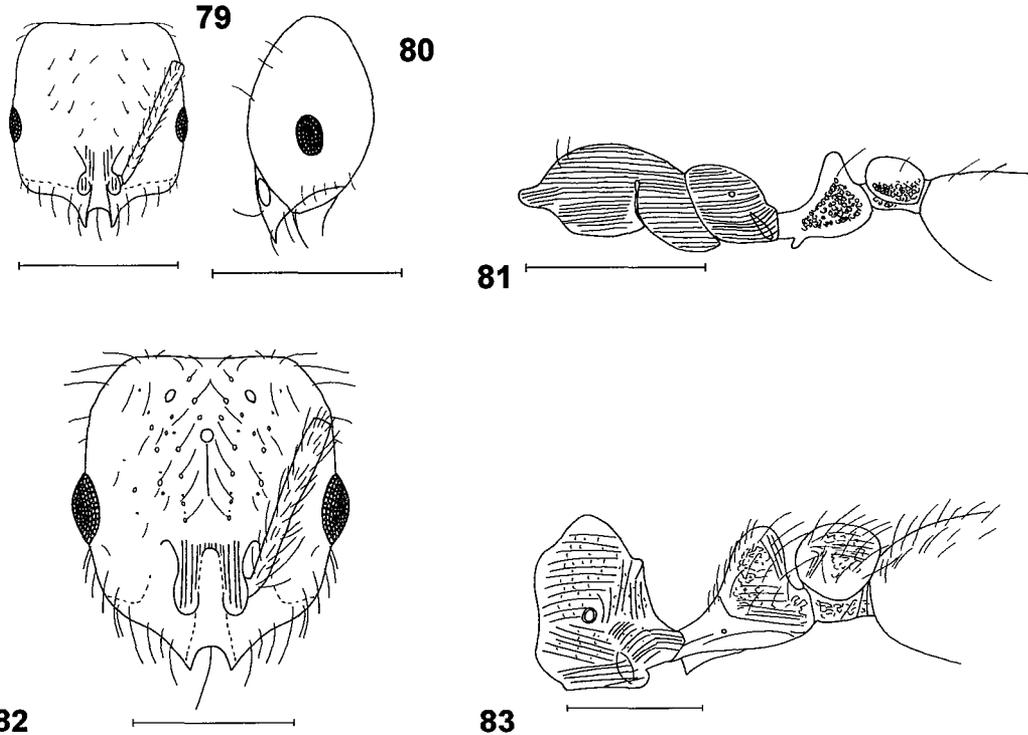


Fig. 79. Head of a worker of *S. emiliae* (lectotype). **Fig. 80.** Side of the head of the worker of *S. emiliae* (lectotype). **Fig. 81.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. emiliae* (lectotype). **Fig. 82.** Head of a female of *S. emiliae* (paralectotype *S. metanotalis pelotana*). **Fig. 83.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. emiliae* (paralectotype of *S. metanotalis pelotana*) (scale bars = 0.5 mm).

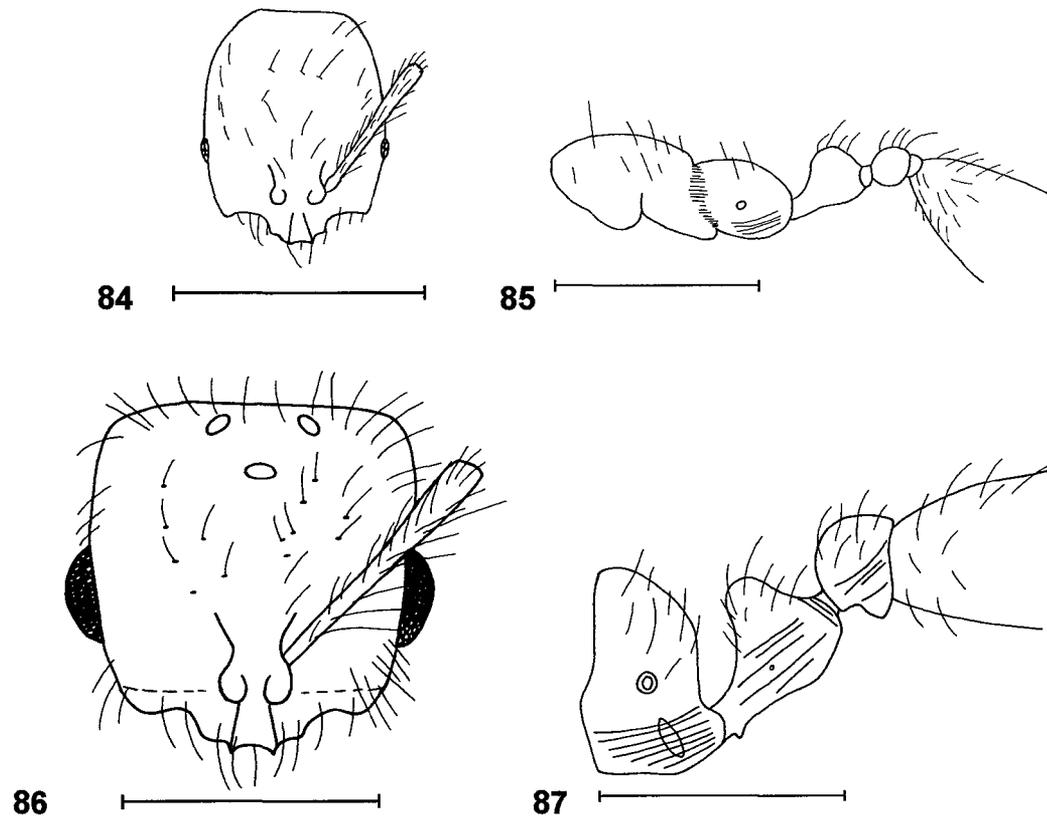


Fig. 84. Head of the worker of *S. franki* (lectotype). **Fig. 85.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. franki* (lectotype). **Fig. 86.** Head of the female of *S. franki* (paralectotype). **Fig. 87.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. franki* (paralectotype) (scale bars = 0.5 mm).

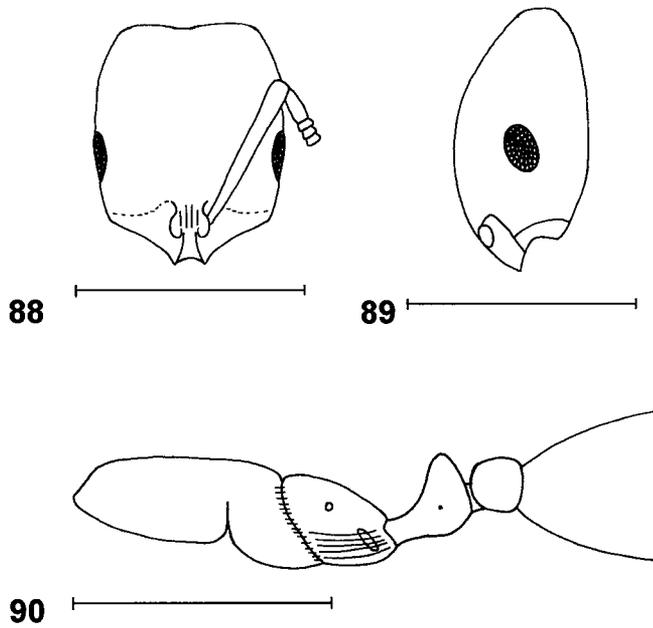


Fig. 88. Head of a worker of *S. gensterblumi* (lectotype *S. prevalens*). **Fig. 89.** Side head of a worker of *S. gensterblumi* (lectotype *S. prevalens*). **Fig. 90.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. gensterblumi* (lectotype *S. carettei*) (scale bars = 0.5 mm).

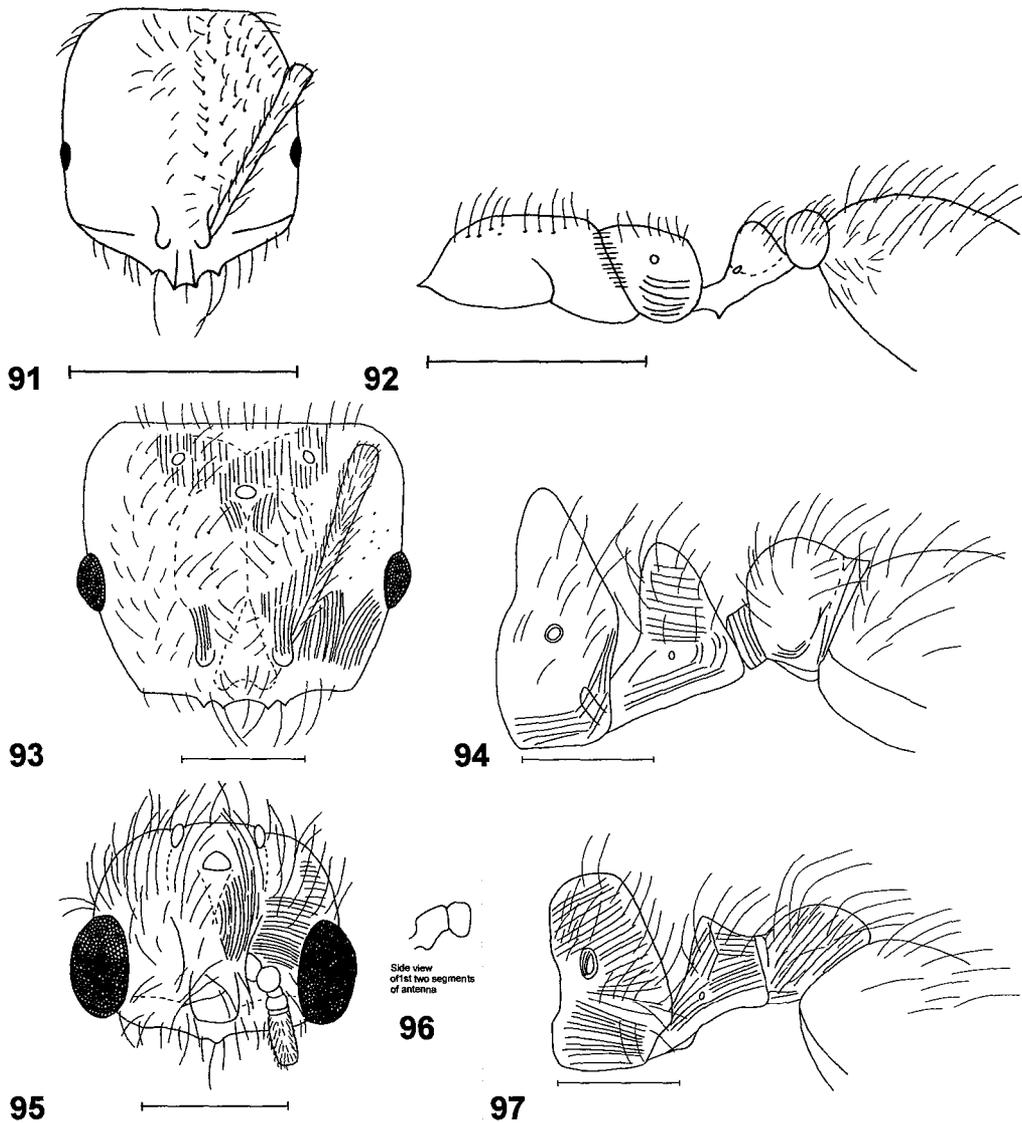


Fig. 91. Head of the worker of *S. germaini* (lectotype). **Fig. 92.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. germaini* (lectotype). **Fig. 93.** Head of the female of *S. germaini* (paralectotype). **Fig. 94.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. germaini* (paralectotype). **Fig. 95.** Head of the male of *S. germaini* (paralectotype). **Fig. 96.** Antennal segments 1 and 2 of the male of *S. germaini* (paralectotype). **Fig. 97.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. germaini* (paralectotype) (scale bars = 0.5 mm).

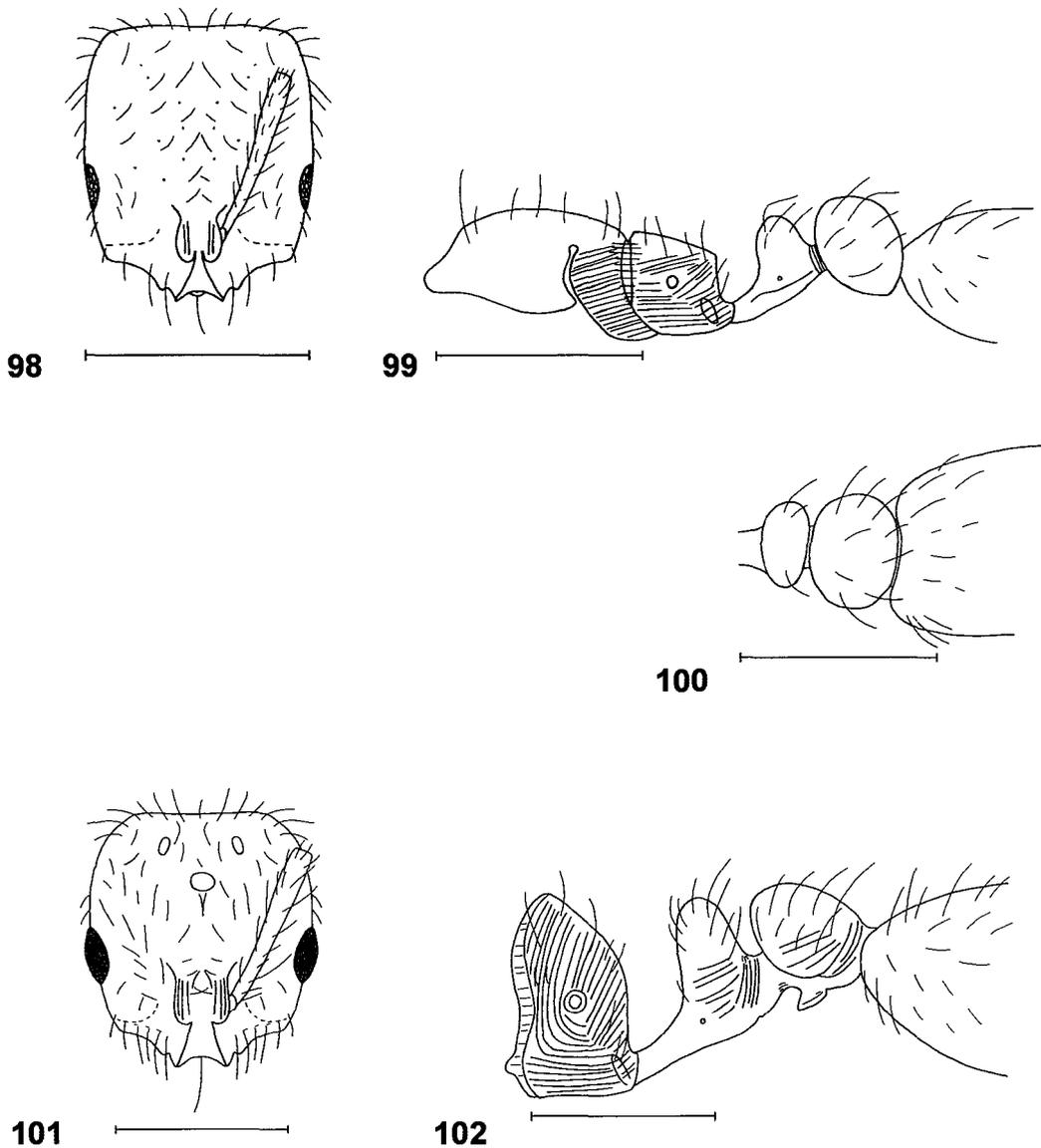


Fig. 98. Head of a worker of *S. globularia* (lectotype *S. globularia littoralis*). **Fig. 99.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. globularia* (lectotype *S. globularia littoralis*). **Fig. 100.** Petiole, postpetiole and anterior part of gaster of a worker *S. globularia* viewed dorsally (lectotype *S. globularia littoralis*). **Fig. 101.** Head of a female *S. globularia* (paralectotype *S. globularia littoralis*). **Fig. 102.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. globularia* (paralectotype *S. globularia littoralis*).

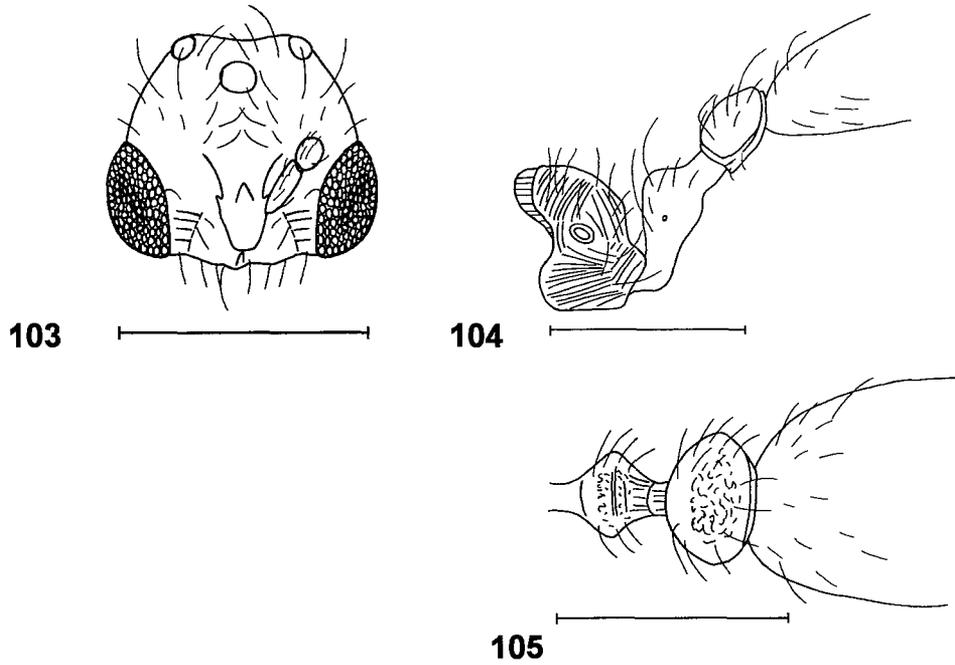


Fig. 103. Head of a male of *S. globularia*. **Fig. 104.** Propodeum, petiole, postpetiole and anterior part of gaster of the male *S. globularia*. **Fig. 105.** Petiole, postpetiole and anterior part of gaster of a male *S. globularia* viewed dorsally (scale bars = 0.5 mm).

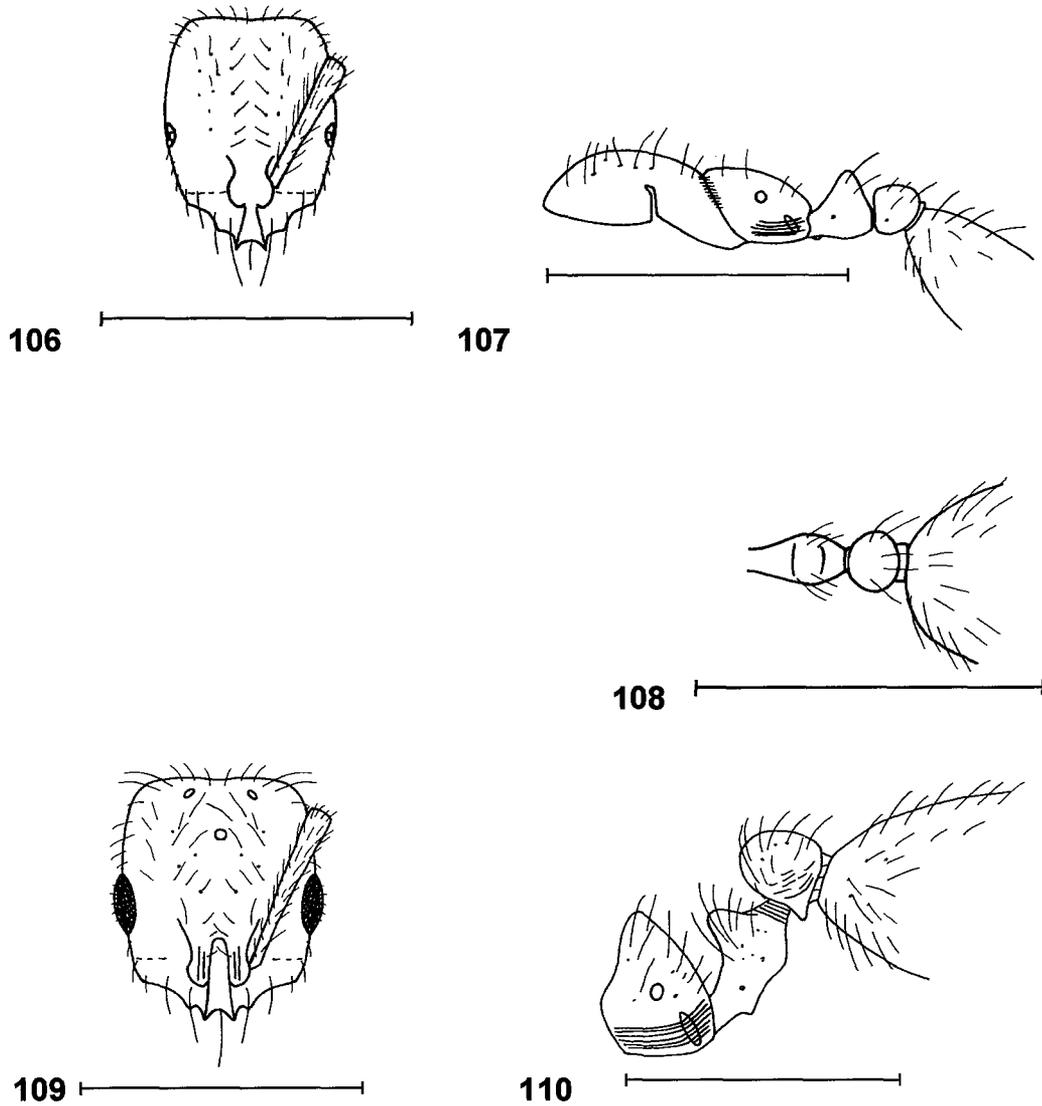


Fig. 106. Head of a worker of *S. gnoma* (paratype from Pacheco et al. 2007). **Fig. 107.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker of *S. gnoma* (paratype from Pacheco et al. 2007). **Fig. 108.** Petiole, postpetiole and anterior part of gaster of a worker of *S. gnoma* (viewed dorsally) (paratype from Pacheco et al. 2007). **Fig. 109.** Head of a female of *S. gnoma* (holotype from Pacheco et al. 2007). **Fig. 110.** Propodeum, petiole, postpetiole and anterior part of gaster of a female of *S. gnoma* (holotype from Pacheco et al. 2007) (scale bars = 0.5 mm).

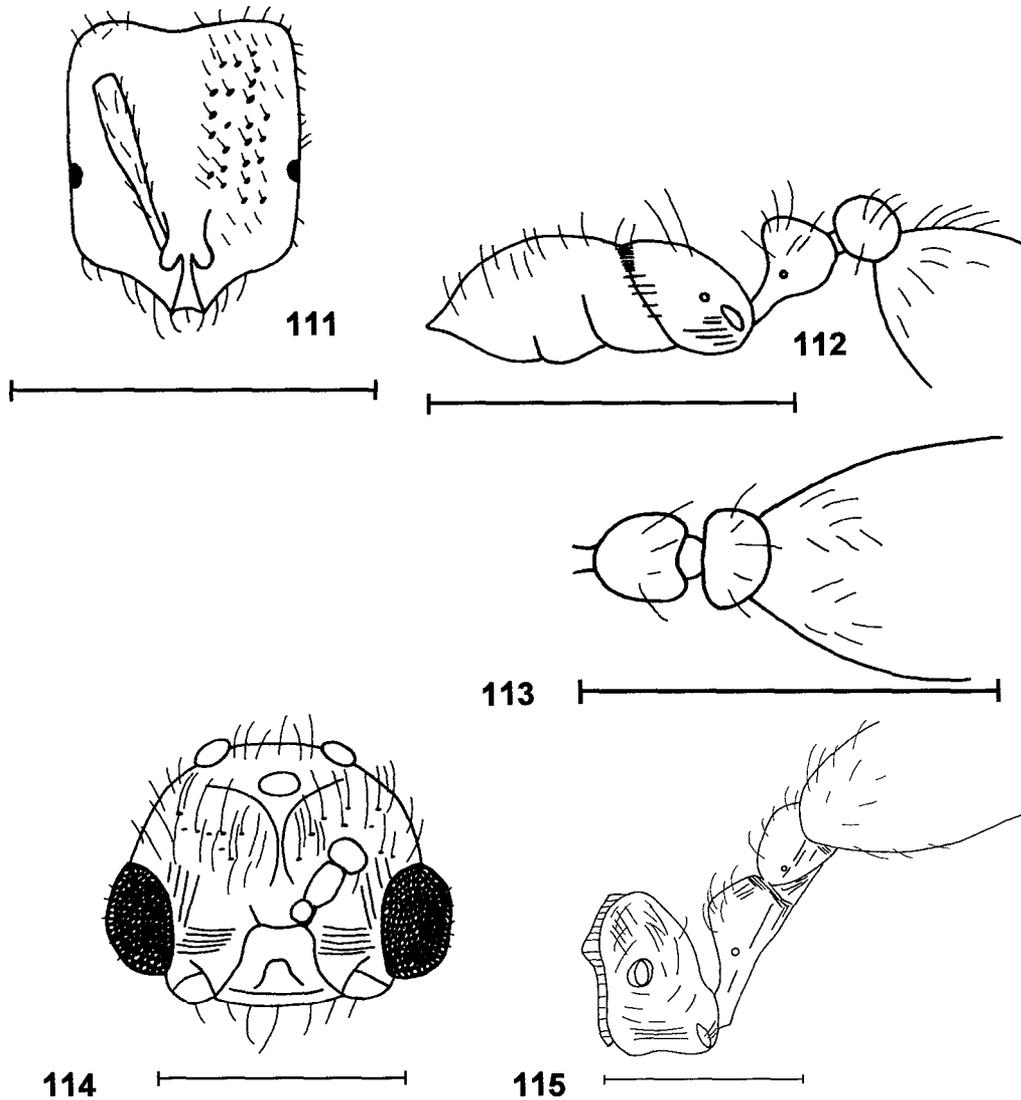


Fig. 111. Head of a worker *S. goeldii* (lectotype). **Fig. 112.** Mesosoma, petiole, postpetiole and anterior part of gaster of worker *S. goeldii* (lectotype). **Fig. 113.** Petiole, postpetiole and anterior part of gaster of a worker *S. goeldii* (viewed dorsally) (lectotype). **Fig. 114.** Head of the male of *S. goeldii* (paralectotype). **Fig. 115.** Propodeum, petiole, postpetiole and anterior part of gaster of the male of *S. goeldii* (paralectotype) (scale bars = 0.5 mm).

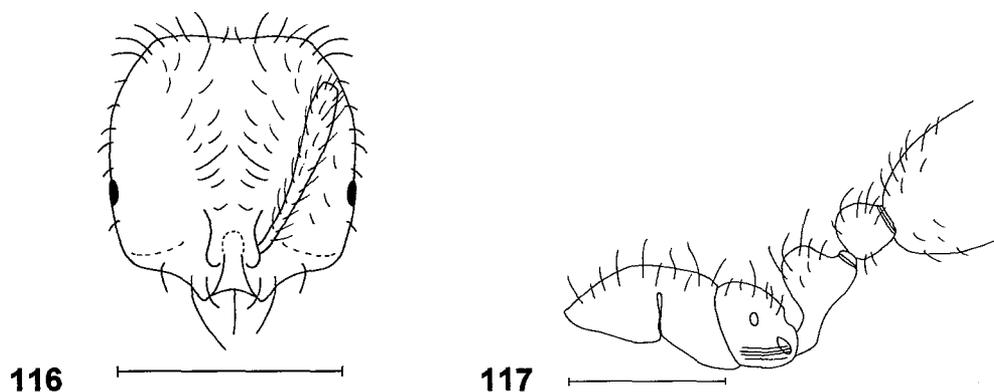


Fig. 116. Head of a worker of *S. hayemi* (lectotype). **Fig. 117.** Mesosoma, petiole, postpetiole and gaster of a worker *S. hayemi* (lectotype) (scale bars = 0.5 mm).

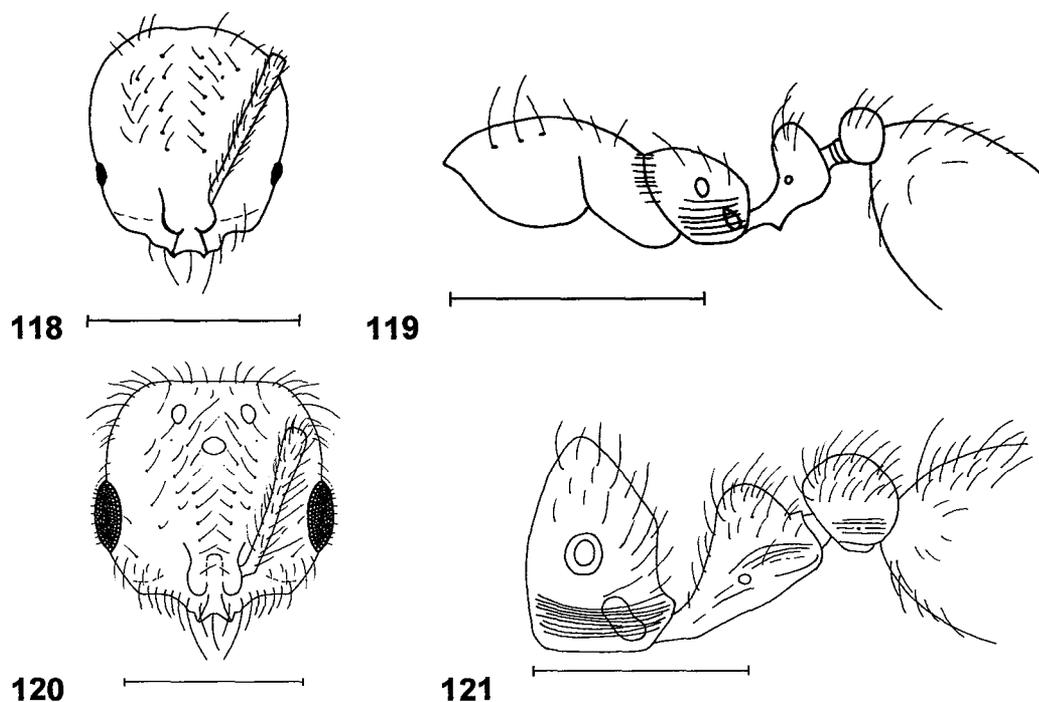


Fig. 118. Head of the worker of *S. helena* (lectotype). **Fig. 119.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. helena* (lectotype). **Fig. 120.** Head of the female of *S. helena*. (paralectotype of *S. helena* subsp. *ultrix*). **Fig. 121.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. helena* (paralectotype of *S. helena* subsp. *ultrix*) (scale bars = 0.5 mm).

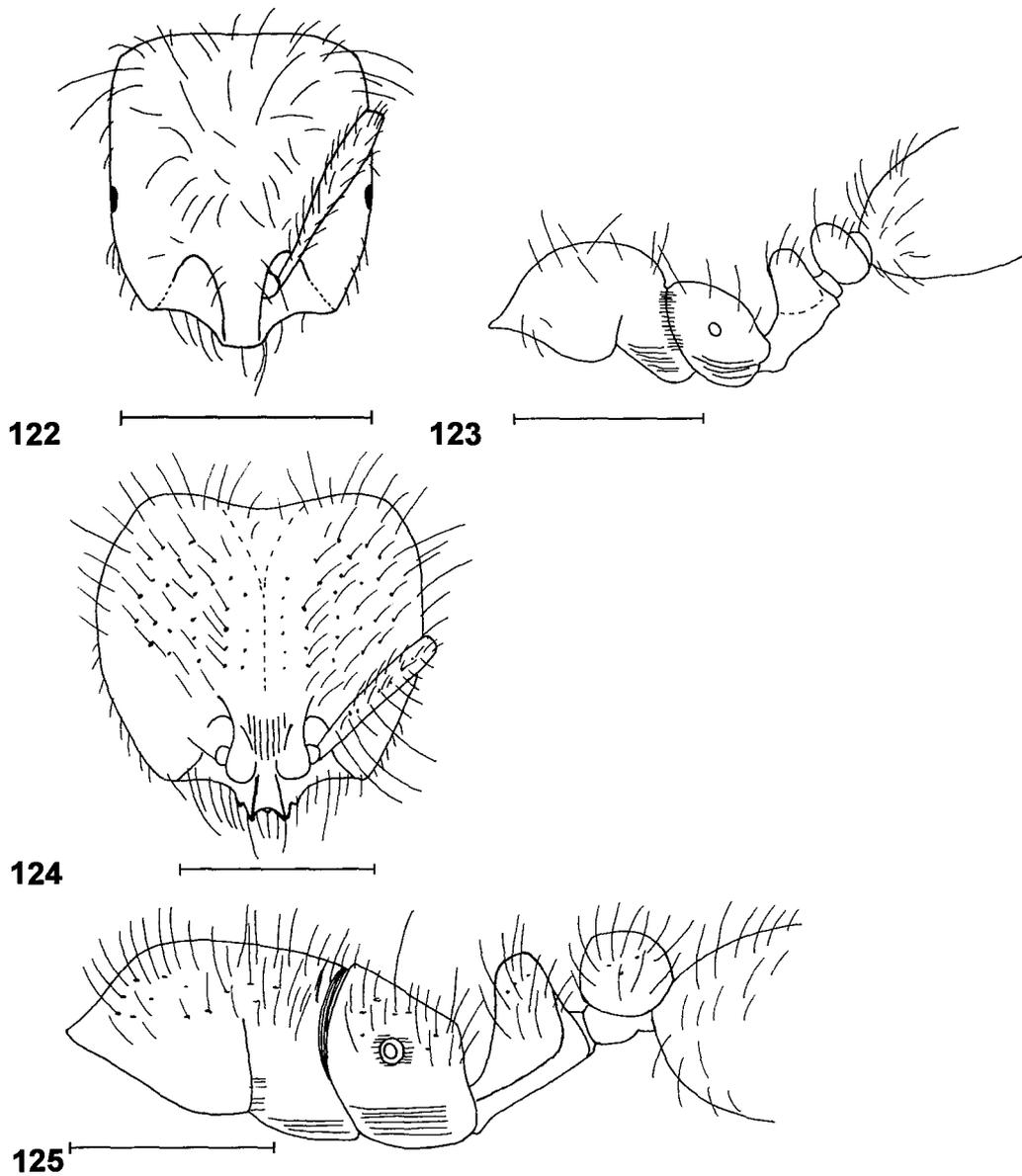
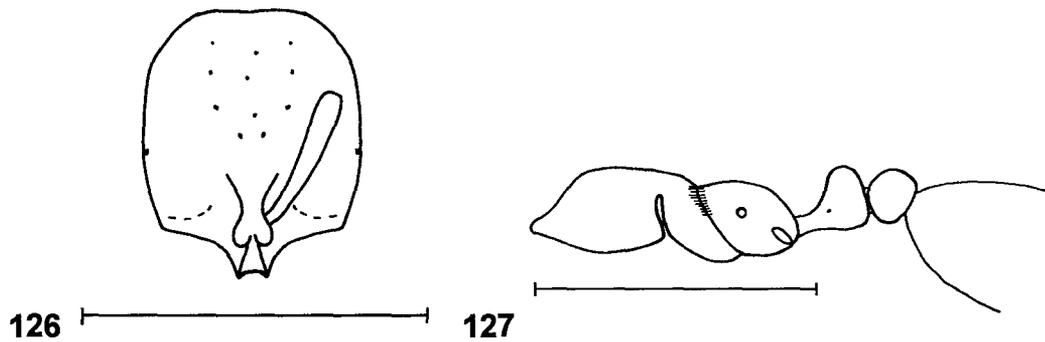
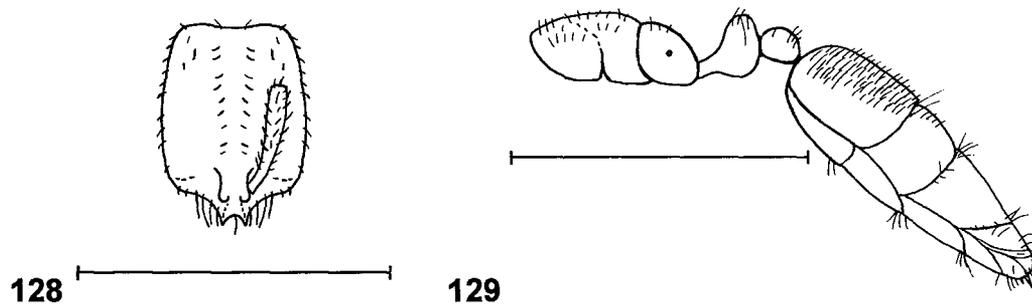


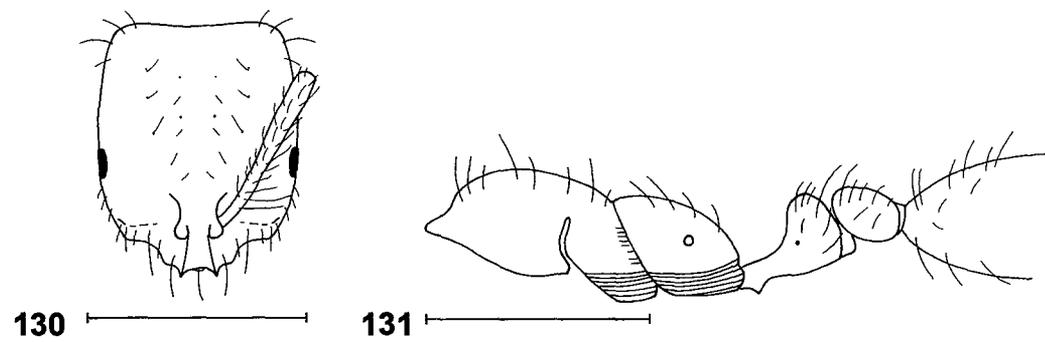
Fig. 122. Head of the minor worker of *S. iheringi* (lectotype). **Fig. 123.** Mesosoma, petiole, postpetiole, anterior part of gaster of a worker *S. iheringi* (lectotype). **Fig. 124.** Head of the major worker of *S. iheringi*. **Fig. 125.** Mesosoma, petiole, postpetiole and anterior part of gaster of the major *S. iheringi* (scale bars = 0.5 mm).



126 |-----| **127**
Fig. 126. Head of a worker of *S. impolita* (paratype). **Fig. 127.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. impolita* (paratype) (scale bars = 0.5 mm).



128 |-----| **129**
Fig. 128. Head of the worker of *S. isopilis*. **Fig. 129.** Mesosoma, petiole, postpetiole and the gaster of the worker of *S. isopilis* (scale bars = 0.5 mm).



130 |-----| **131** |-----|
Fig. 130. Head of the worker of *S. joergenseni* (lectotype). **Fig. 131.** Mesosoma, petiole, postpetiole and anterior part of gaster a worker *S. joergenseni* (lectotype) (scale bars = 0.5 mm).

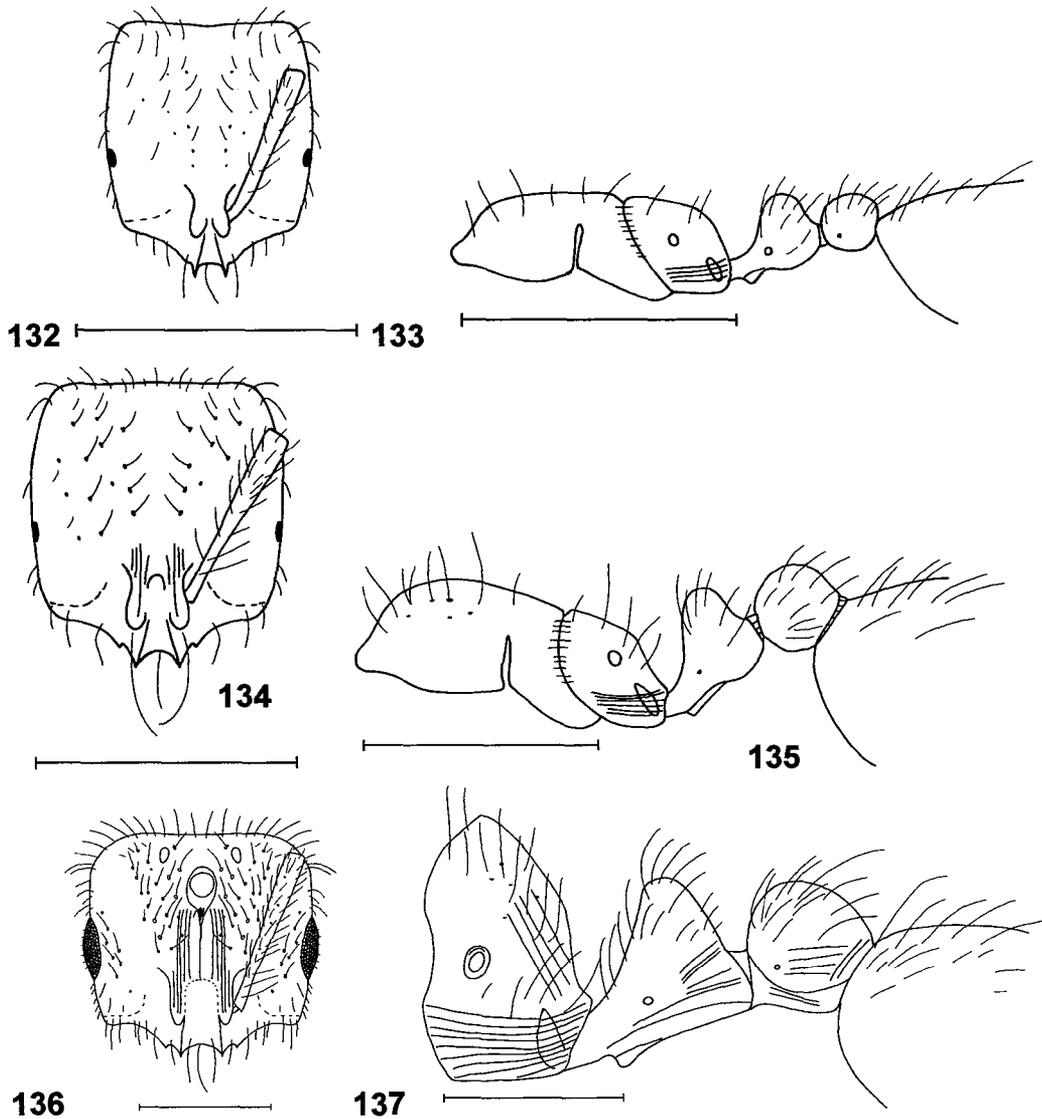


Fig. 132. Head of the minor worker of *S. johnsoni* (holotype). **Fig. 133.** Mesosoma, petiole, postpetiole and anterior part of gaster of a minor *S. johnsoni* (holotype). **Fig. 134.** Head of the major worker of *S. johnsoni* (paratype). **Fig. 135.** Mesosoma, petiole, postpetiole and anterior part of gaster of a major *S. johnsoni* (paratype). **Fig. 136.** Head of the female of *S. johnsoni* (paratype). **Fig. 137.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. johnsoni* (paratype) (scale bars = 0.5 mm).

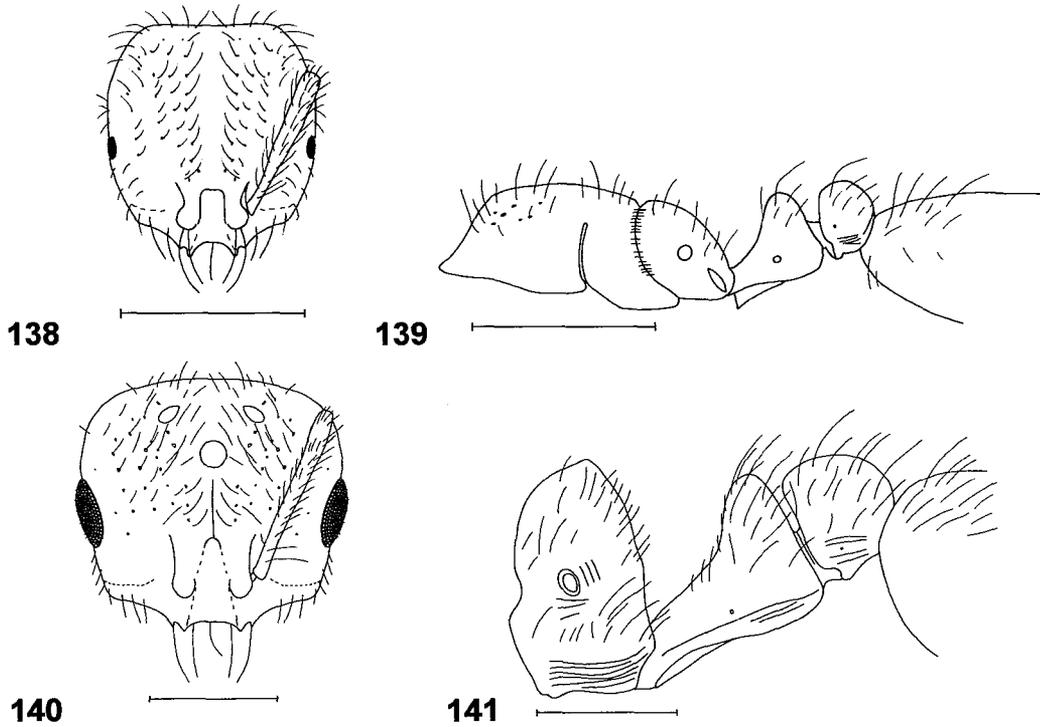


Fig. 138. Head of the worker of *S. krockowi* (lectotype). **Fig. 139.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. krockowi* (lectotype). **Fig. 140.** Head of the female of *S. krockowi* (paralectotype). **Fig. 141.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. krockowi* (paralectotype) (scale bars = 0.5 mm).

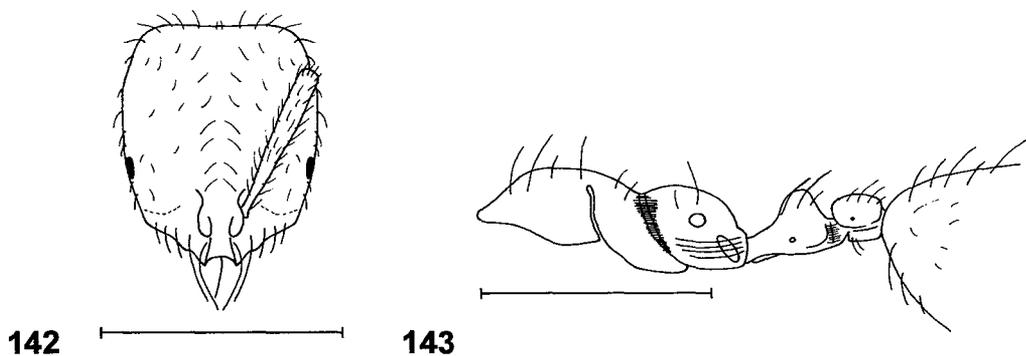


Fig. 142. Head of the worker of *S. laeviceps*. **Fig. 143.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. laeviceps* (scale bars = 0.5 mm).

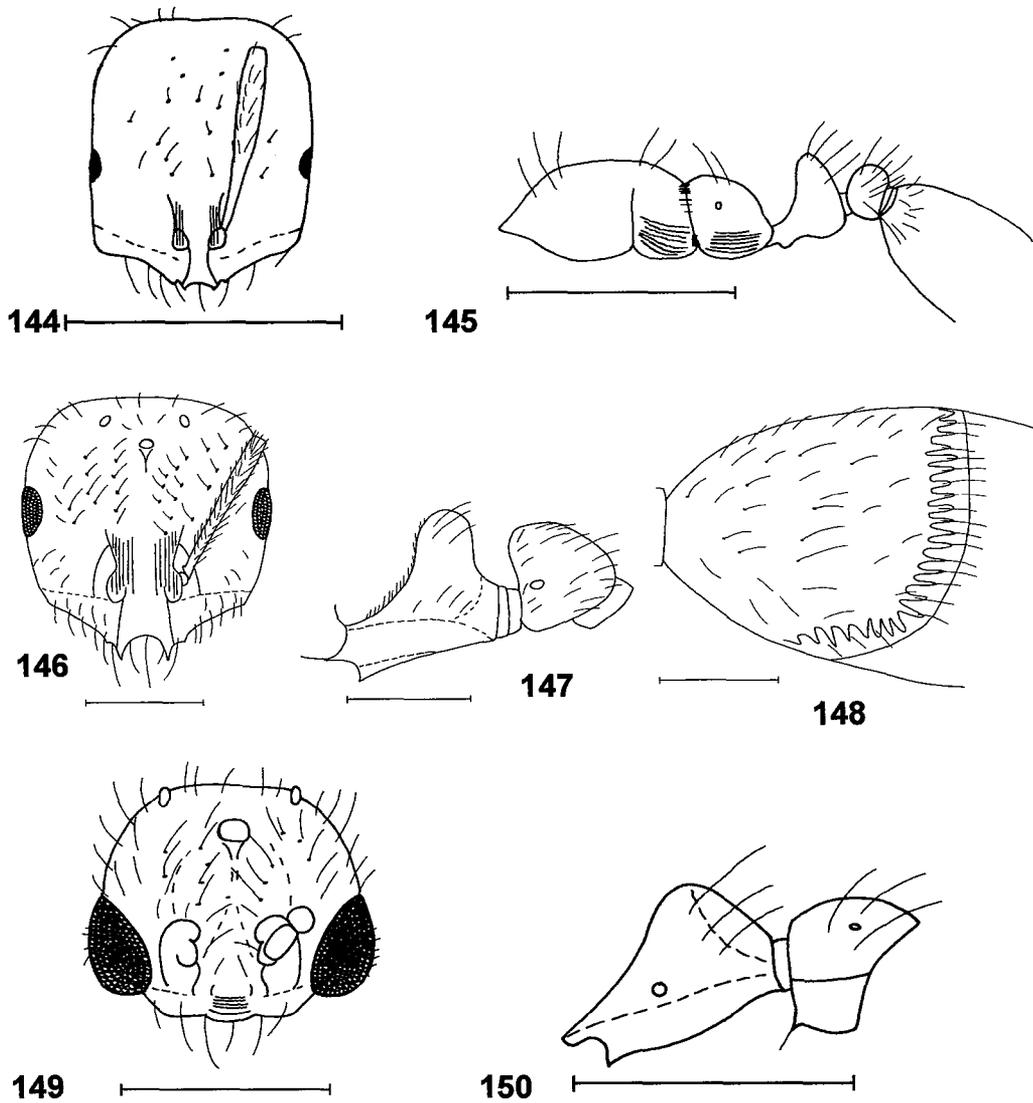


Fig. 144. Head of a worker of *S. latastei* (lectotype *S. tenuis* r. *weiseri*). **Fig. 145.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. latastei* (lectotype *S. tenuis* r. *weiseri*). **Fig. 146.** Head of a female of *S. latastei* (paralectotype *S. tenuis* r. *weiseri*). **Fig. 147.** Petiole and postpetiole of a female of *S. latastei* (paralectotype *S. tenuis* r. *weiseri*). **Fig. 148.** Anterior part of the gaster of a female of *S. latastei* (paralectotype *S. tenuis* r. *weiseri*). **Fig. 149.** Head of the male of *S. latastei* (paralectotype *S. tenuis* r. *weiseri*). **Fig. 150.** Petiole and postpetiole of the male of *S. latastei* (paralectotype *S. tenuis* r. *weiseri*) (scale bars = 0.5 mm).

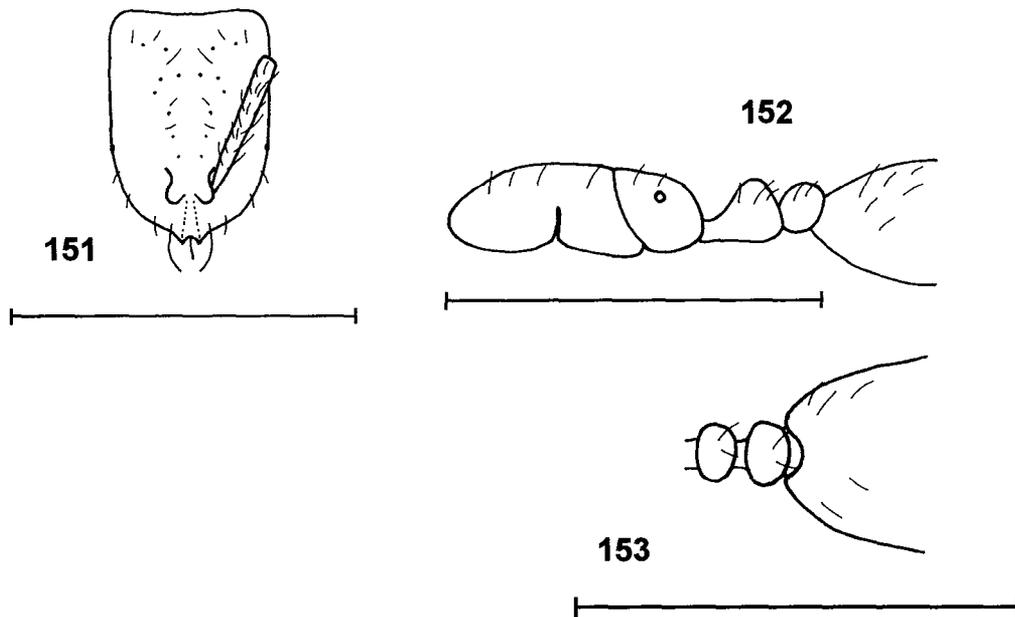


Fig. 151. Head of the worker of *S. leptanilloides* (lectotype). **Fig. 152.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. leptanilloides* (lectotype). **Fig. 153.** Petiole, postpetiole and anterior part of gaster of a worker of *S. leptanilloides* (lectotype dorsal view) (scale bars = 0.5 mm).

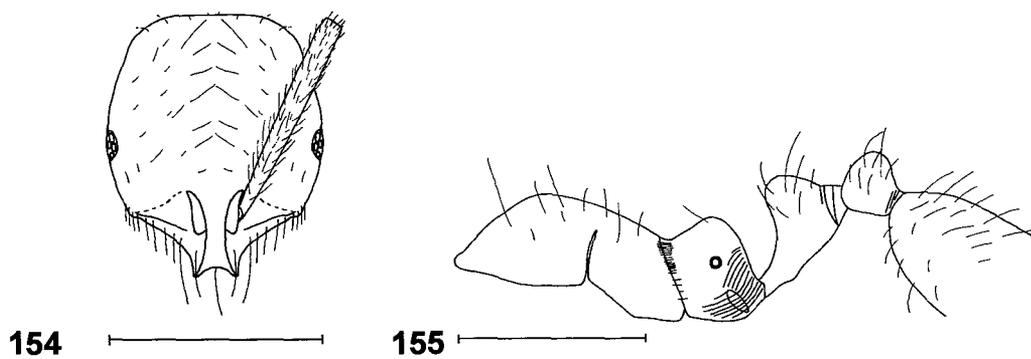


Fig. 154. Head of the worker of *S. longinoi* (holotype). **Fig. 155.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. longinoi* (holotype) (scale bars = 0.5 mm).

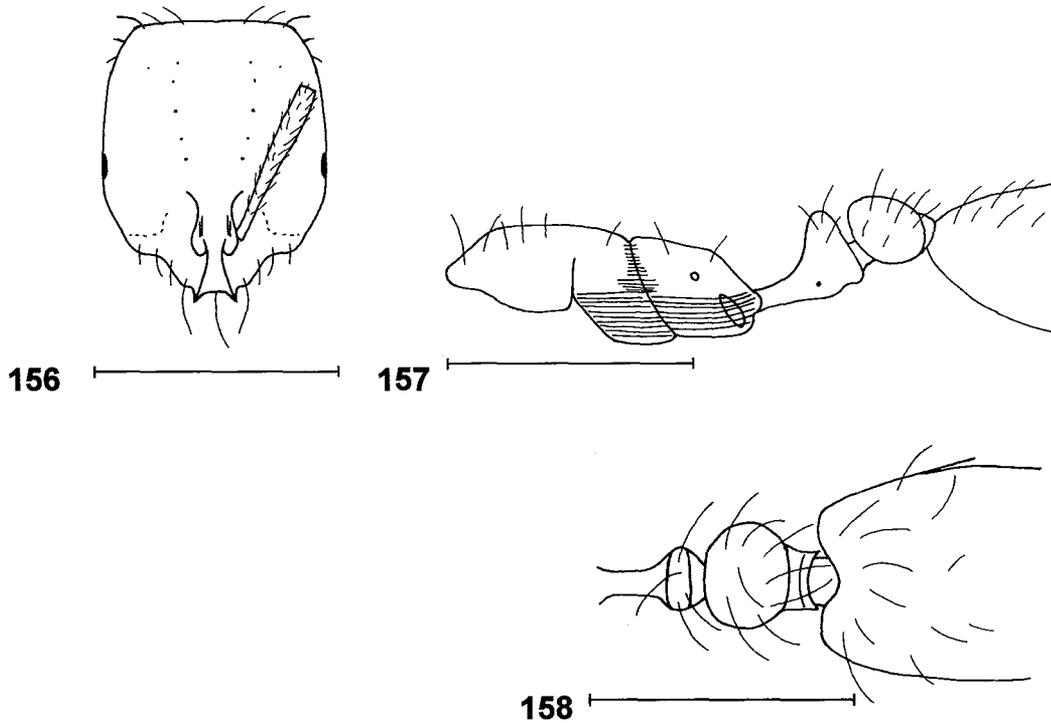


Fig. 156. Head of the worker of *S. loretana* (lectotype). **Fig. 157.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. loretana* (lectotype). **Fig. 158.** Petiole, postpetiole and anterior part of gaster of a worker *S. loretana* (lectotype dorsal view) (scale bars = 0.5 mm).

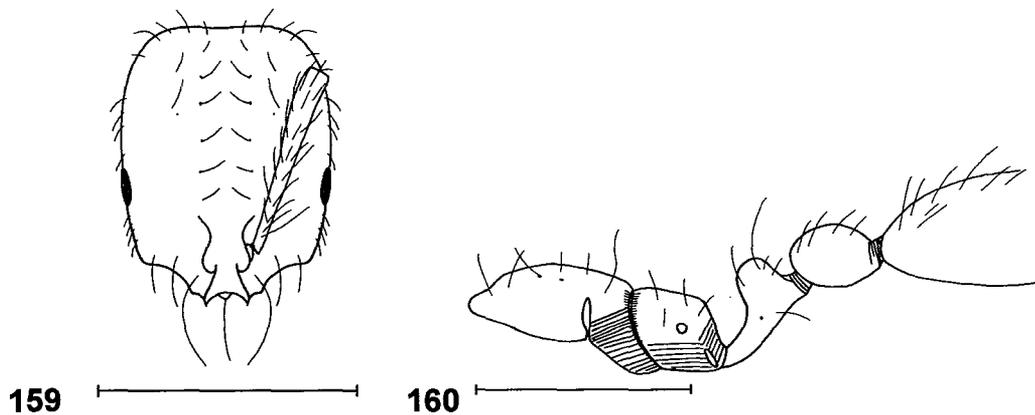


Fig. 159. Head of the worker of *S. lucayensis* (lectotype). **Fig. 160.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. lucayensis* (lectotype) (scale bars = 0.5 mm).

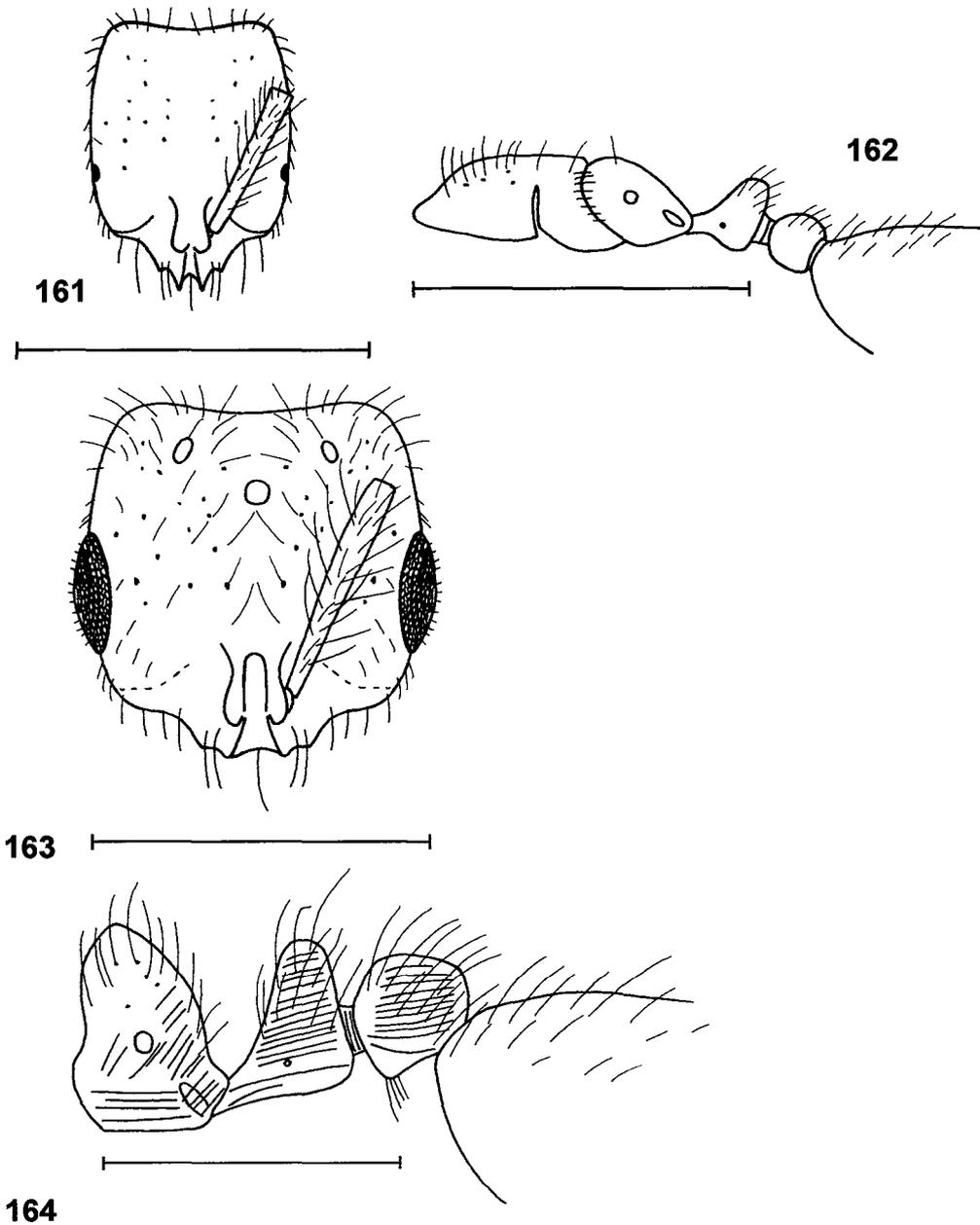


Fig. 161. Head of a worker of *S. maboya* (paratype). **Fig. 162.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. maboya* (paratype). **Fig. 163.** Head of a female of *S. maboya* (paratype). **Fig. 164.** Propodeum, petiole, post-petiole and anterior part of gaster of a female *S. maboya* (paratype) (scale bars = 0.5 mm).

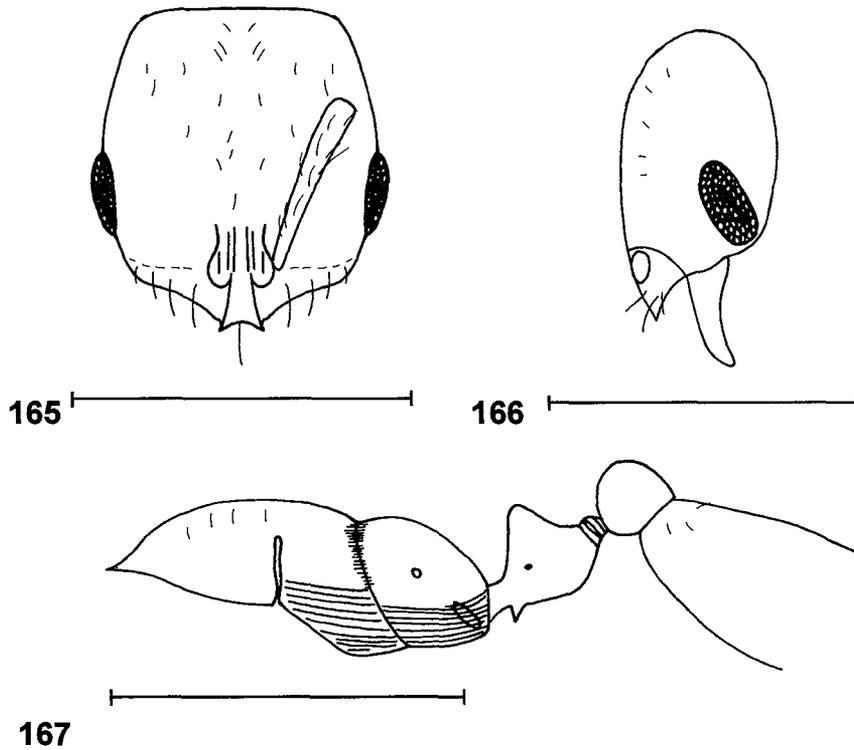


Fig. 165. Head of the worker of *S. macrops* (lectotype). **Fig. 166.** Side of the head of the worker of *S. macrops* (lectotype). **Fig. 167.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. macrops* (lectotype) (scale bars = 0.5 mm).

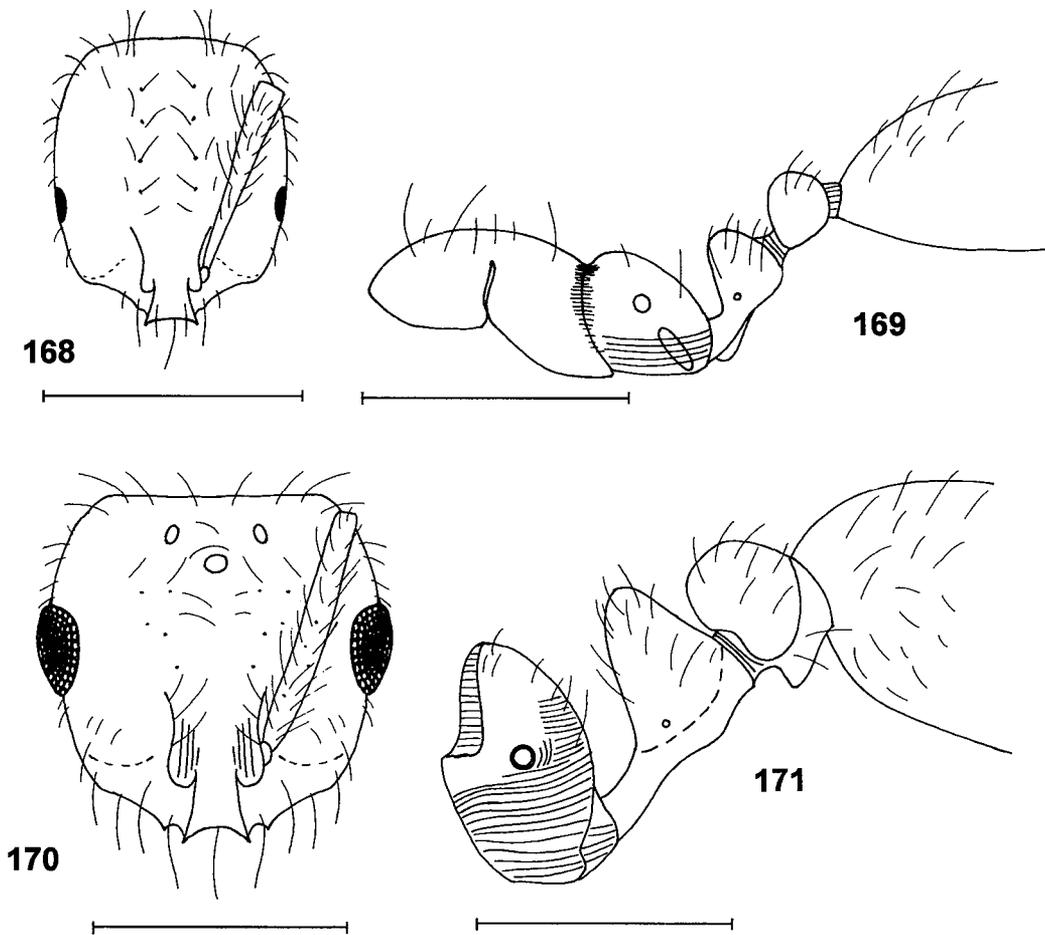


Fig. 168. Head of worker of *S. major* (lectotype *S. tenuis* r. *delfinoi*). **Fig. 169.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. major* (lectotype *S. tenuis* r. *delfinoi*). **Fig. 170.** Head of a female of *S. major* (paralectotype *S. tenuis* r. *delfinoi*). **Fig. 171.** Petiole, postpetiole and anterior part of gaster of a female *S. major* (paralectotype *S. tenuis* r. *delfinoi*) (scale bars = 0.5 mm).

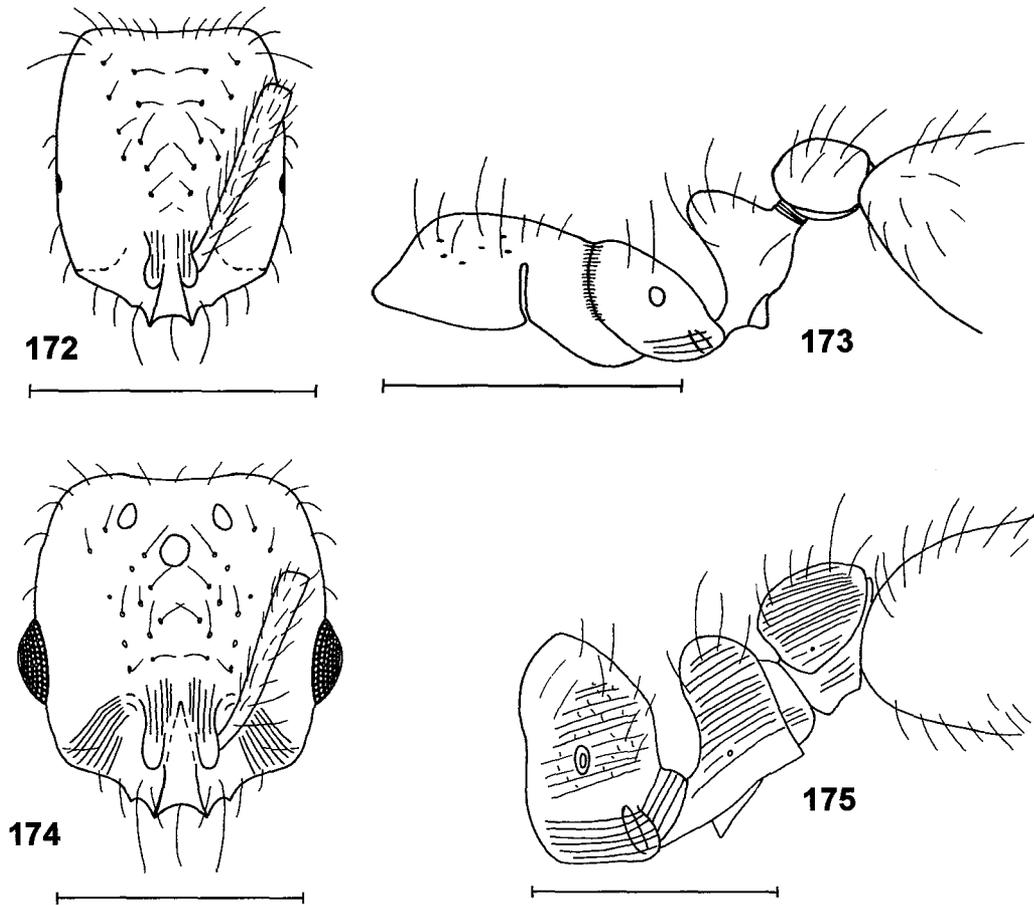


Fig. 172. Head of a worker of *S. melina* (holotype). **Fig. 173.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. melina* (holotype). **Fig. 174.** Head of the female of *S. melina*. **Fig. 175.** Propodeum, petiole, postpetiole and anterior part of gaster of female *S. melina* (scale bars = 0.5 mm).

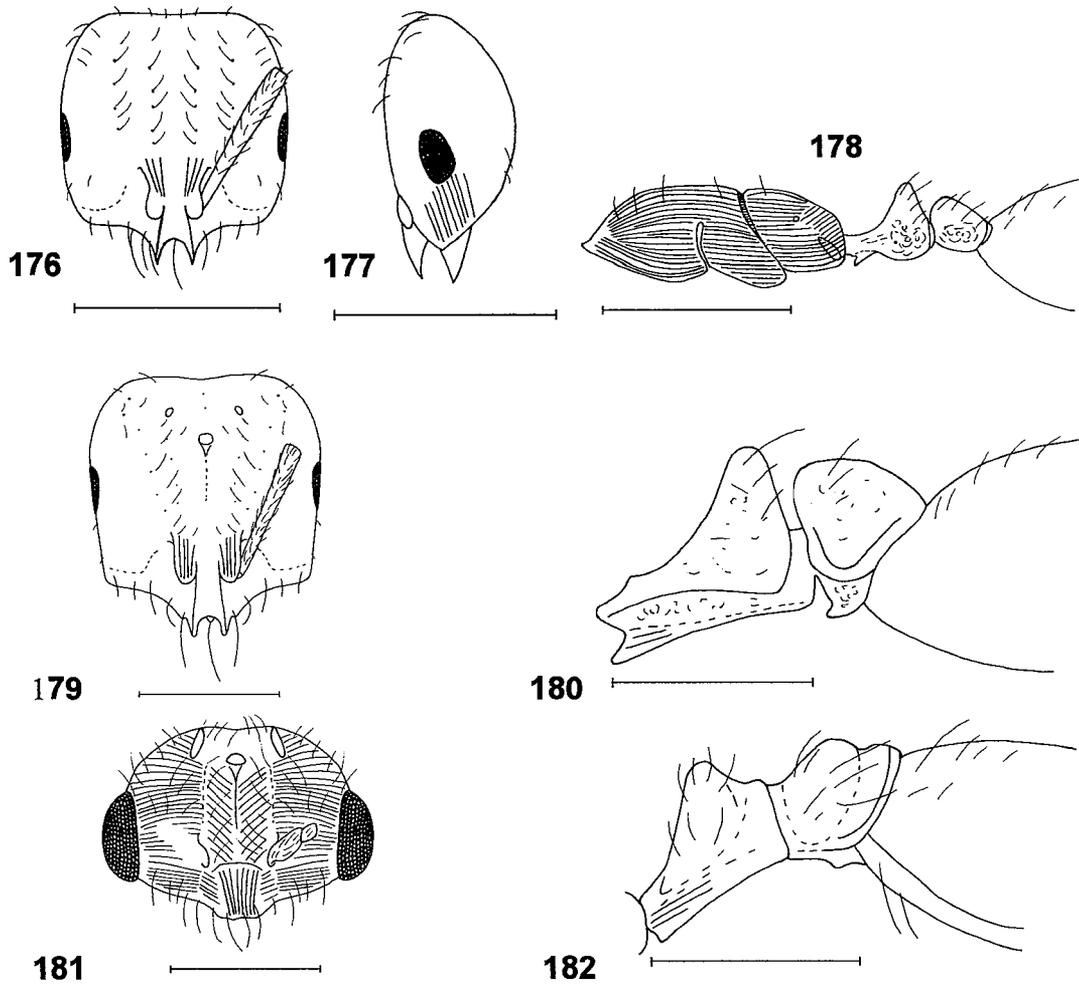


Fig. 176. Head of a worker of *S. metanotalis* (lectotype *S. metanotalis picturata*). **Fig. 177.** Side of the head of a worker of *S. metanotalis* (lectotype *S. metanotalis picturata*). **Fig. 178.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. metanotalis* (lectotype *S. metanotalis picturata*). **Fig. 179.** Head of a female of *S. metanotalis* (paralectotype *S. metanotalis picturata*). **Fig. 180.** Petiole, postpetiole and anterior part of gaster of a female *S. metanotalis* (paralectotype *S. metanotalis picturata*). **Fig. 181.** Head of a male of *S. metanotalis* (paralectotype *S. metanotalis arga*). **Fig. 182.** Petiole, postpetiole and anterior part of gaster of a male *S. metanotalis* (paralectotype *S. metanotalis arga*) (scale bars = 0.5 mm).

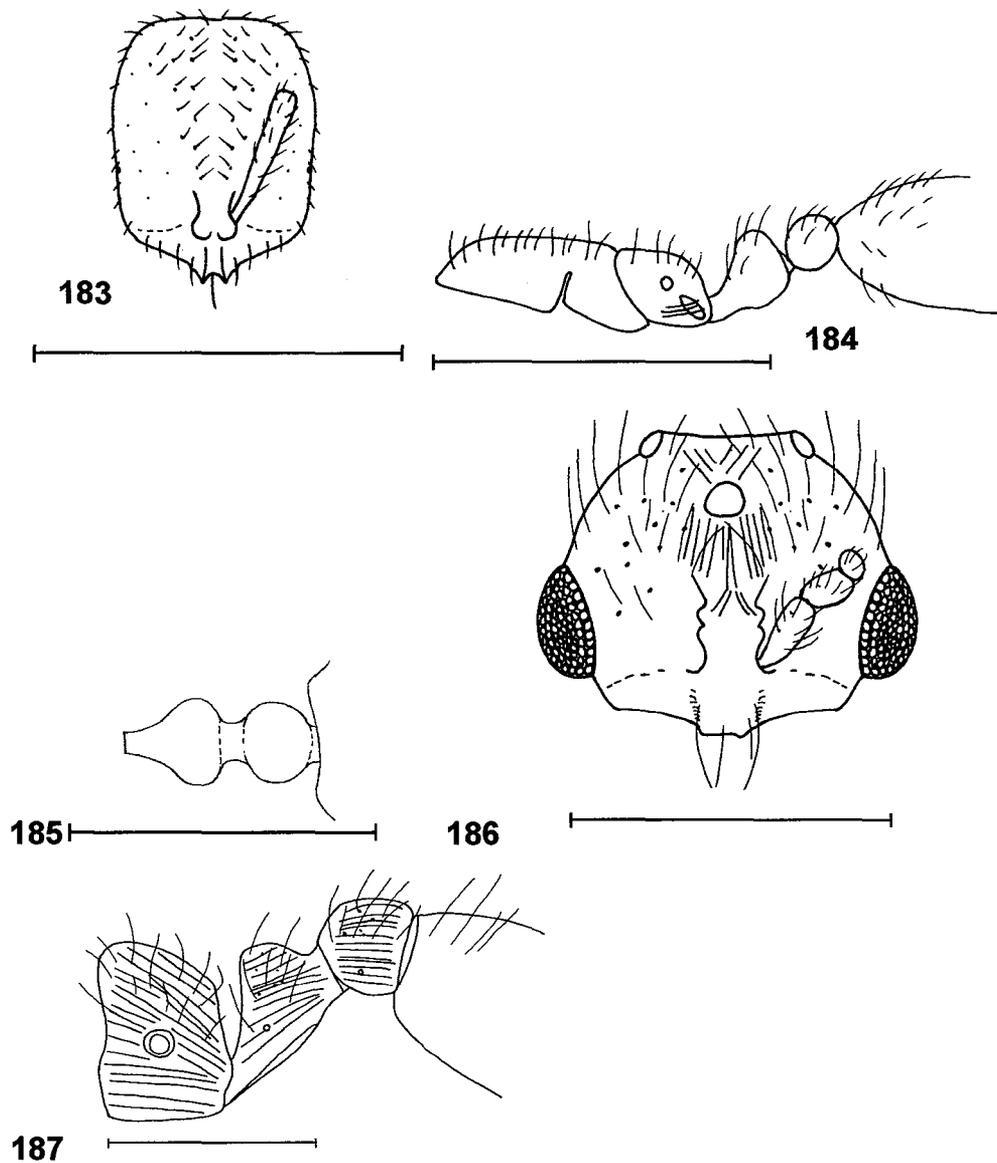


Fig. 183. Head of the worker of *S. minutissima* (lectotype). **Fig. 184.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. minutissima* (lectotype). **Fig. 185.** Petiole, postpetiole and anterior part of gaster of a worker *S. minutissima*. (viewed dorsally, from Moreno-Gonzalez, 2001). **Fig. 186.** Head of the male of *S. minutissima* (paralectotype). **Fig. 187.** Propodeum, petiole, postpetiole, anterior part of gaster of a male *S. minutissima* (paralectotype) (scale bars = 0.5 mm).

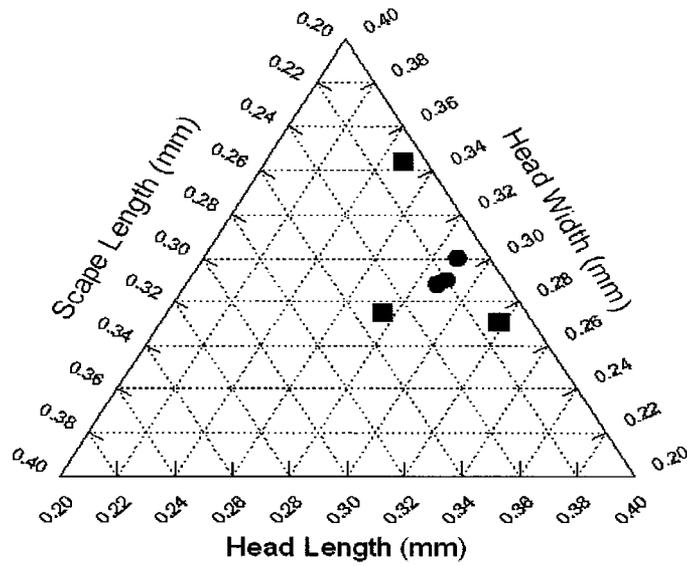


Fig. 188. Triangle plot showing the relationships between 3 syntype workers of *S. breviceps* (circles) and 3 best mounted syntypes of *S. minutissima* (squares).

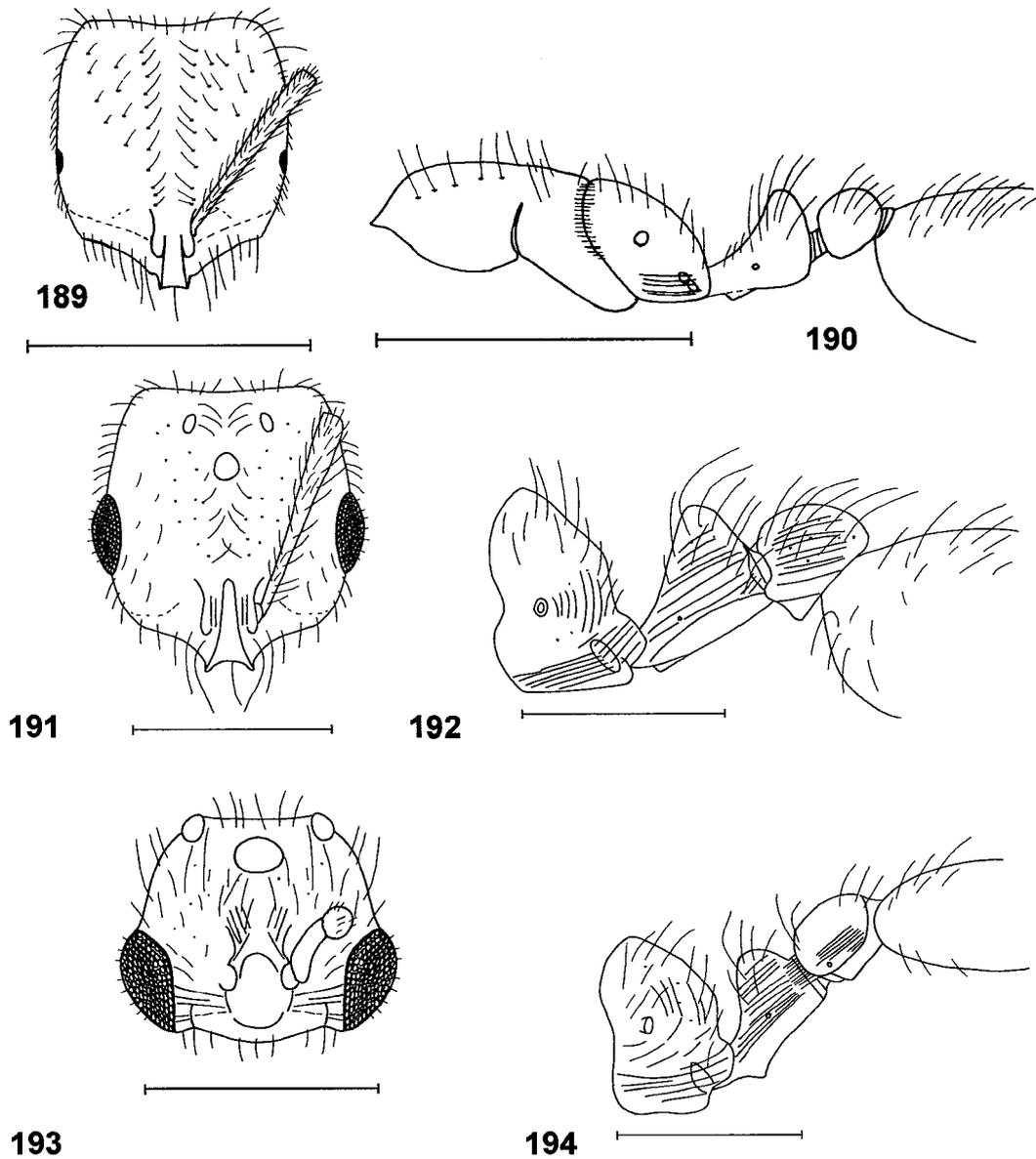


Fig. 189. Head of a worker of *S. molesta*. **Fig. 190.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. molesta*. **Fig. 191.** Head of a female of *S. molesta*. **Fig. 192.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. molesta*. **Fig. 193.** Head of a male of *S. molesta*. **Fig. 194.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. molesta* (scale bars = 0.5 mm).

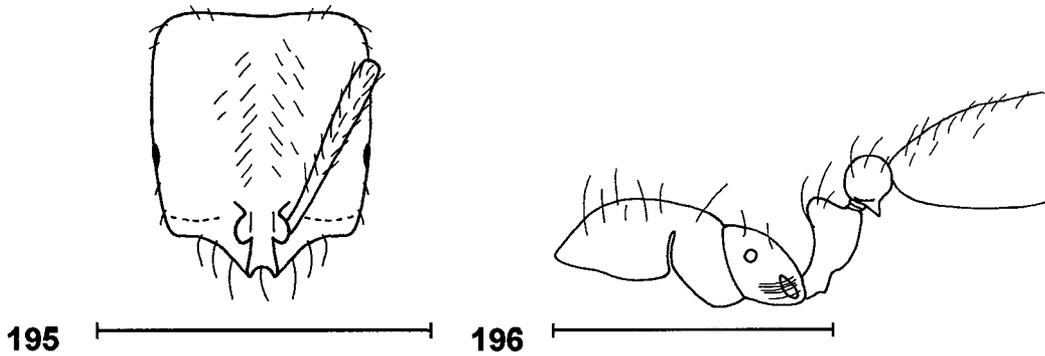


Fig. 195. Head of a worker of *S. nickersoni*. **Fig. 196.** Mesosoma, petiole, post-petiole and anterior part of gaster of a worker *S. nickersoni* (scale bars = 0.5 mm).

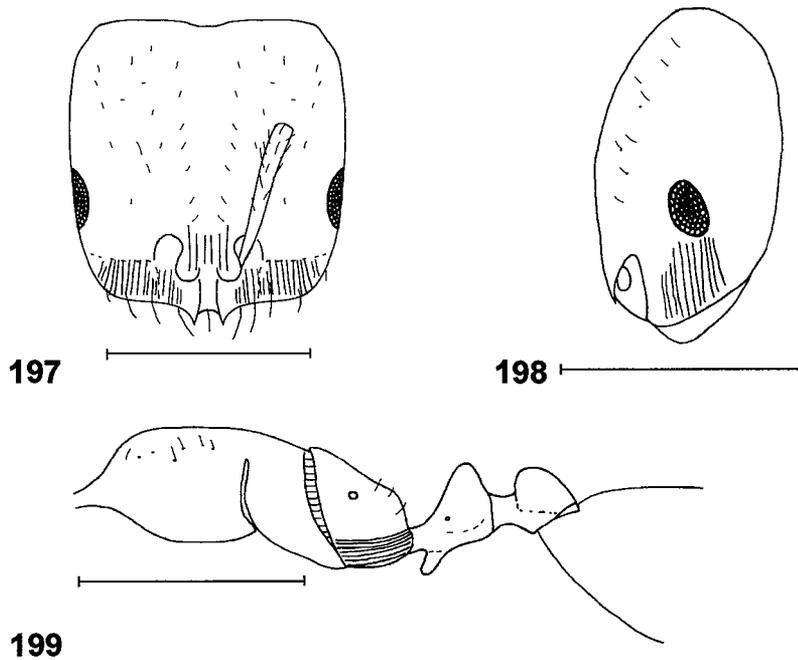


Fig. 197. Head of a worker of *S. nigella*. **Fig. 198.** Side of the head of a worker of *S. nigella*. **Fig. 199.** Mesosoma, petiole, post-petiole and anterior part of gaster of a worker *S. nigella* (scale bars = 0.5 mm).

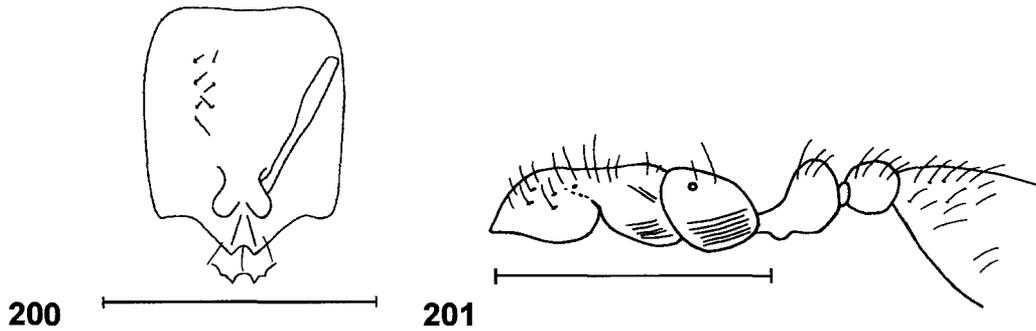


Fig. 200. Head of the worker of *S. ocellata*. The inset shows the anterior border of the clypeus as seen in direct view (holotype modified from Moreno-Gonzalez, 2001). **Fig. 201.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. ocellata* (scale bars = 0.5 mm).

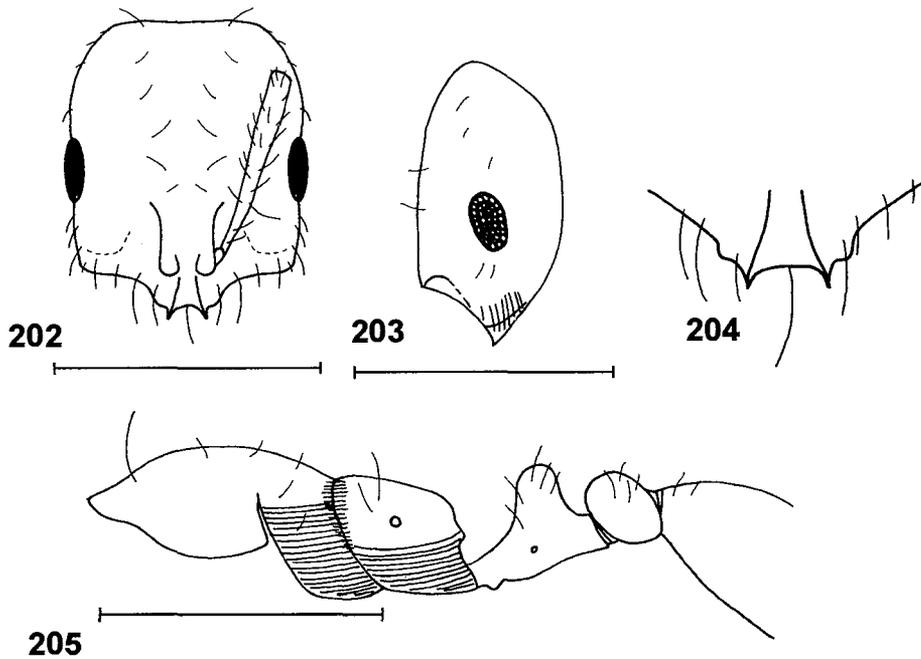


Fig. 202. Head of the worker of *S. oculata* (lectotype). The insert is a frontal view of the anterior edge of the clypeus, **Fig. 203.** Side of head of the worker of *S. oculata* (lectotype). **Fig. 204.** Clypeal enlargement of the worker of *S. oculata* (lectotype). **Fig. 205.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. oculata* (lectotype) (scale bars = 0.5 mm).

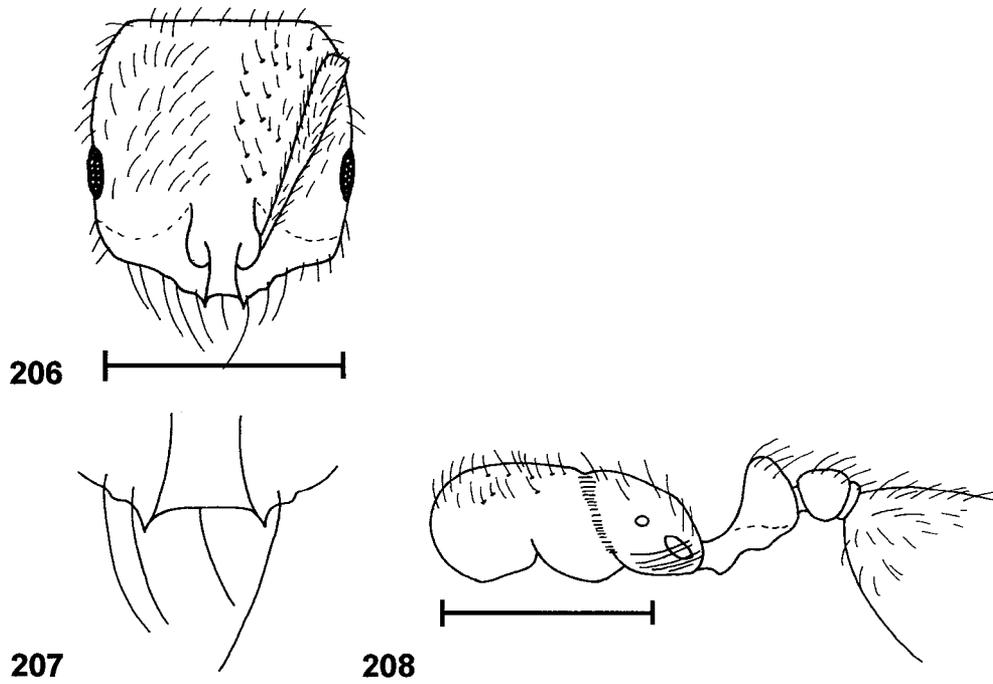


Fig. 206. Head of the worker of *S. orestes* (lectotype). **Fig. 207.** Clypeal enlargement of the worker of *S. orestes* (lectotype). **Fig. 208.** Mesosoma, petiole, post-petiole and anterior part of gaster of a worker *S. orestes* (lectotype) (scale bars = 0.5 mm).

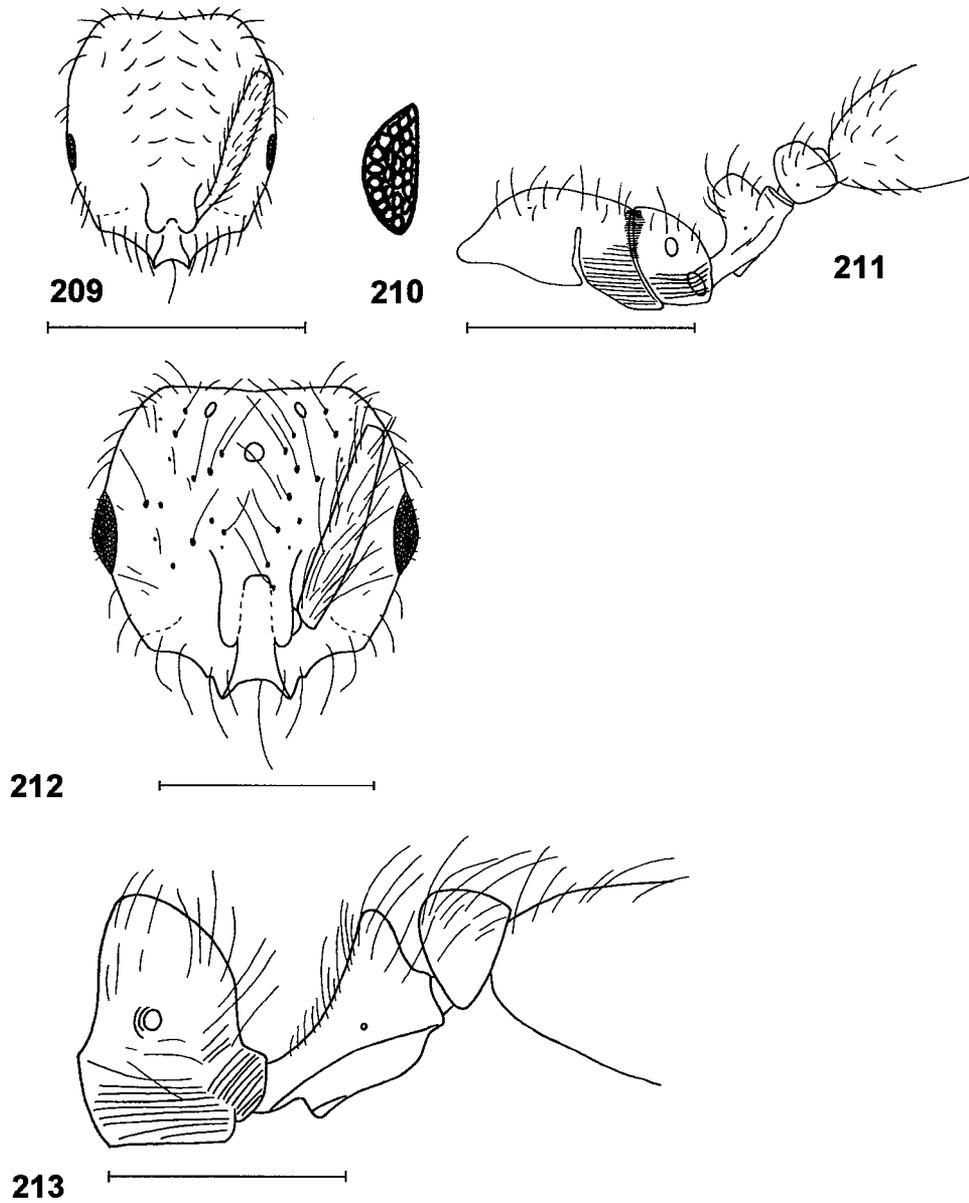


Fig. 209. Head of the worker of *S. parva* (lectotype). **Fig. 210.** Eye of the worker of *S. parva* (lectotype). **Fig. 211.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. parva* (lectotype). **Fig. 212.** Head of a female of *S. parva* (paralectotype of *S. angulata*). **Fig. 213.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. parva* (paralectotype *S. angulata*) (scale bars = 0.5 mm).

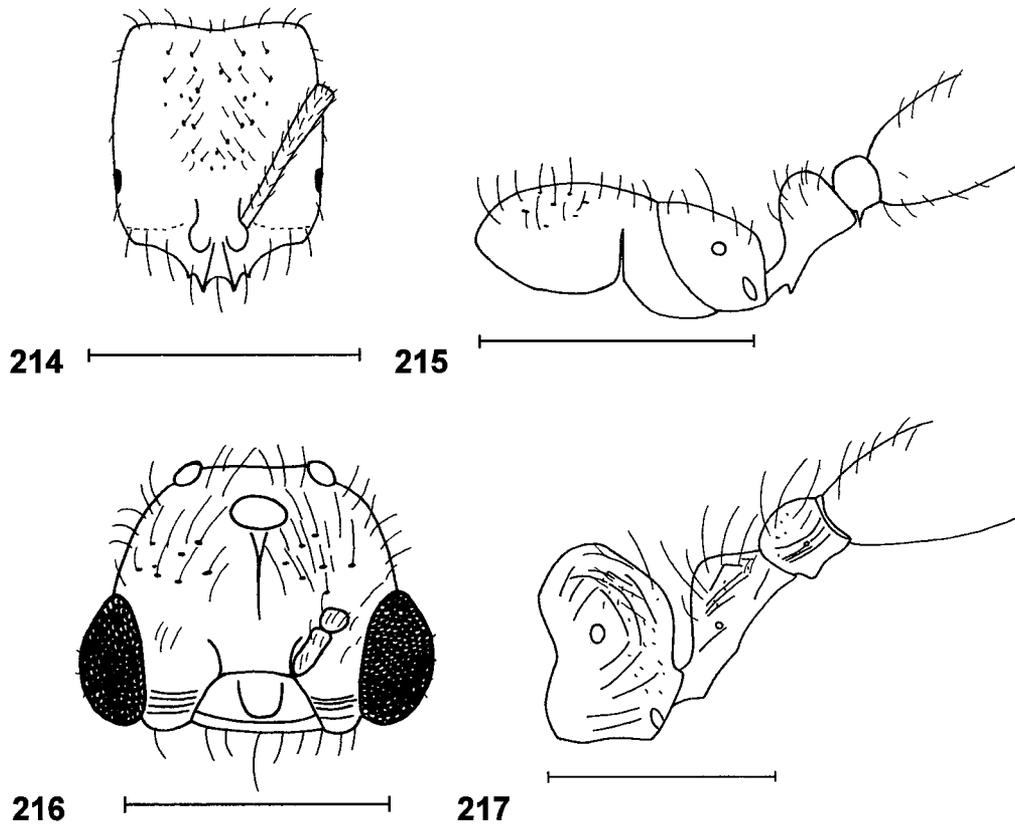


Fig. 214. Head of a worker of *S. patagonica* (lectotype *S. patagonica medeis*). **Fig. 215.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. patagonica* (lectotype *S. patagonica medeis*). **Fig. 216.** Head of a male of *S. patagonica* (paralectotype of *S. patagonica medeis*). **Fig. 217.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. patagonica* (paralectotype of *S. patagonica medeis*) (scale bars = 0.5 mm).

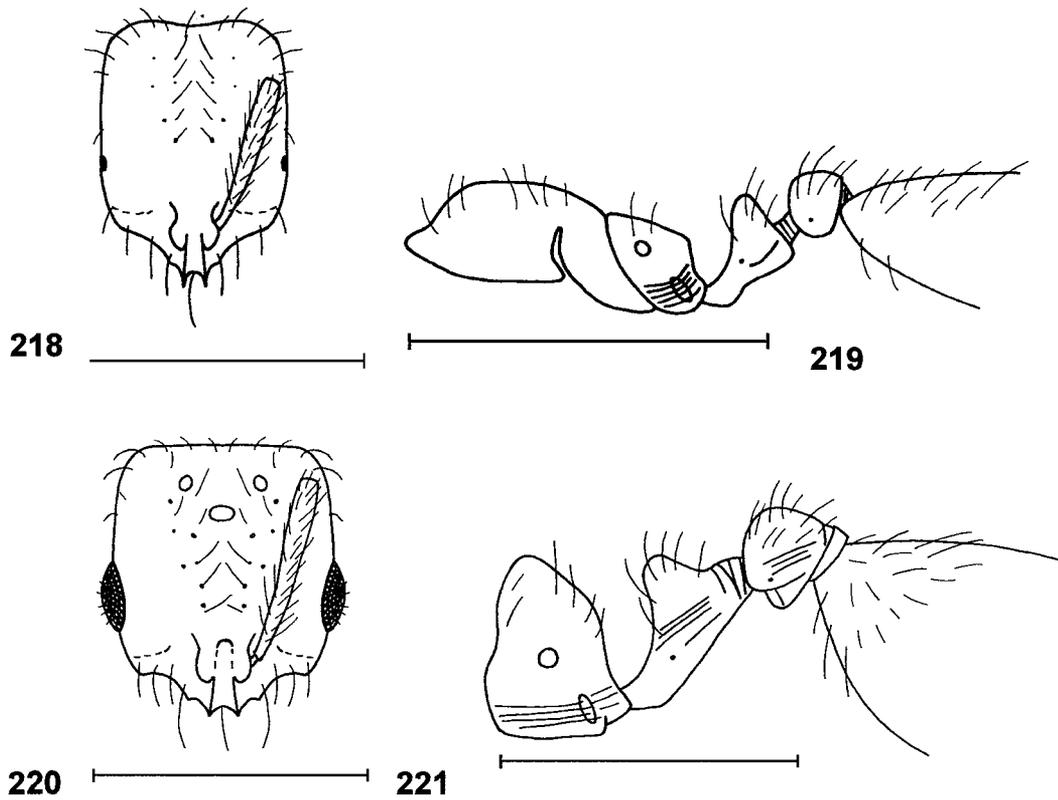


Fig. 218. Head of a worker of *S. patriciae* (paratype). **Fig. 219.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. patriciae* (paratype). **Fig. 220.** Head of the female of *S. patriciae* (holotype). **Fig. 221.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. patriciae* (holotype) (scale bars = 0.5 mm).

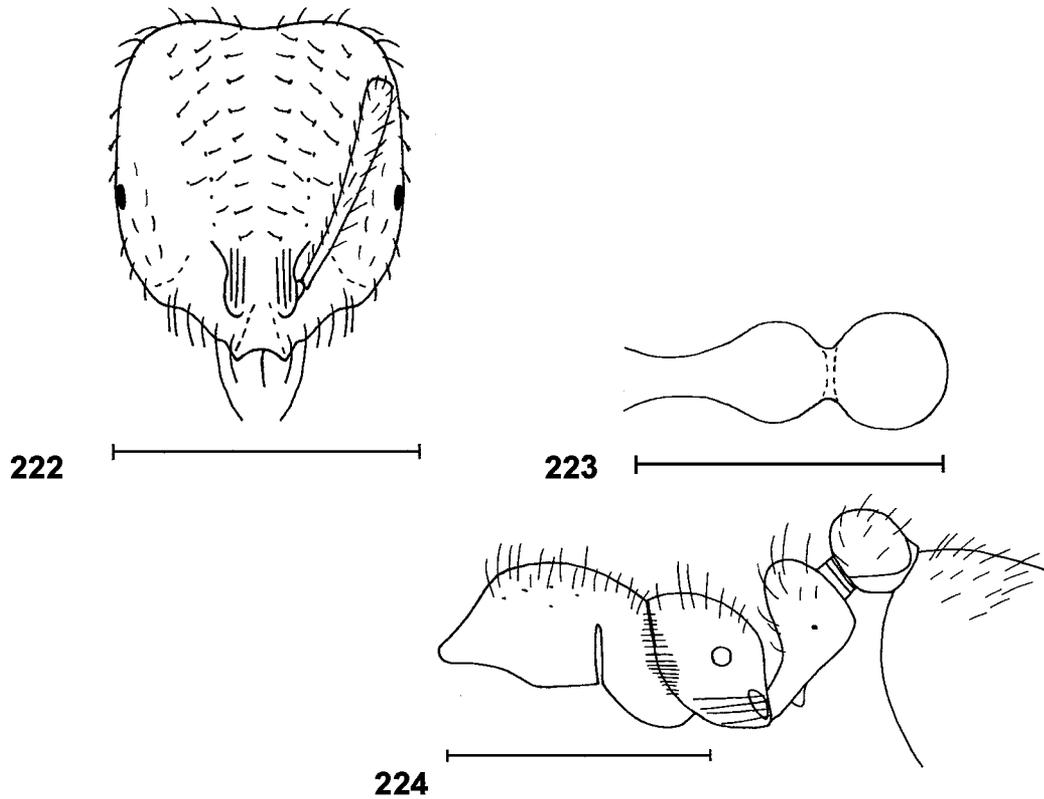


Fig. 222. Head of a worker of *S. pergandei*. **Fig. 223.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. pergandei*. **Fig. 224.** Petiole and postpetiole of a worker of *S. pergandei* (from Moreno-Gonzalez, 2001) (scale bars = 0.5 mm).

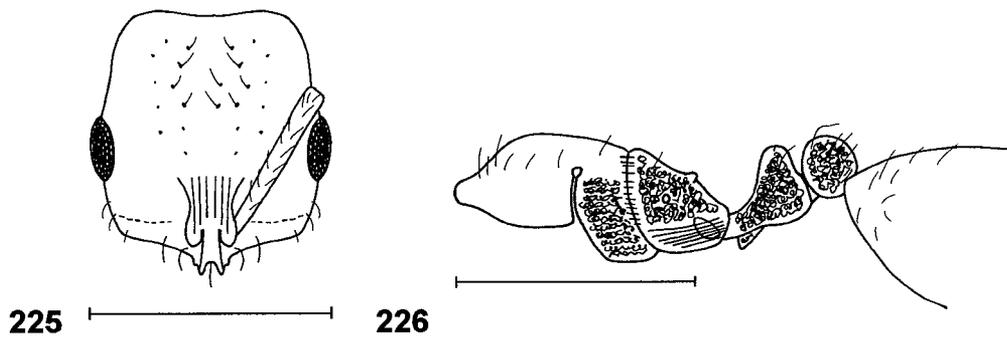


Fig. 225. Head of the worker of *S. photophila* (lectotype). **Fig. 226.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. photophila* (lectotype) (scale bars = 0.5 mm).

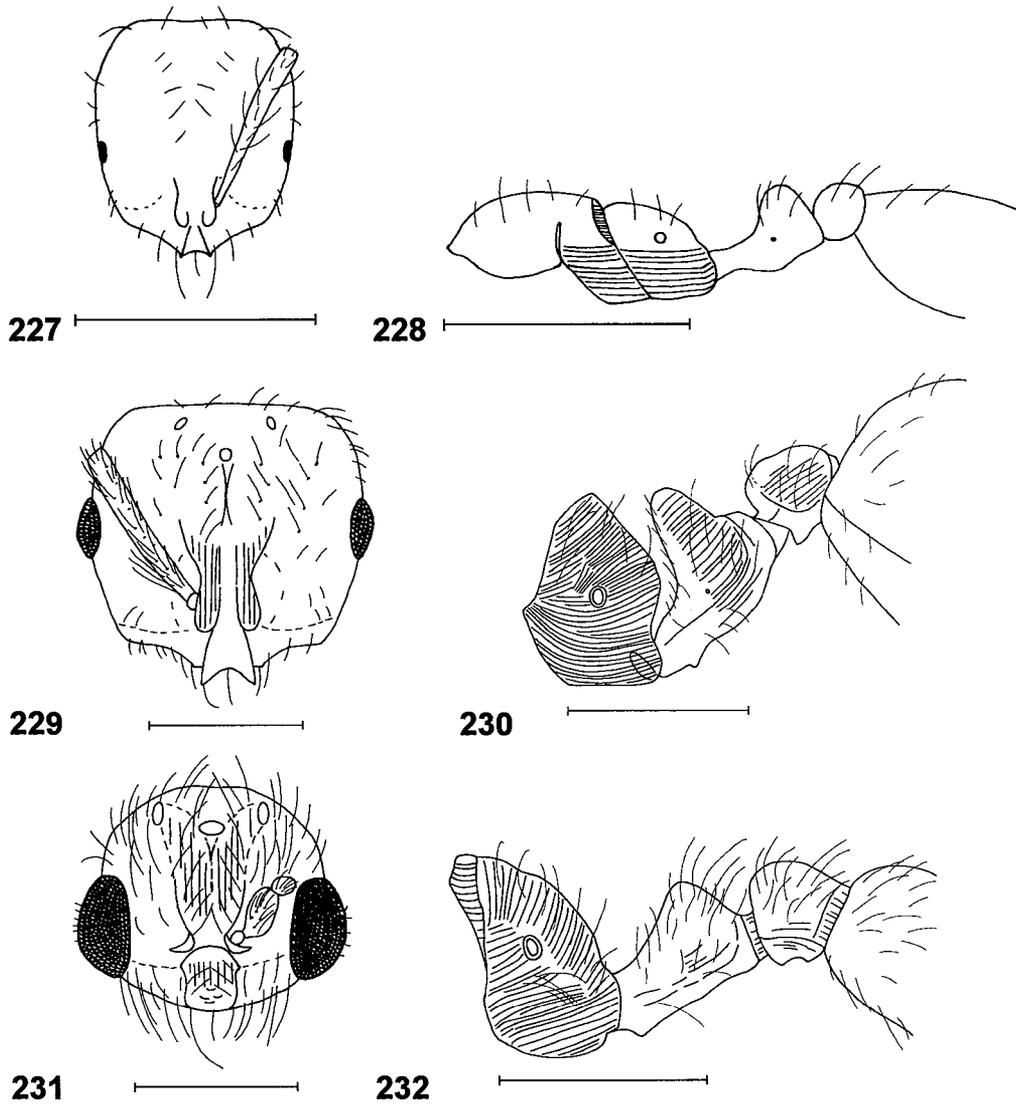


Fig. 227. Head of a worker of *S. picea* (lectotype *S. angulata* r. *nigelloides*). **Fig. 228.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. picea* (lectotype *S. angulata* r. *nigelloides*). **Fig. 229.** Head of a female of *S. picea* (paralectotype *S. angulata* r. *nigelloides*). **Fig. 230.** Propodeum, petiole, postpetiole and anterior part of gaster of a female of *S. picea* (paralectotype *S. angulata* r. *nigelloides*). **Fig. 231.** Head of a worker of *S. picea* (paralectotype *S. angulata* r. *nigelloides*). **Fig. 232.** Propodeum, petiole, postpetiole and anterior part of gaster of a male of *S. picea* (paralectotype *S. angulata* r. *nigelloides*) (scale bars = 0.5 mm).

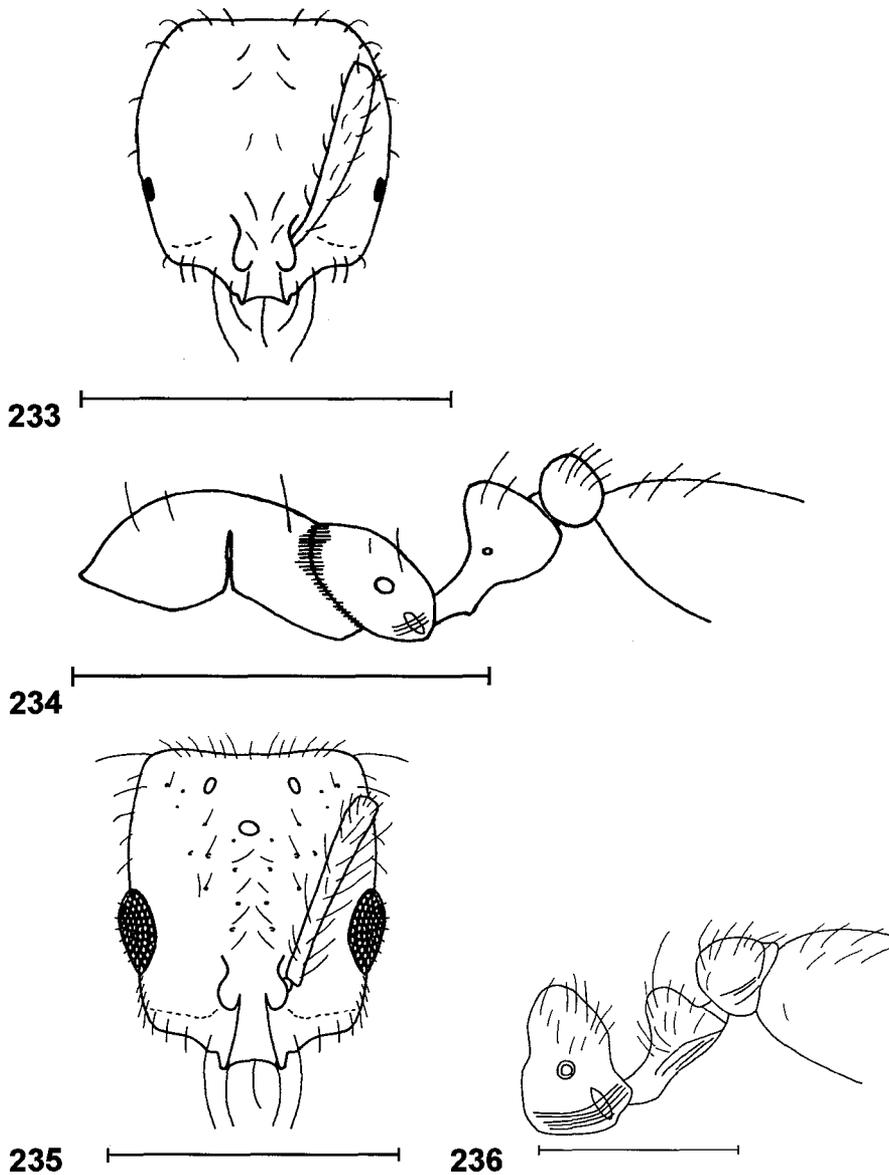


Fig. 233. Head of the worker of *S. picta*. **Fig. 234.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. picta*. **Fig. 235.** Head of a female of *S. picta*. **Fig. 236.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. picta* (scale bars = 0.5 mm).

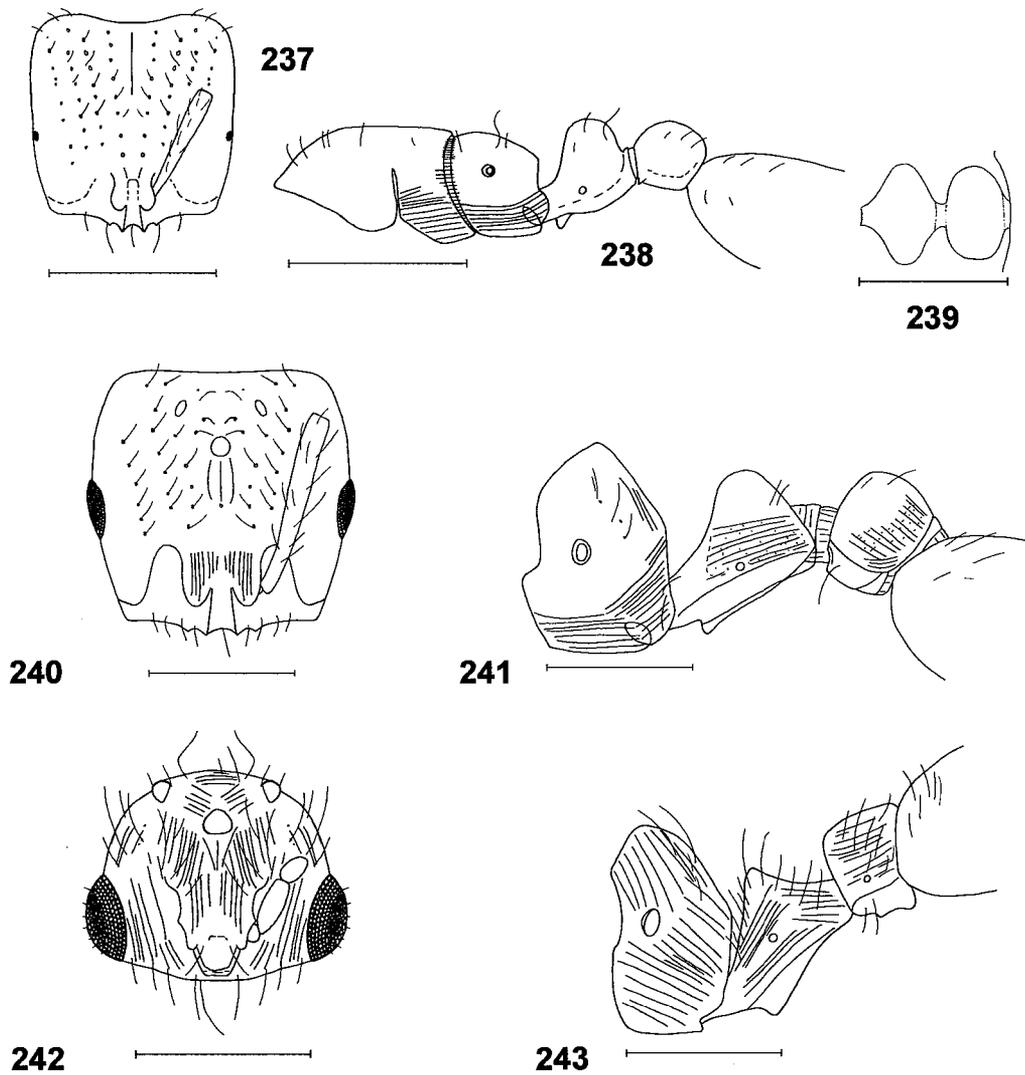


Fig. 237. Head of a worker of *S. pilosula*. **Fig. 238.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. pilosula*. **Fig. 239.** Petiole and postpetiole of a worker of *S. pilosula* as seen from above (Moreno-Gonzalez, 2001). **Fig. 240.** Head of the female of *S. pilosula*. **Fig. 241.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. pilosula*. **Fig. 242.** Head of a male of *S. pilosula*. **Fig. 243.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. pilosula* (scale bars = 0.5 mm).

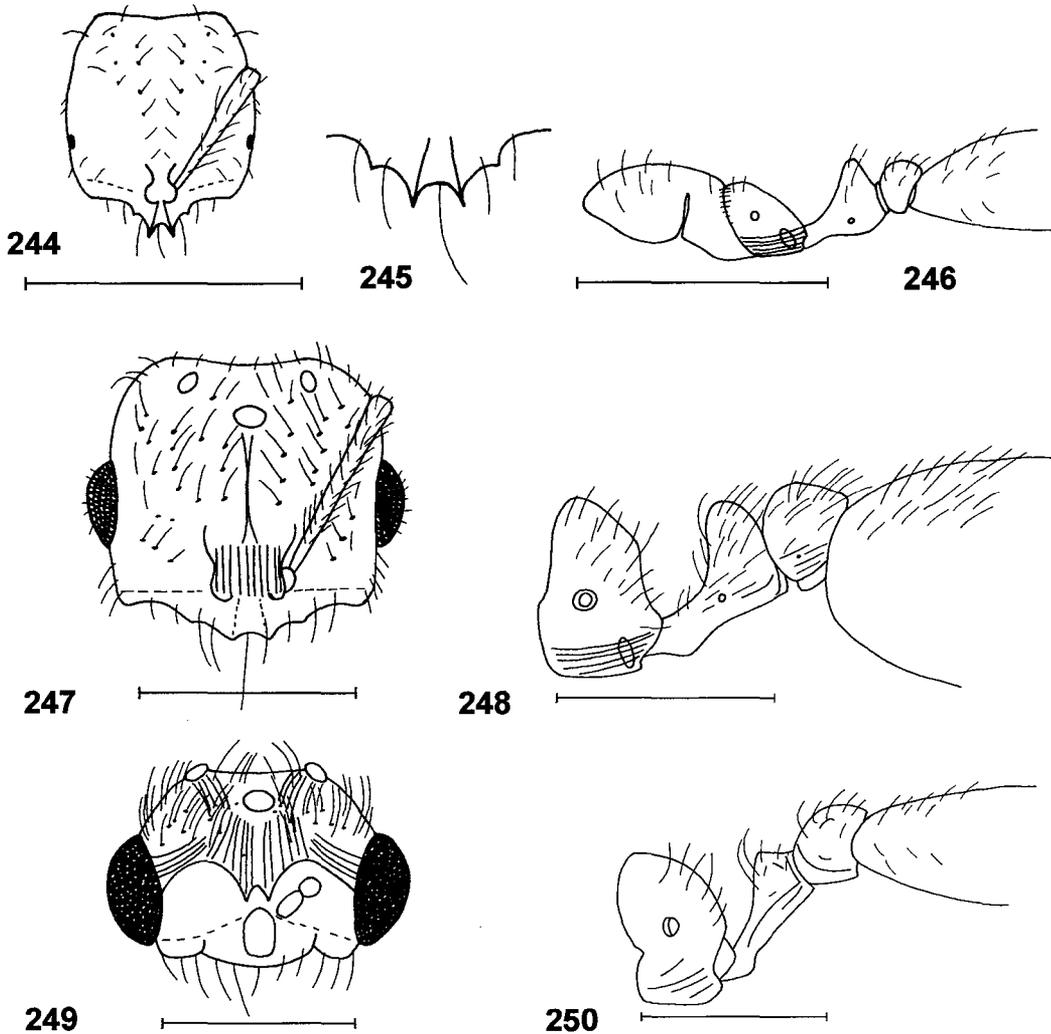


Fig. 244. Head of the worker of *S. pollux* (lectotype). **Fig. 245.** Clypeal enlargement of the worker of *S. pollux* (lectotype). **Fig. 246.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker of *S. pollux* (lectotype). **Fig. 247.** Head of the female of *S. pollux* (paralectotype). **Fig. 248.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. pollux* (paralectotype). **Fig. 249.** Head of the male of *S. pollux* (paralectotype). **Fig. 250.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. pollux* (paralectotype) (scale bars = 0.5 mm).

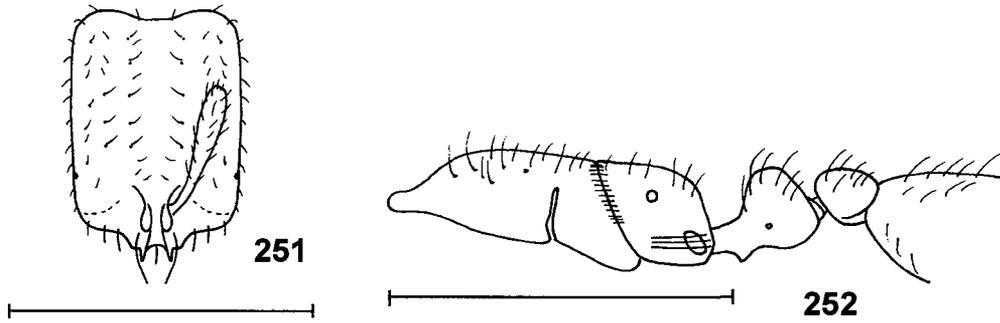


Fig. 251. Head of the worker of *S. pulleni* (paratype). **Fig. 252.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. pulleni* (paratype) (scale bars = 0.5 mm).

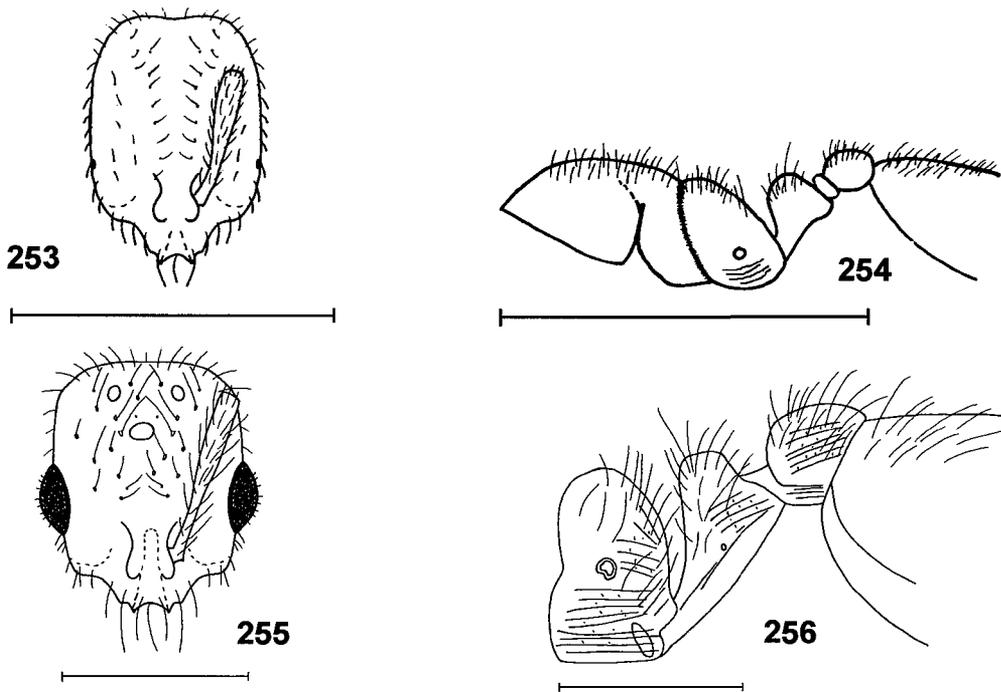
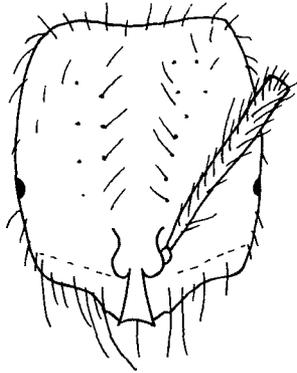
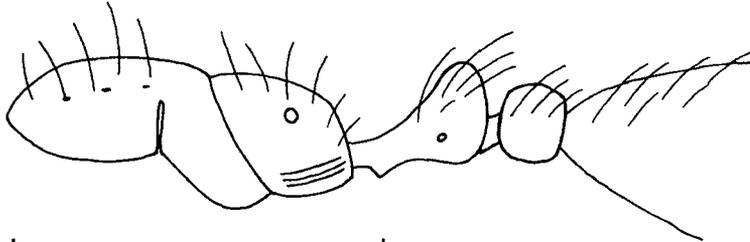


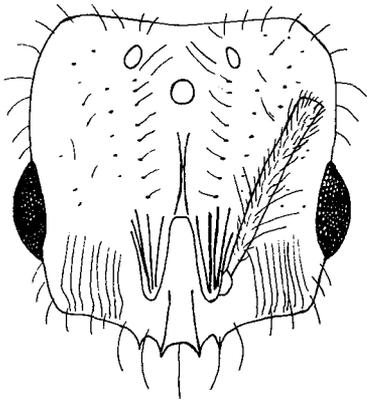
Fig. 253. Head of the worker of *S. pygmaea* (lectotype). **Fig. 254.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. pygmaea* (scale bar = 0.5 mm). **Fig. 255.** Head of a female of *S. pygmaea*. **Fig. 256.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. pygmaea* (scale bars = 0.5 mm).



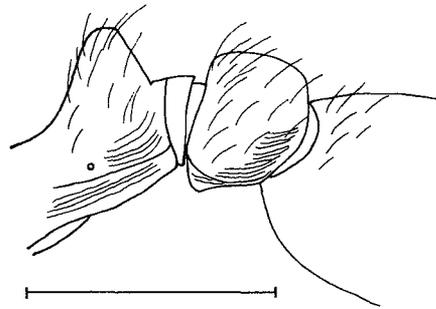
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Fig. 257. Head of a paratype worker of *S. quadridentata*. **Fig. 258.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. quadridentata* (paratype). **Fig. 259.** Head of the holotype female of *S. quadridentata*. **Fig. 260.** Petiole and postpetiole of the holotype female of *S. quadridentata* (scale bars = 0.5 mm).

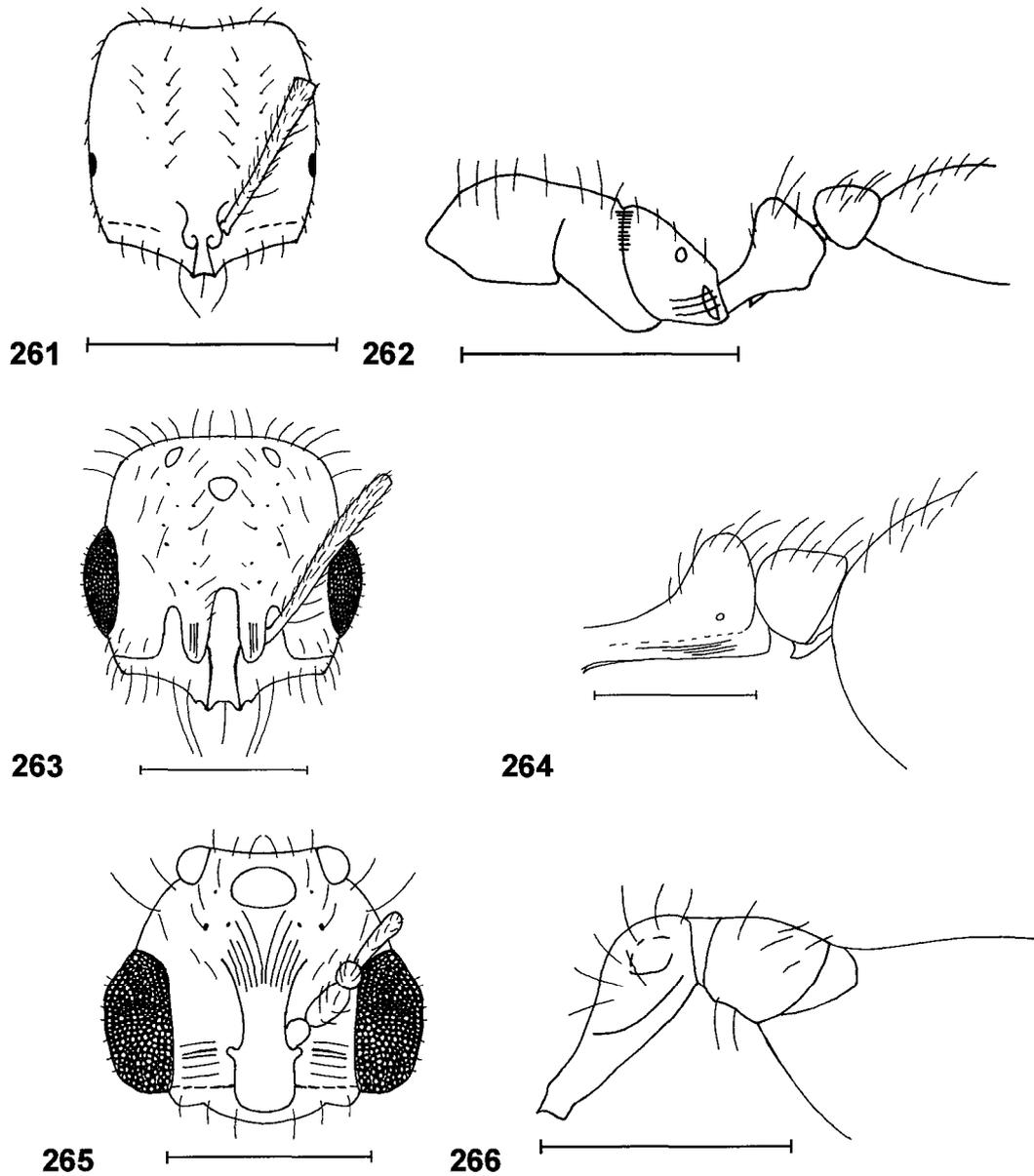


Fig. 261. Head of the worker of *S. rosella*. **Fig. 262.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. rosella*. **Fig. 263.** Head of the female of *S. rosella* (holotype). **Fig. 264.** Petiole and postpetiole of the female of *S. rosella* (holotype). **Fig. 265.** Head of the male of *S. rosella* (allotype). **Fig. 266.** Petiole, postpetiole and anterior part of gaster of a male *S. rosella* (allotype) (scale bars = 0.5 mm).

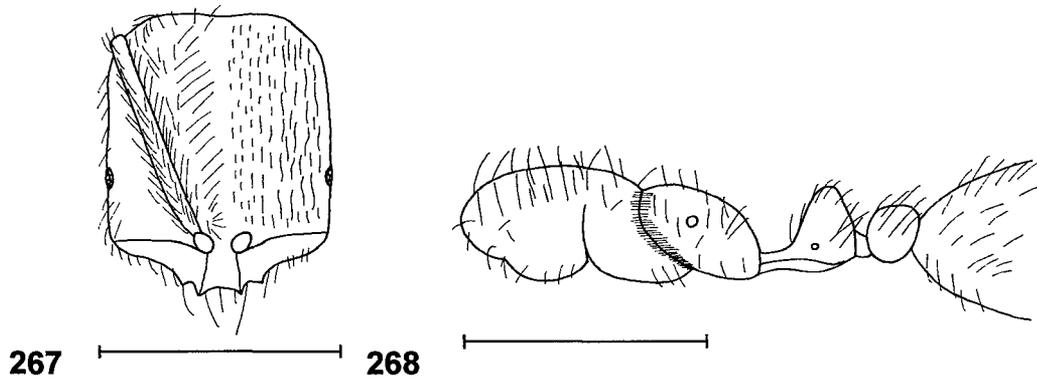


Fig. 267. Head of the worker of *S. rugiceps* (lectotype). **Fig. 268.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. rugiceps* (lectotype) (scale bars = 0.5 mm).

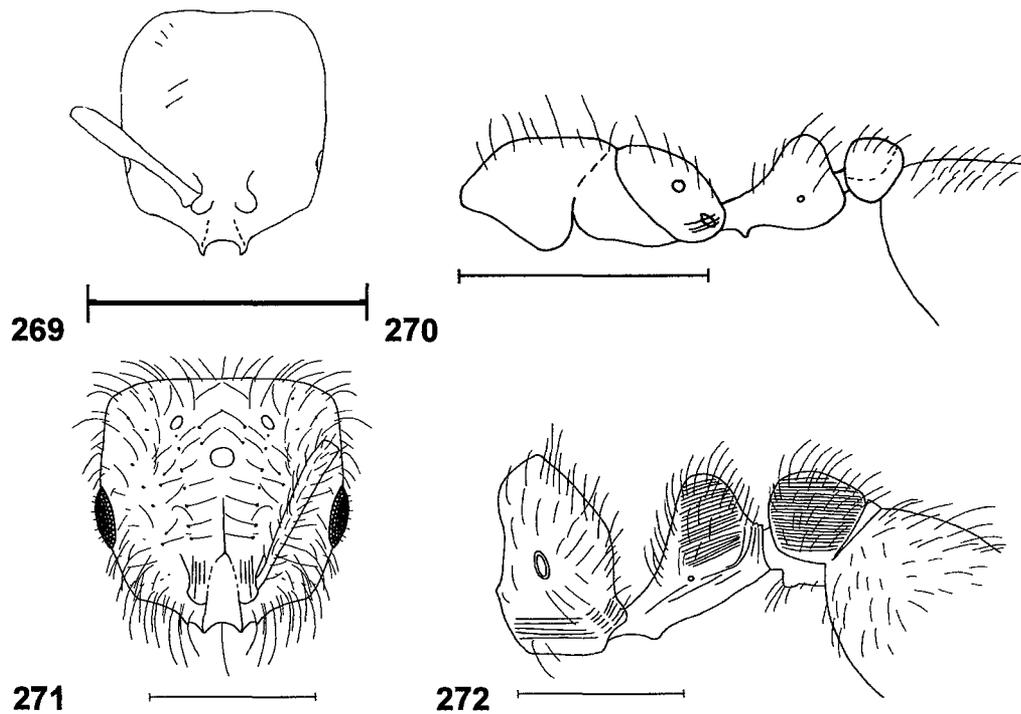


Fig. 269. Head of a worker of *S. salina* (modified from Moreno-Gonzalez, 2001). **Fig. 270.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. salina*. **Fig. 271.** Head of a female of *S. salina*. **Fig. 272.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. salina* (scale bars = 0.5 mm).

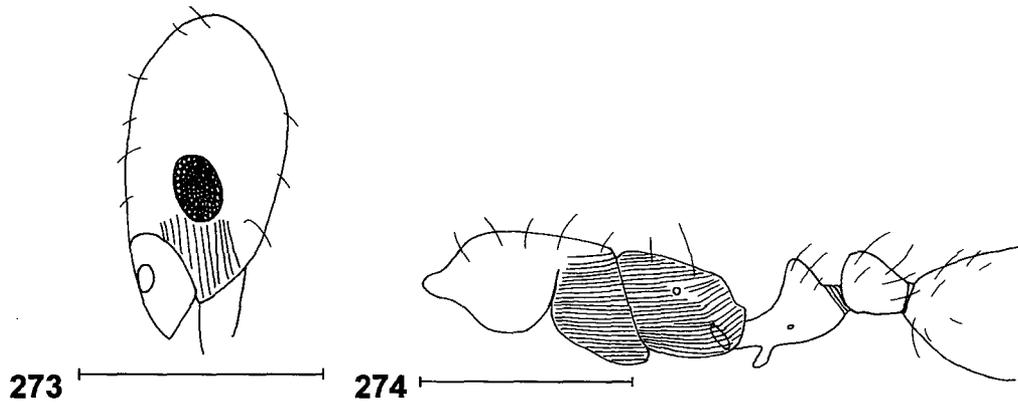


Fig. 273. Side of the head of the worker of *S. schilleri* (holotype). **Fig. 274.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. schilleri* (holotype) (scale bars = 0.5 mm).

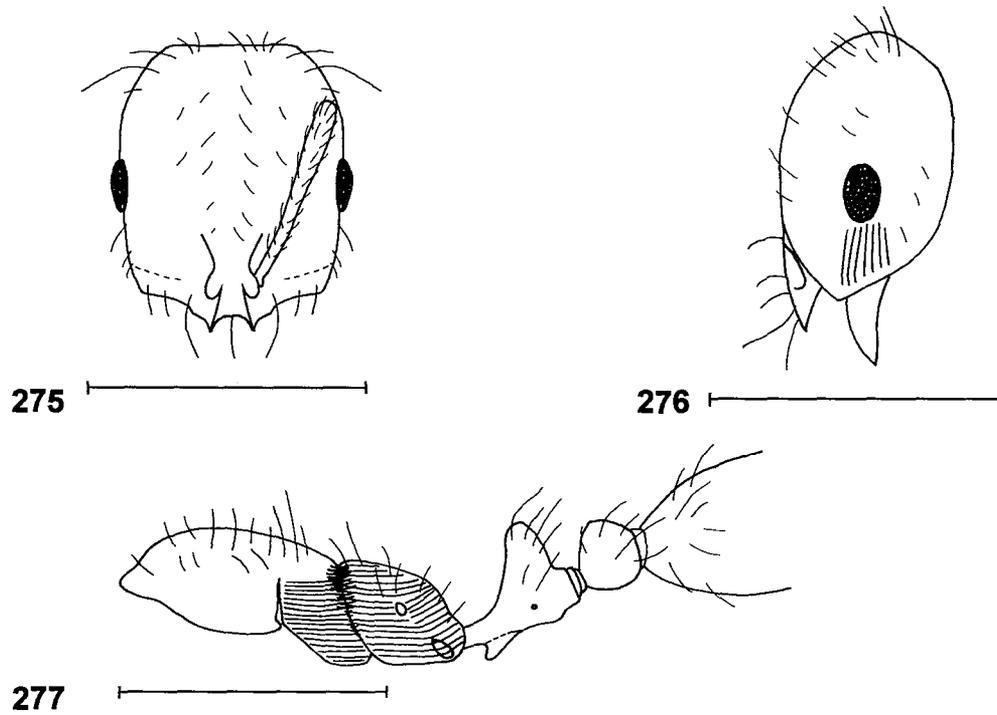


Fig. 275. Head of a worker of *S. shiptoni* (lectotype *S. shiptoni* var. *steigeri*). **Fig. 276.** Side of the head of a worker of *S. shiptoni* (lectotype *S. shiptoni* var. *steigeri*). **Fig. 277.** Mesosoma, petiole, postpetiole and anterior of a worker *S. shiptoni* (lectotype *S. shiptoni* var. *steigeri*) (scale bars = 0.5 mm).

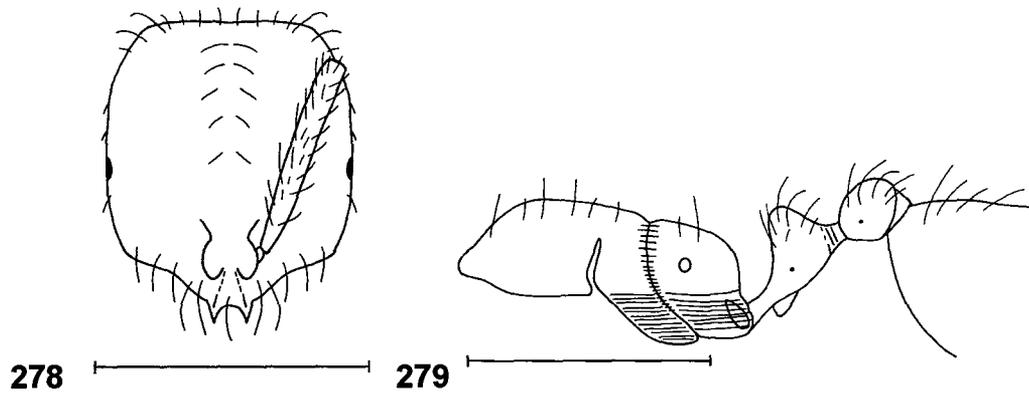


Fig. 278. Head of the worker of *S. striata* (holotype). **Fig. 279.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker of *S. striata* (holotype) (scale bars = 0.5 mm).

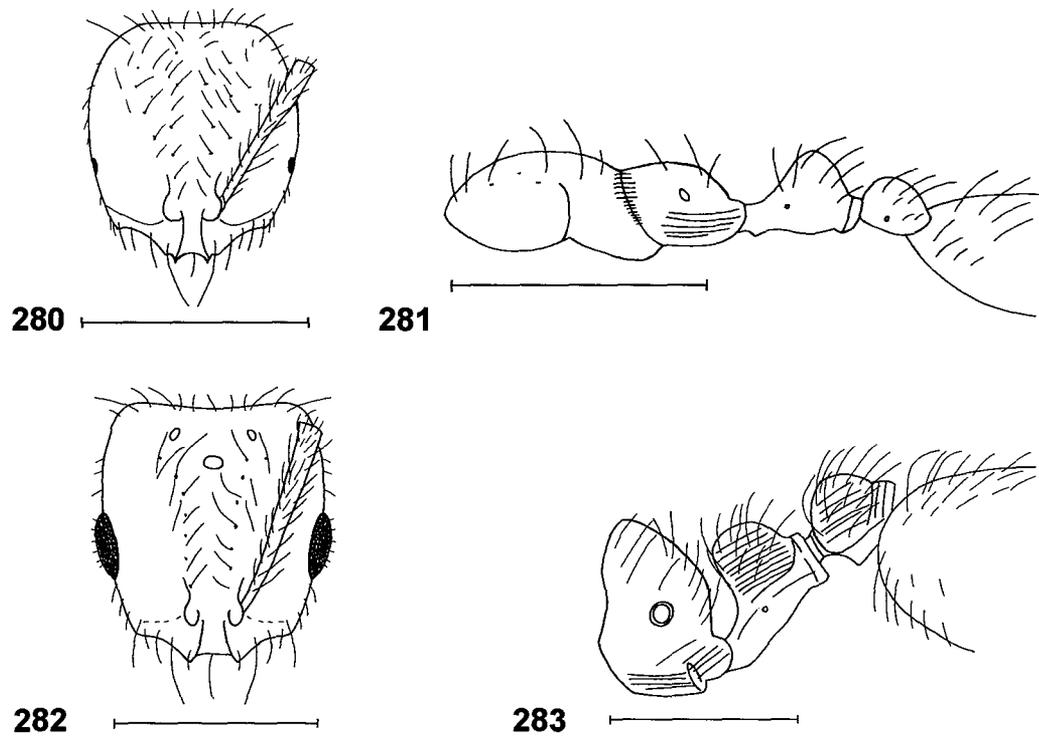


Fig. 280. Head of the worker of *S. stricta*. **Fig. 281.** Mesosoma, petiole, posterior and anterior part of gaster of a worker *S. stricta*. **Fig. 282.** Head of a female of *S. stricta*. **Fig. 283.** Mesosoma, petiole, postpetiole and anterior part of gaster of a female *S. stricta* (scale bars = 0.5 mm).

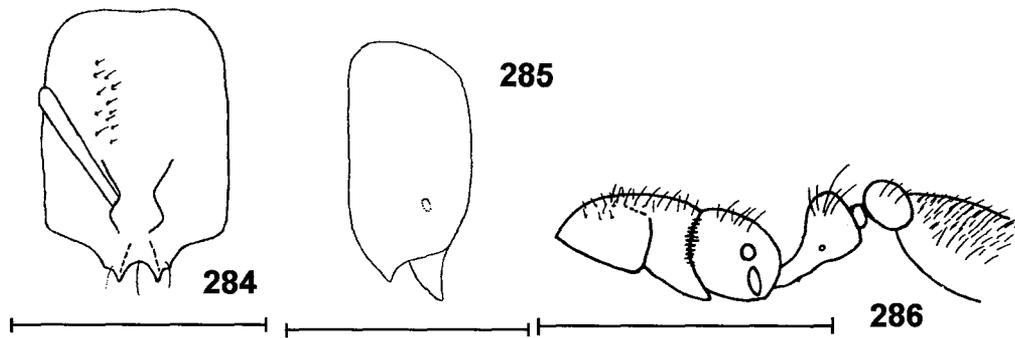


Fig. 284. Head of a worker of *S. subterranea* (paratype from Moreno-Gonzalez, 2001). **Fig. 285.** Side of head of a worker of *S. subterranea* (paratype from Moreno-Gonzalez, 2001). **Fig. 286.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. subterranea* (paratype) (scale bars = 0.5 mm).

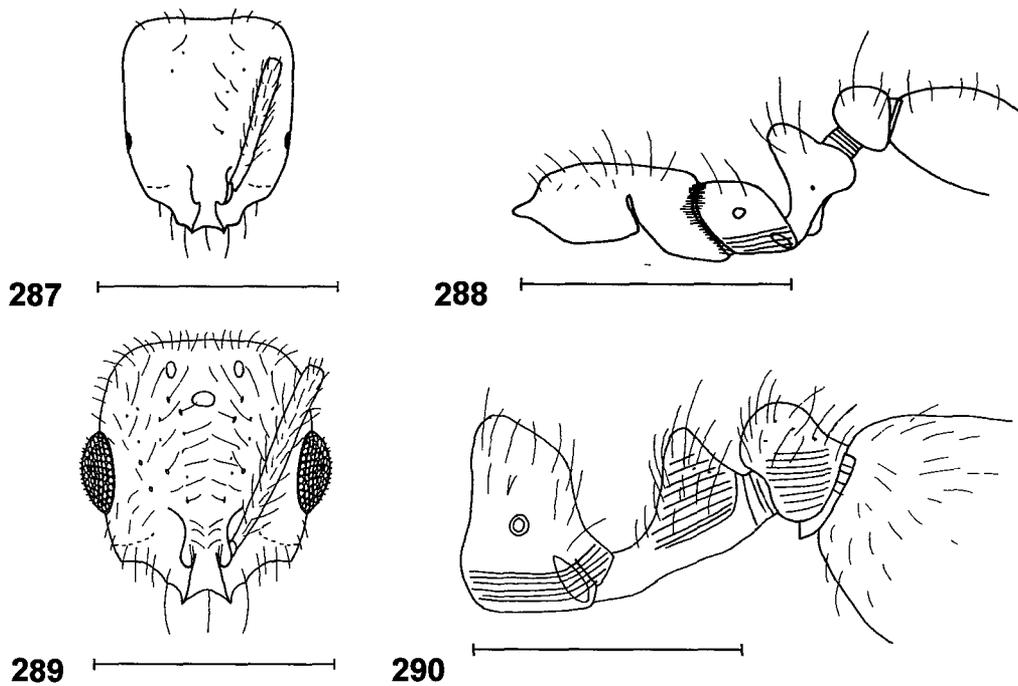


Fig. 287. Head of the worker of *S. subtilis* (lectotype). **Fig. 288.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker of *S. subtilis* (lectotype). **Fig. 289.** Head of a female of *S. subtilis*. **Fig. 290.** Propodeum, petiole and postpetiole of a female of *S. subtilis* (scale bars = 0.5 mm).

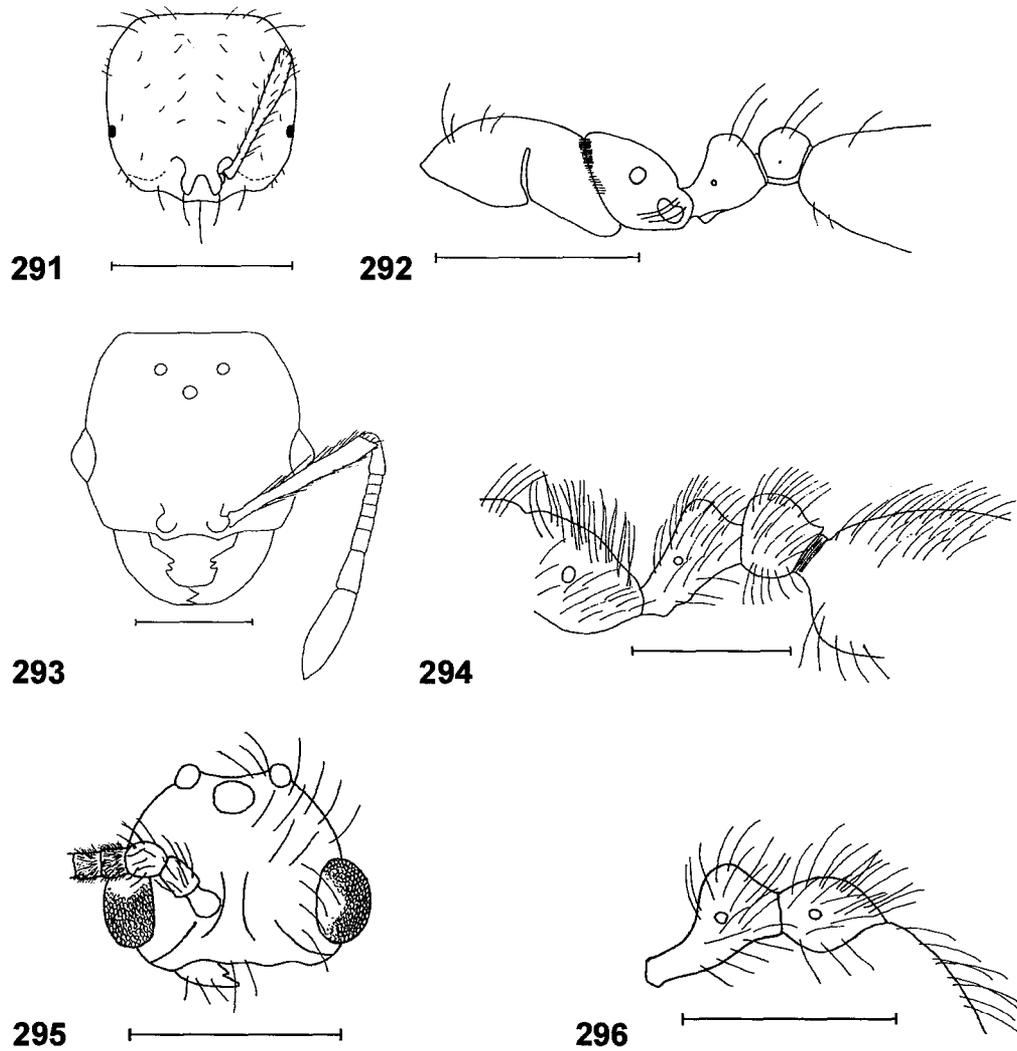


Fig. 291. Head of the worker of *S. succinea* (lectotype of *succinea* r. *nicai*). **Fig. 292.** Mesosoma, petiole, postpetiole and anterior part of gaster of worker *S. succinea* (lectotype of *succinea* r. *nicai*). **Fig. 293.** Head of a female of *S. succinea* (paralectotype, from Moreno-Gonzalez, 2001). **Fig. 294.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. succinea* (paralectotype from Moreno-Gonzalez, 2001). **Fig. 295.** Head of a male of *S. succinea* (paralectotype from Moreno-Gonzalez, 2001). **Fig. 296.** Petiole, postpetiole and anterior part of gaster of a male *S. succinea* (paralectotype from Moreno-Gonzalez, 2001) (scale bars = 0.5 mm).

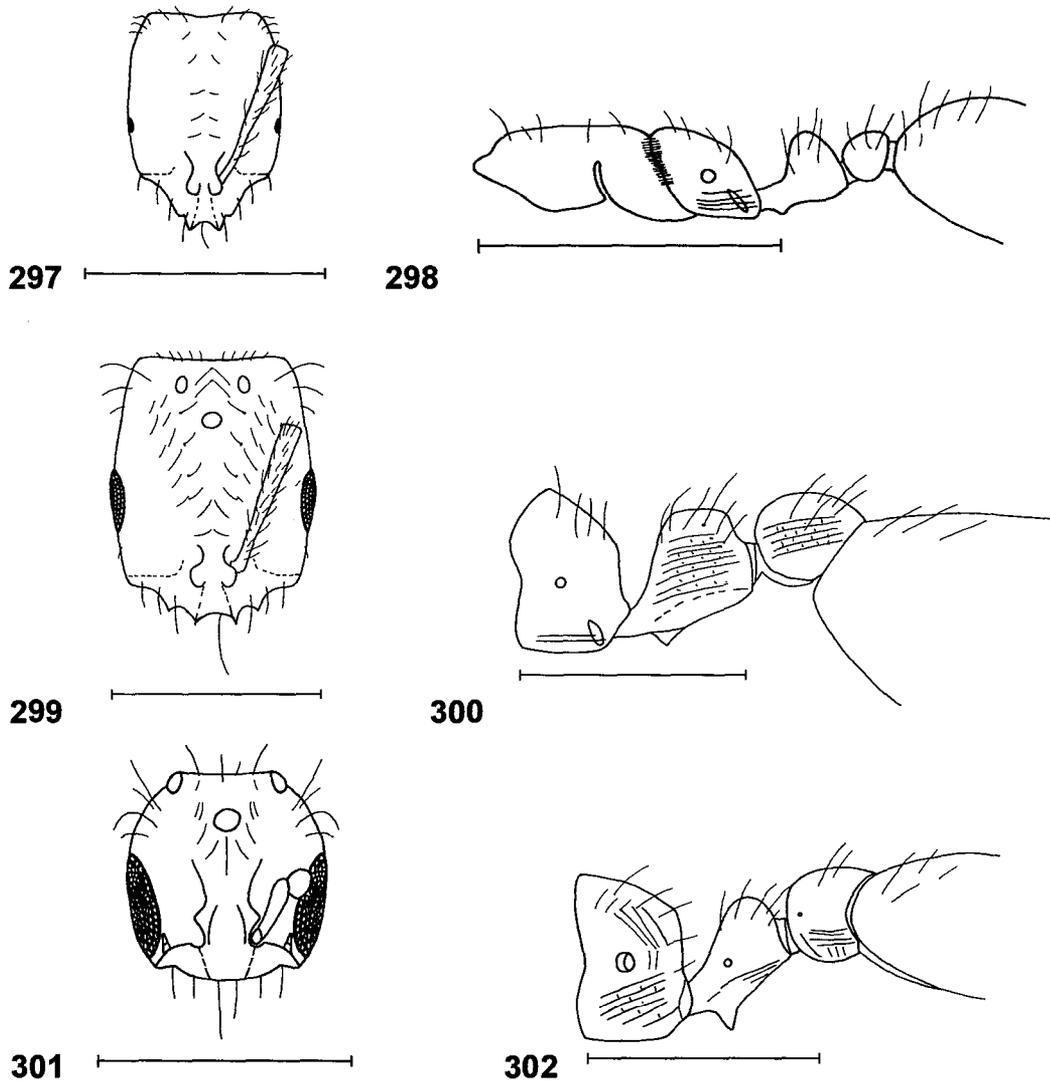


Fig. 297. Head of a worker of *S. sulfurea* (lectotype *S. albidula*). **Fig. 298.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. sulfurea* (lectotype *S. albidula*). **Fig. 299.** Head of a female of *S. sulfurea* (paralectotype *S. albidula*). **Fig. 300.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. sulfurea* (paralectotype *S. albidula*). **Fig. 301.** Head of a male of *S. sulfurea* (paralectotype *S. albidula*). **Fig. 302.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. sulfurea* (paralectotype of *S. albidula*) (scale bars = 0.5 mm).

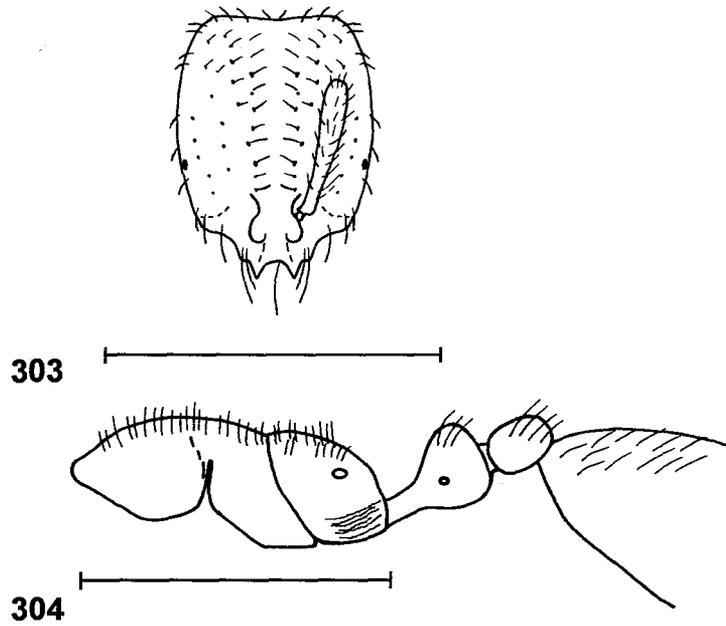


Fig. 303. Head of a worker of *S. tennesseensis*. **Fig. 304.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. tennesseensis* (scale bars = 0.5 mm).

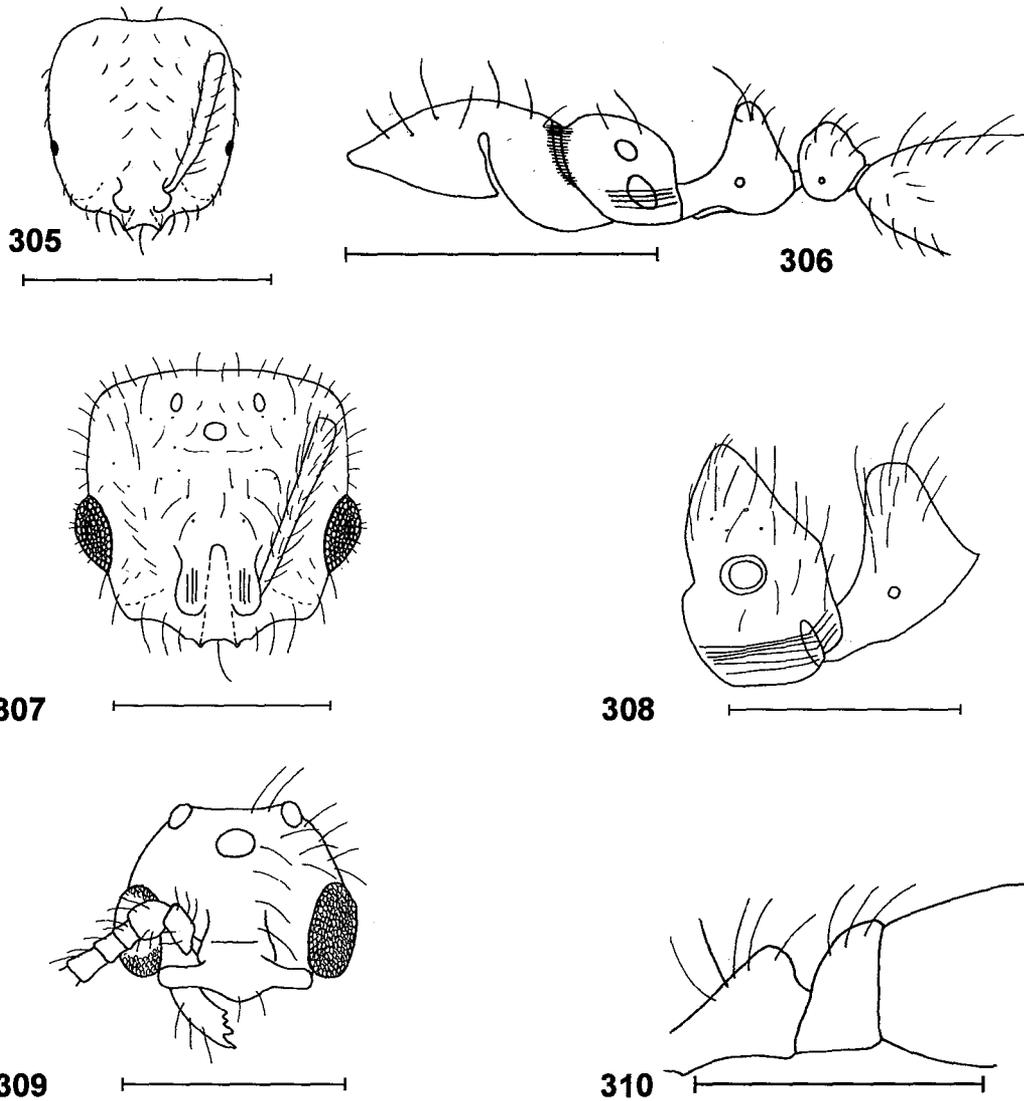


Fig. 305. Head of the worker of *S. tenuis* (lectotype from Moreno-Gonzalez, 2001). **Fig. 306.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. tenuis*. **Fig. 307.** Head of the female of *S. tenuis* (paralectotype). **Fig. 308.** Propodeum and petiole of a female of *S. tenuis* (paralectotype). **Fig. 309.** Head of a male of *S. tenuis* (Rosario, Santa Fe, Argentina, from Moreno-Gonzalez, 2001). **Fig. 310.** Petiole, postpetiole and anterior part of gaster of a male *S. tenuis* (Rosario, Santa Fe, Argentina, from Moreno-Gonzalez, 2001) (scale bars = 0.5 mm).

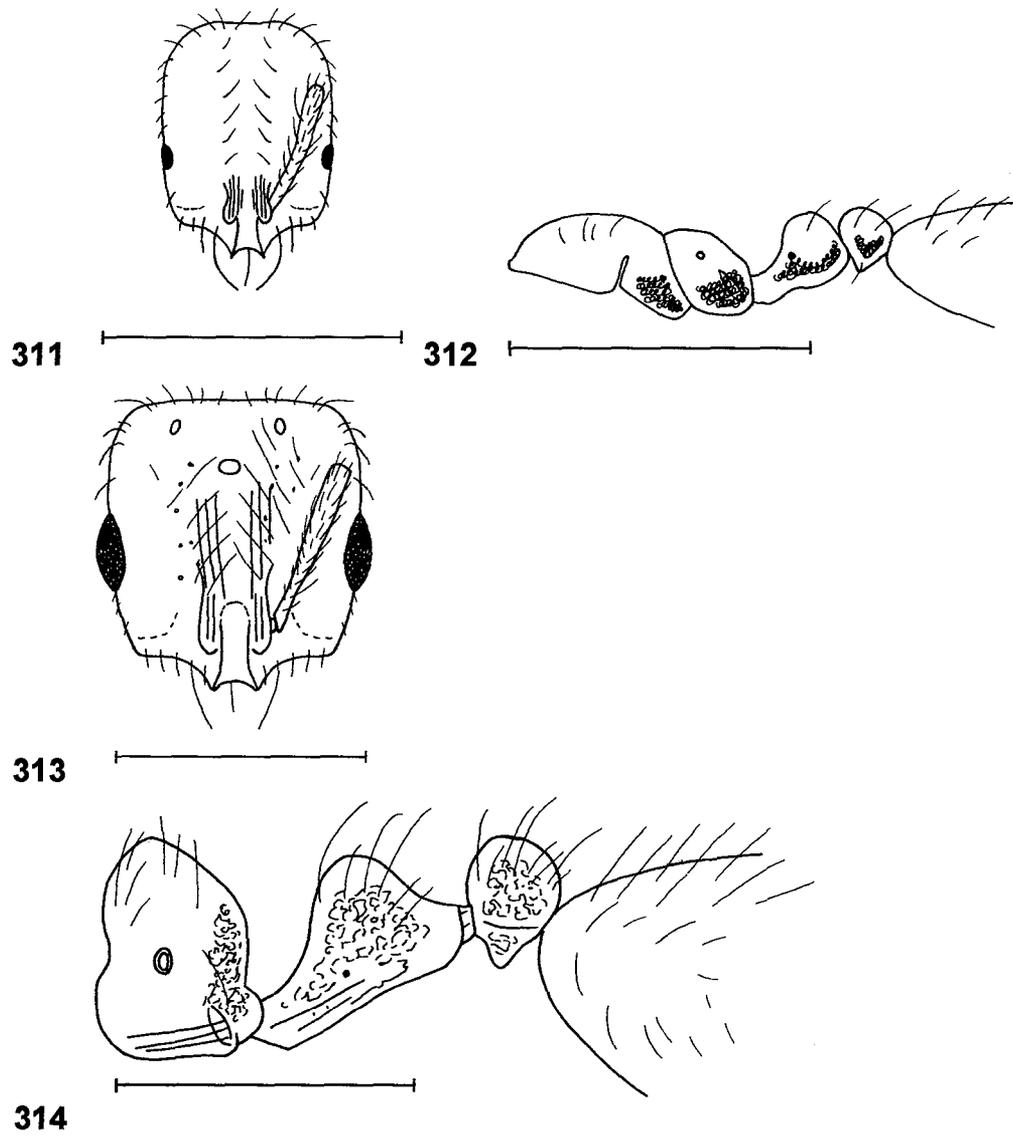


Fig. 311. Head of the worker of *S. terricola*. **Fig. 312.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. terricola*. **Fig. 313.** Head of a female of *S. terricola*. **Fig. 314.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. terricola* (scale bars = 0.5 mm).

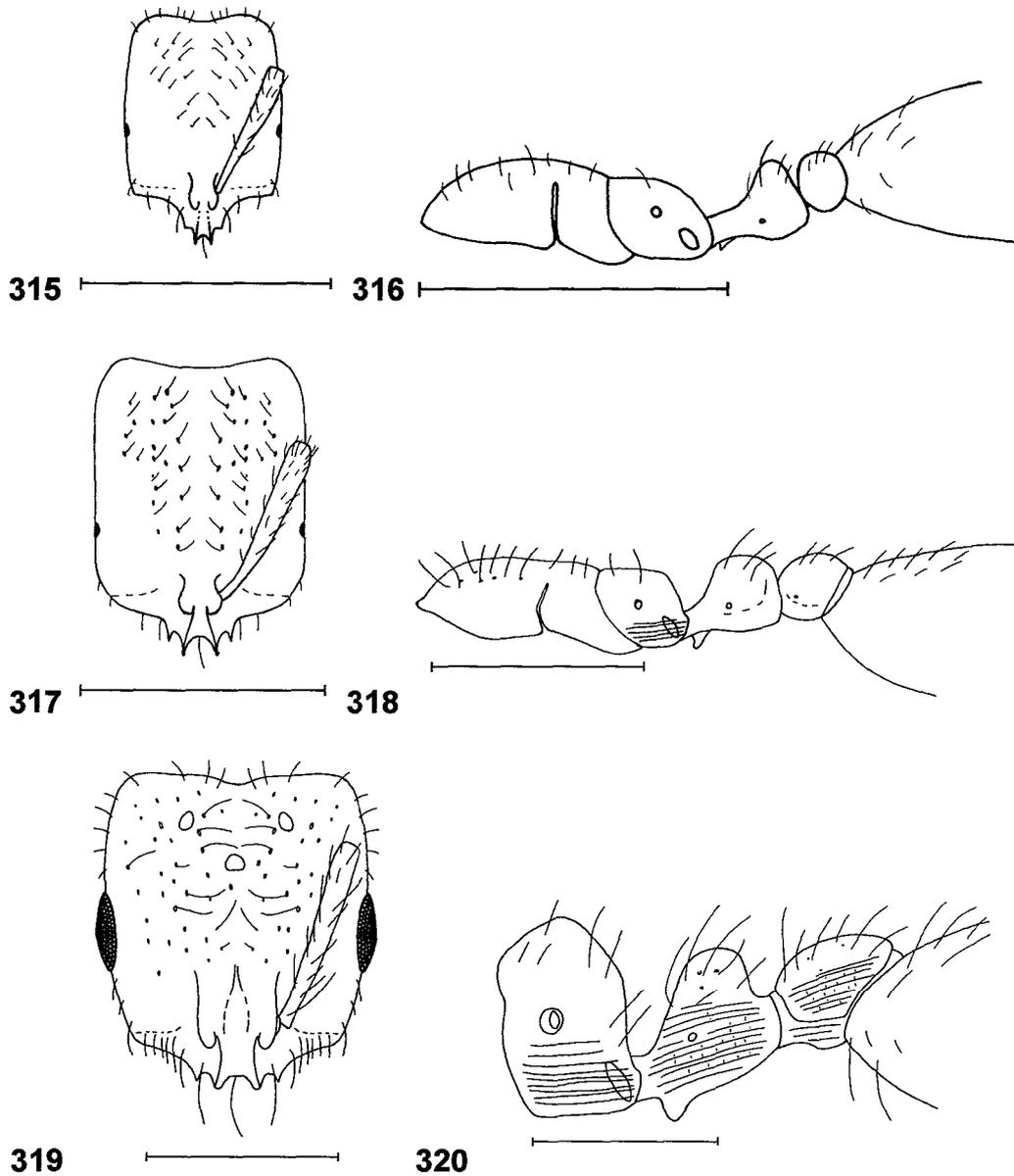


Fig. 315. Head of a minor worker of *S. tetracantha* (lectotype *S. tetracantha* var. *videns*). **Fig. 316.** Mesosoma, petiole, postpetiole and anterior part of gaster of a minor *S. tetracantha* (lectotype of *S. tetracantha* var. *videns*). **Fig. 317.** Head of a major worker of *S. tetracantha*. **Fig. 318.** Mesosoma, petiole, postpetiole and anterior part of gaster of a major *S. tetracantha*. **Fig. 319.** Head of a female of *S. tetracantha*. **Fig. 320.** Mesosoma, petiole, postpetiole and anterior part of gaster of a female *S. tetracantha* (scale bars = 0.5 mm).

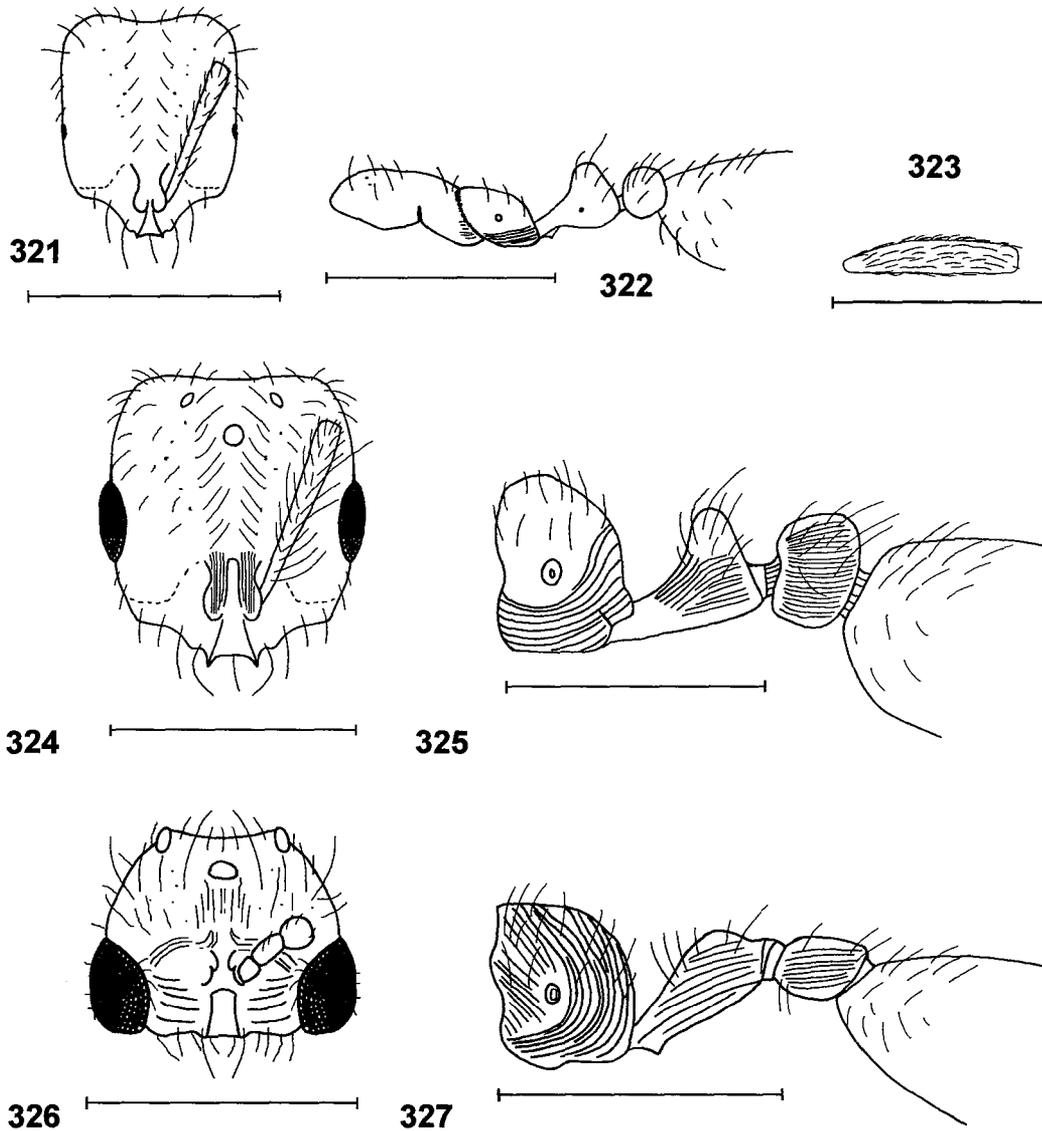


Fig. 321. Head of a worker of *S. texana*. **Fig. 322.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. texana*. **Fig. 323.** Posterior left tibia of the worker of *S. texana* (lectotype from Moreno-Gonzalez, 2001). **Fig. 324.** Head of a female of *S. texana*. **Fig. 325.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. texana*. **Fig. 326.** Head of a male of *S. texana*. **Fig. 327.** Mesosoma, petiole, postpetiole and anterior part of gaster of a male *S. texana* (scale bars = 0.5 mm).

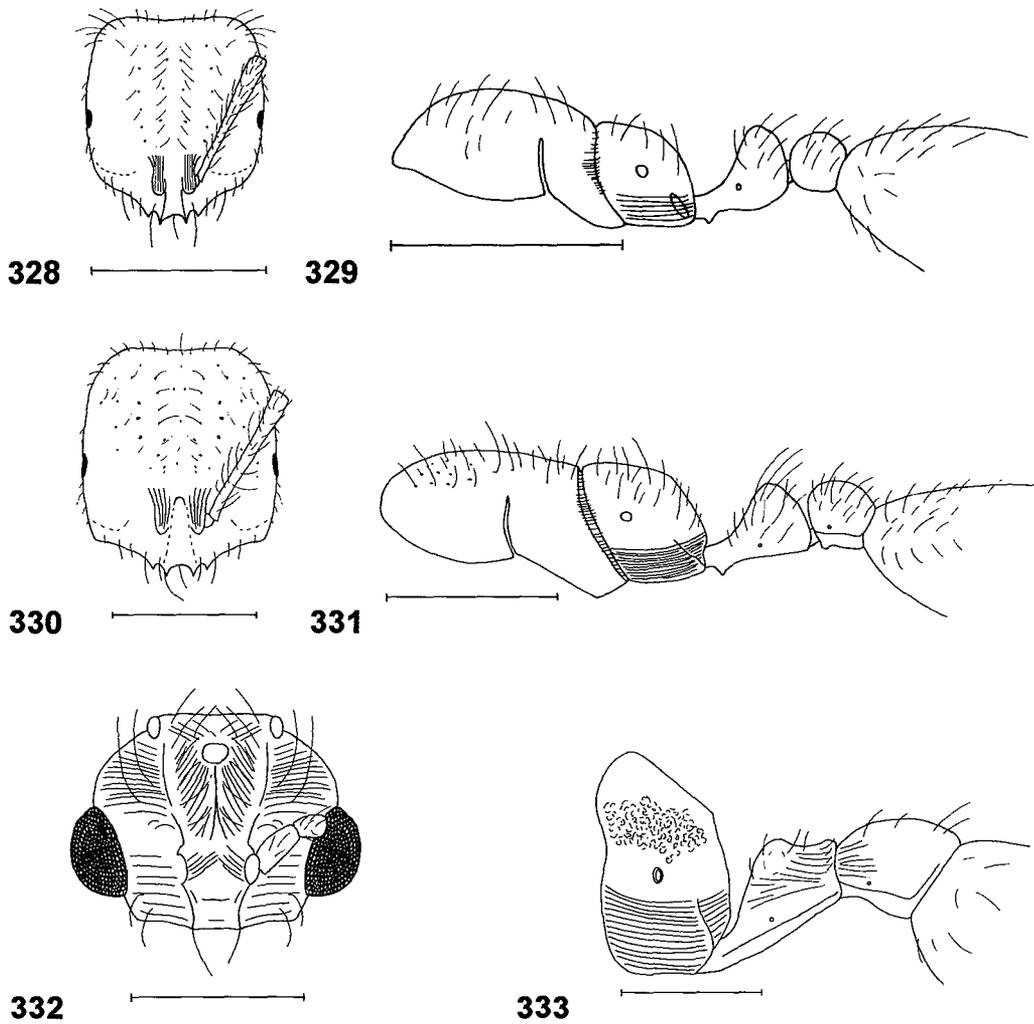


Fig. 328. Head of the paralectotype minor of *S. thoracica*. **Fig. 329.** Mesosoma, petiole, postpetiole and anterior part of gaster of the paralectotype minor of *S. thoracica*. **Fig. 330.** Head of the lectotype major of *S. thoracica*. **Fig. 331.** Mesosoma, petiole, postpetiole and anterior part of gaster of the lectotype major of *S. thoracica*. **Fig. 332.** Head of the paralectotype male of *S. thoracica*. **Fig. 333.** Propodeum, petiole, postpetiole and anterior part of gaster of the paralectotype male of *S. thoracica* (scale bars = 0.5 mm).

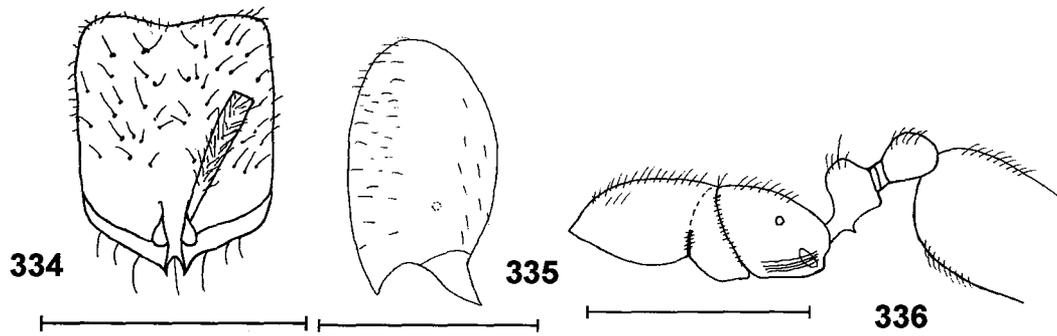


Fig. 334. Head of the worker of *S. tonsa*. **Fig. 335.** Side view of the head of a worker of *S. tonsa* (from Moreno-Gonzalez, 2001). **Fig. 336.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. tonsa* (scale bars = 0.5 mm).

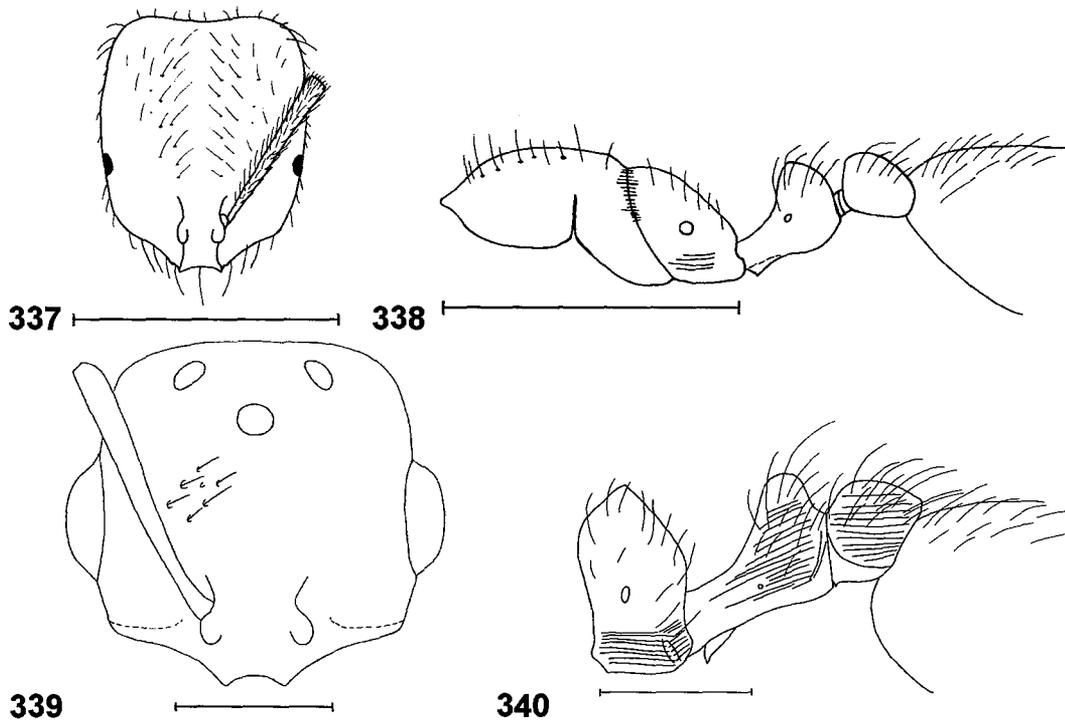


Fig. 337. Head of the worker of *S. validiuscula*. **Fig. 338.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. validiuscula*. **Fig. 339.** Head of a female of *S. validiuscula* (from Moreno-Gonzalez, 2001) (scale bars = 0.5 mm). **Fig. 340.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. validiuscula* (scale bar = 0.5 mm).

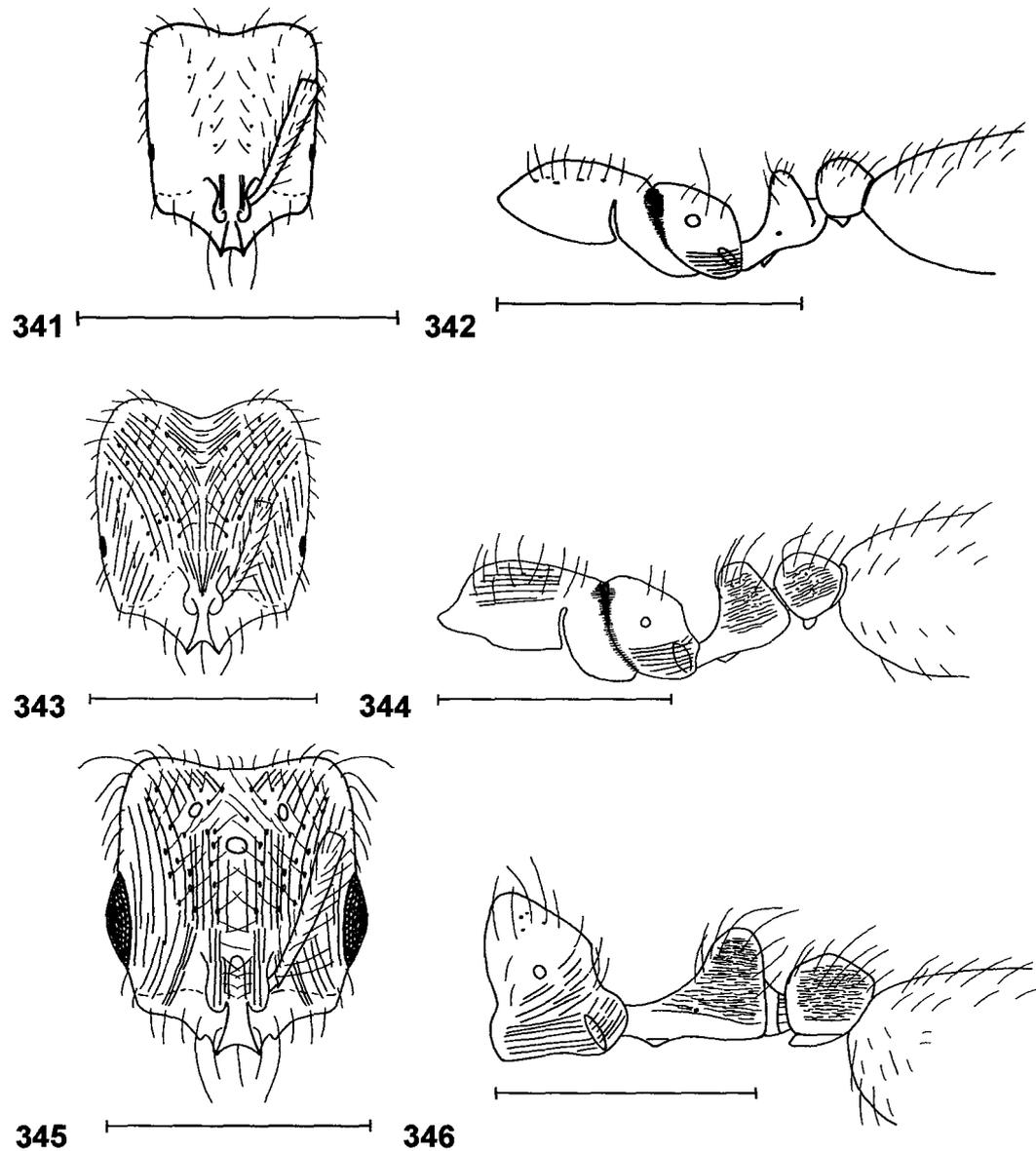


Fig. 341. Head of a worker of *S. vinsoni* (paratype). **Fig. 342.** Mesosoma, petiole, postpetiole and anterior part of gaster of a minor worker *S. vinsoni* (paratype). **Fig. 343.** Head of a major of *S. vinsoni* (paratype). **Fig. 344.** Mesosoma, petiole, postpetiole and anterior part of gaster major *S. vinsoni* (paratype). **Fig. 345.** Head of a female of *S. vinsoni* (paratype). **Fig. 346.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. vinsoni* (paratype) (scale bars = 0.5 mm).

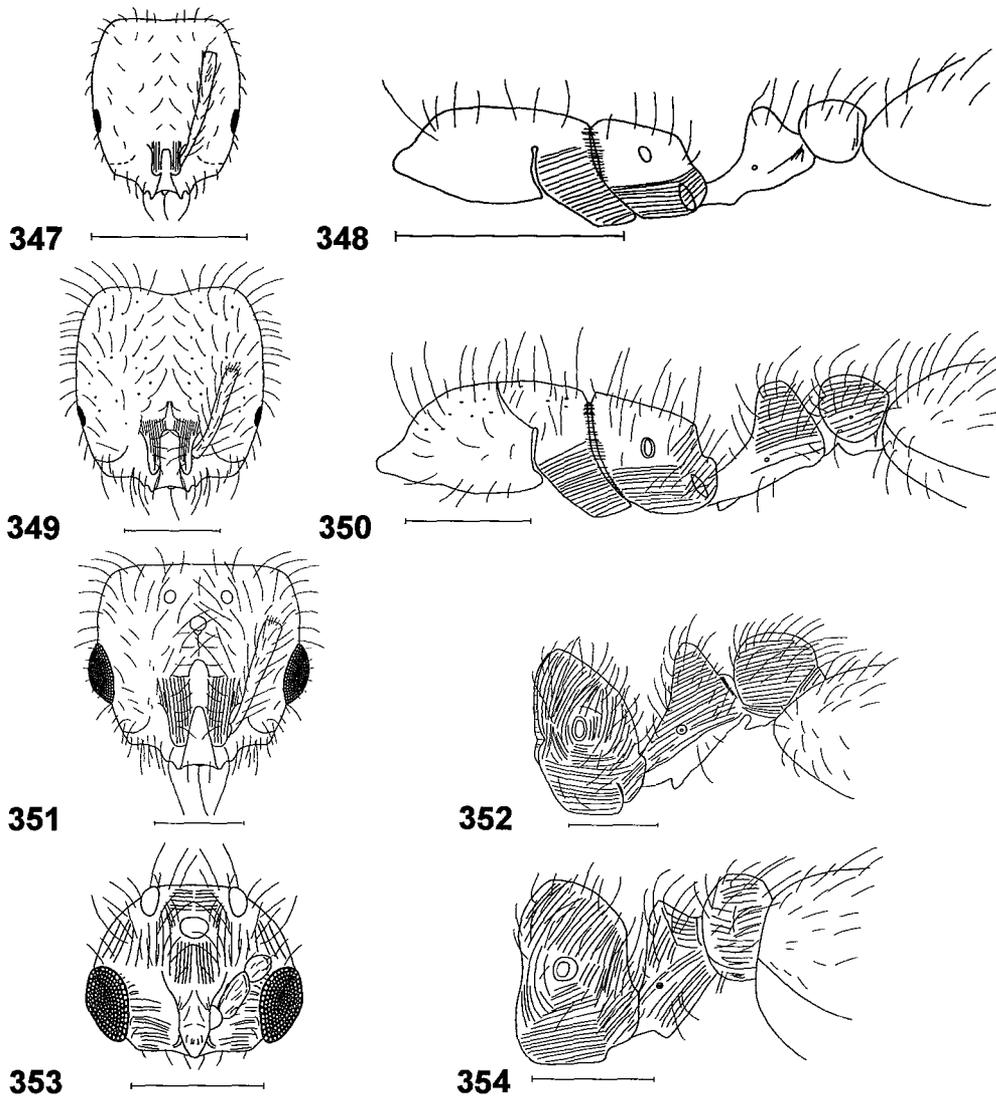


Fig. 347. Head of the worker of *S. wasmannii* (lectotype). **Fig. 348.** Mesosoma, petiole, postpetiole and anterior part of gaster of a minor *S. wasmannii* (lectotype). **Fig. 349.** Head of a major worker of *S. wasmannii* (paralectotype). **Fig. 350.** Mesosoma, petiole, postpetiole and anterior part of gaster of a major *S. wasmannii* (paralectotype). **Fig. 351.** Head of the female of *S. wasmannii* (paralectotype). **Fig. 352.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. wasmannii* (paralectotype). **Fig. 353.** Head of the male of *S. wasmannii* (paralectotype). **Fig. 354.** Propodeum, petiole, postpetiole and anterior part of gaster of a male *S. wasmannii* (paralectotype) (scales bar = 0.5 mm).

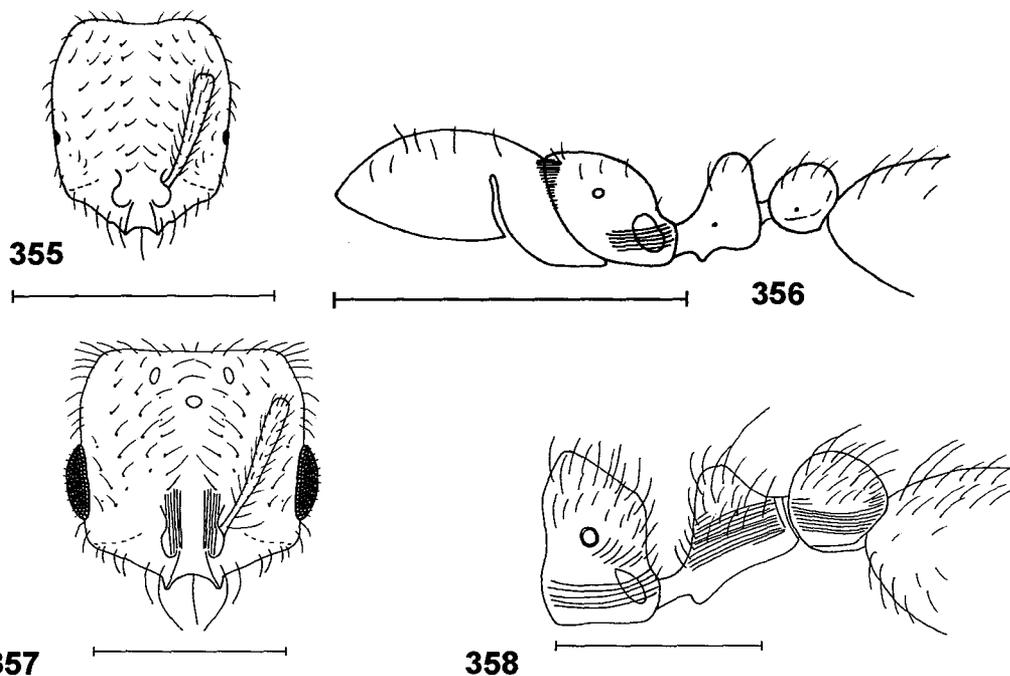


Fig. 355. Head of the worker of *S. westwoodi* (lectotype). **Fig. 356.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. westwoodi* (lectotype). **Fig. 357.** Head of the female of *S. westwoodi* (paralectotype of *S. westwoodi* var. *platensis*). **Fig. 358.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. westwoodi* (paralectotype of *S. westwoodi* var. *platensis*) (scale bars = 0.5 mm).

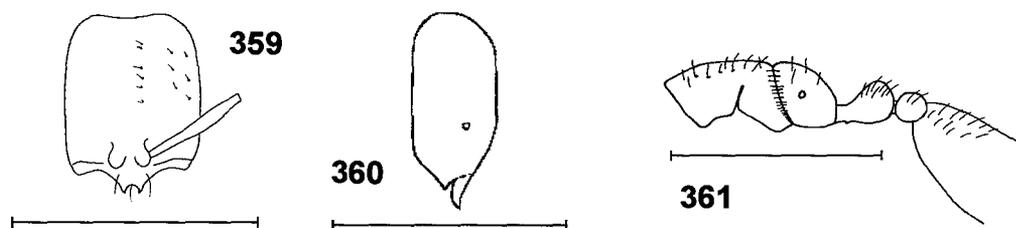


Fig. 359. Head of the worker of *S. whitfordi* (holotype) (modified from Moreno-Gonzalez, 2001)(scale bar =0.5 mm). **Fig. 360.** Side of the head of the worker of *S. whitfordi* (holotype) (modified from Moreno-Gonzalez, 2001). **Fig. 361.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. whitfordi* (holotype) (scale bars = 0.5 mm).

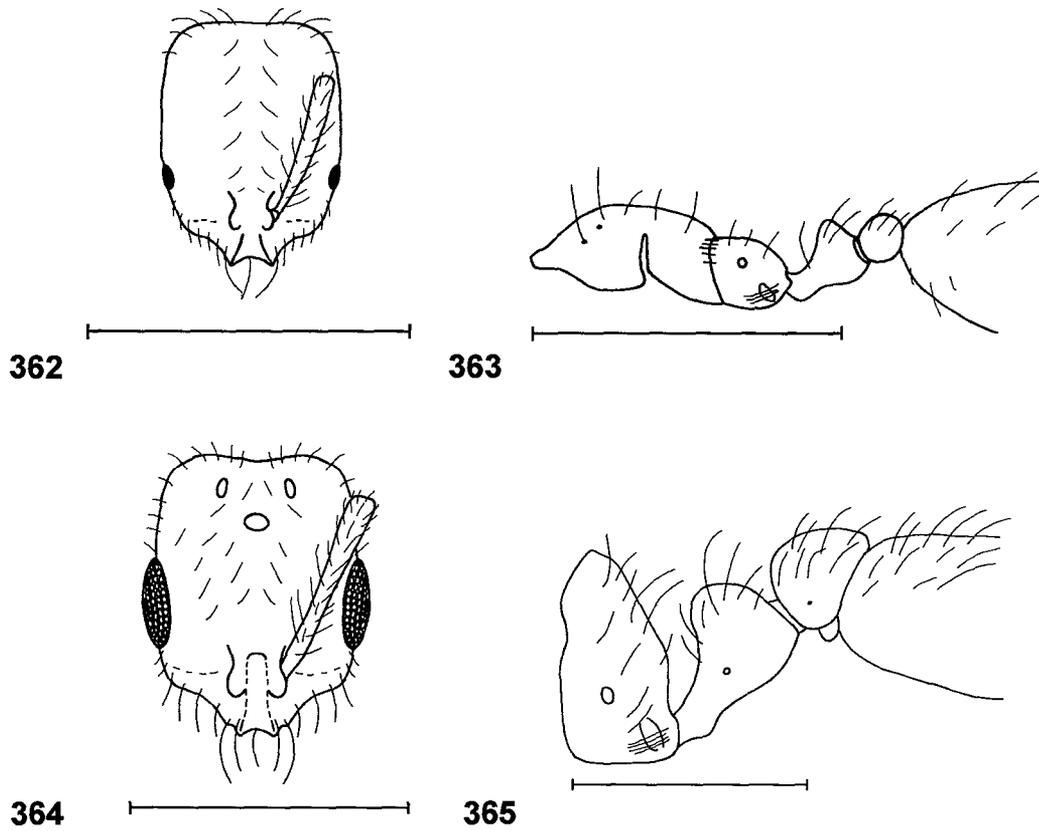
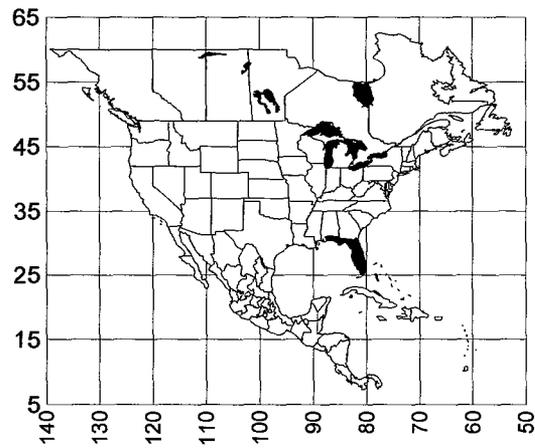


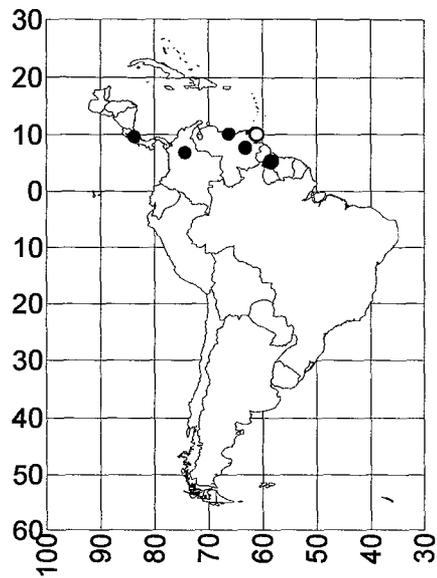
Fig. 362. Head of the worker of *S. zeteki*. **Fig. 363.** Mesosoma, petiole, postpetiole and anterior part of gaster of a worker *S. zeteki*. **Fig. 364.** Head of a female of *S. zeteki* (paratype *S. torresi*). **Fig. 365.** Propodeum, petiole, postpetiole and anterior part of gaster of a female *S. zeteki* (paratype of *S. torresi*) (scale bars = 0.5 mm).



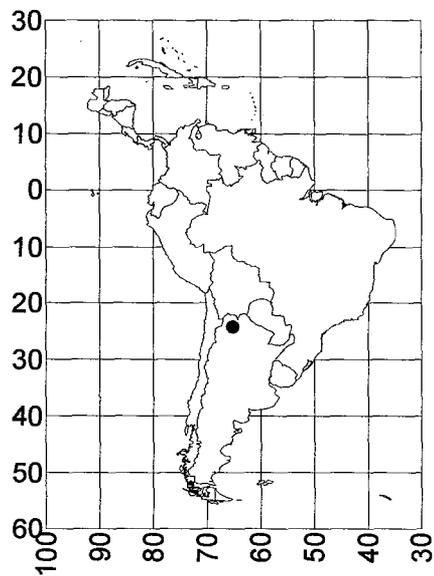
Map 1. *Solenopsis abdita*. Darkened circles represent examined specimens and opened circles are from the literature (Thompson 1989, Thompson and Johnson 1989).



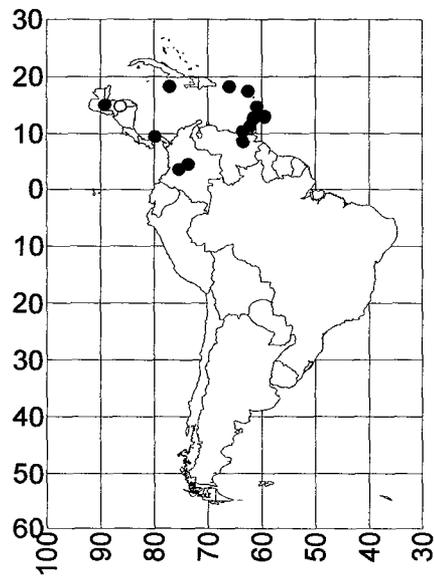
Map 2. *Solenopsis abjectior*.



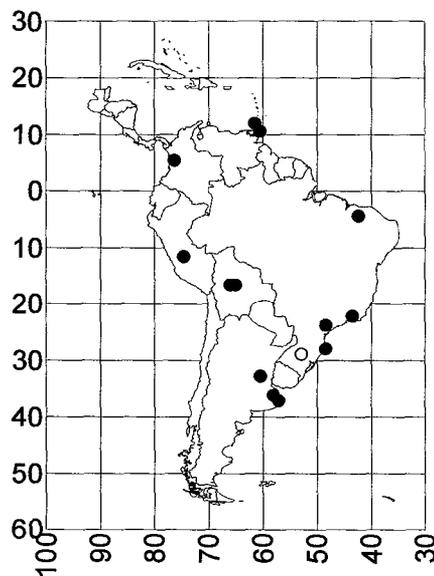
Map 3. *Solenopsis altinodis*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf, 1972, Forel 1912).



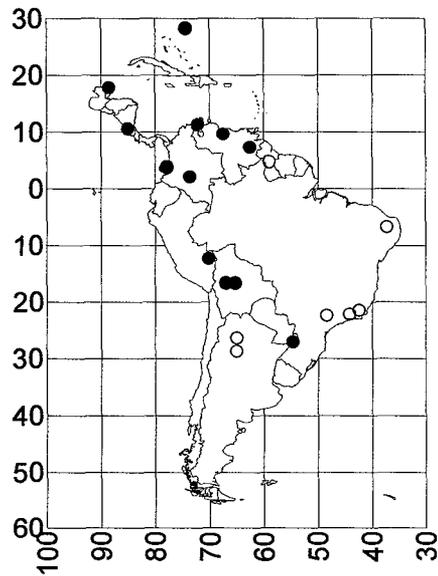
Map 4. *Solenopsis andina*.



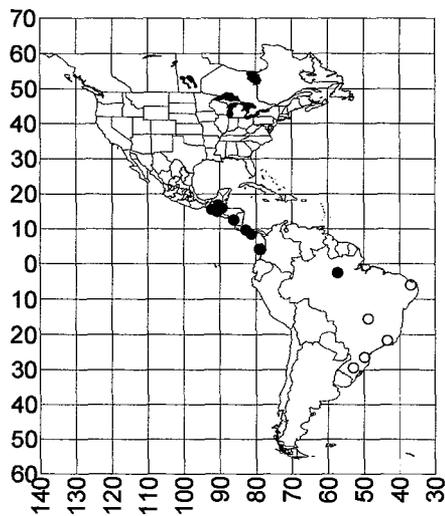
Map 5. *Solenopsis azteca*. Darkened circles represent examined specimens and opened circles are from the literature (Forel 1893, Kempf 1972).



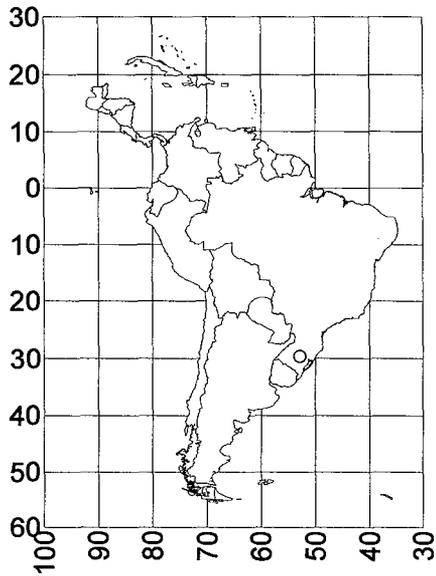
Map 6. *Solenopsis basalis*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).



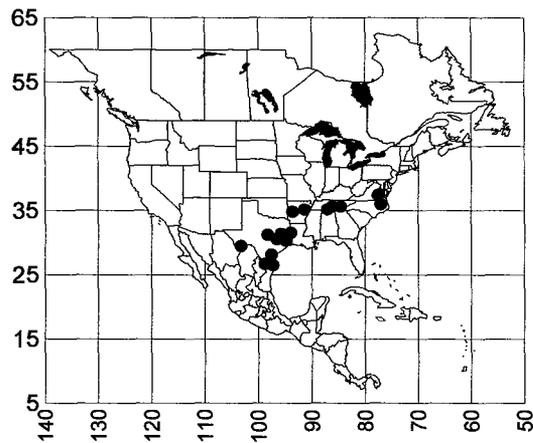
Map 7. *Solenopsis bicolor*. Darkened circles represent examined specimens and opened circles are from the literature (Emery 1906, Forel 1912 and Kempf 1972).



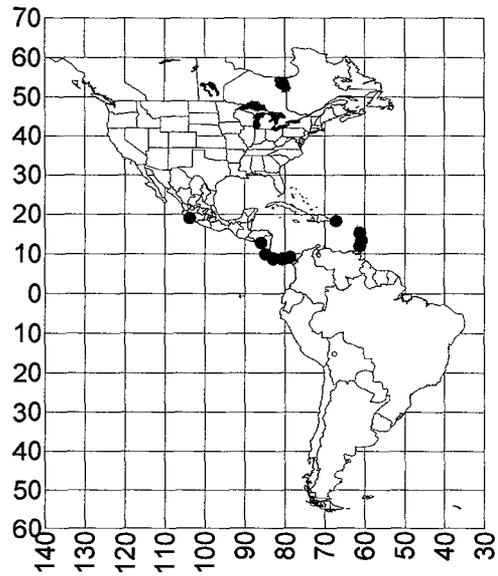
Map 8. *Solenopsis brevicornis*. Darkened circles represent examined specimens and opened circles are from the literature (Borgmeier 1928, Emery 1888, Santschi 1923).



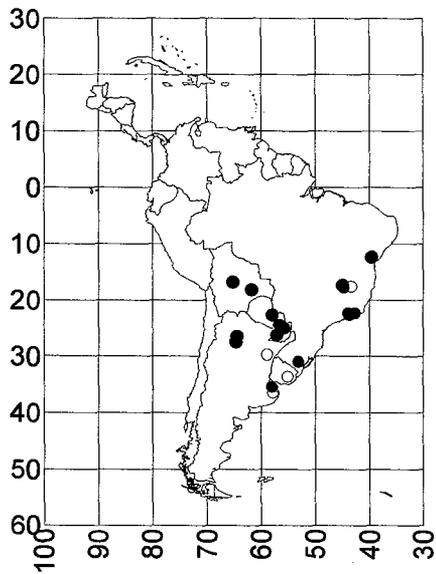
Map 9. *Solenopsis bucki*. The opened circle in South Brazil is from the literature (Kempf 1973).



Map 10. *Solenopsis carolinensis*. Darkened circles represent examined specimens and opened circles are from the literature (Creighton 1950).

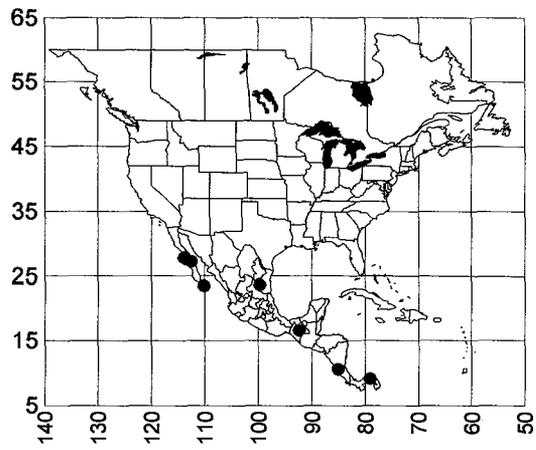


Map 11. *Solenopsis castor*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

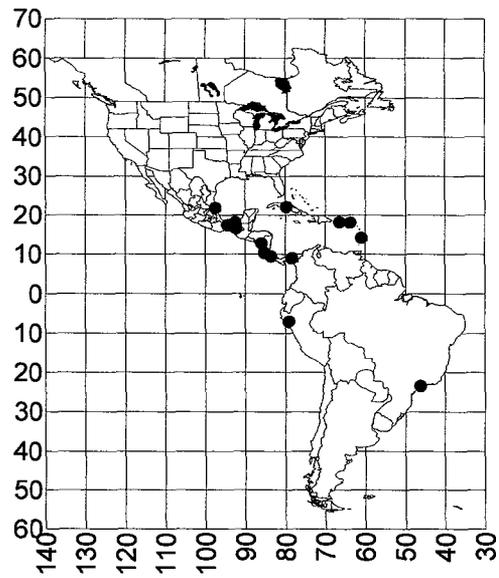


Map 12. *Solenopsis clytemnestra*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

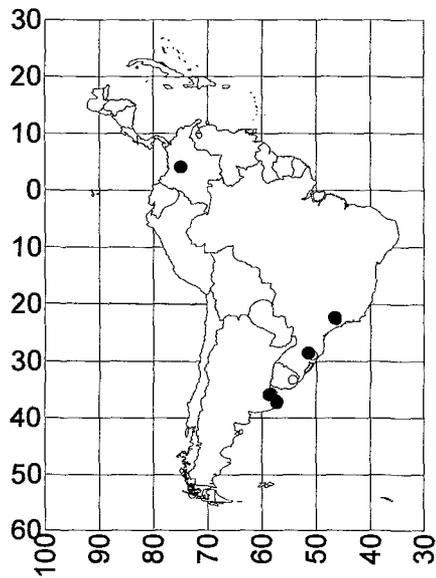
444 *conjurata, corticalis*



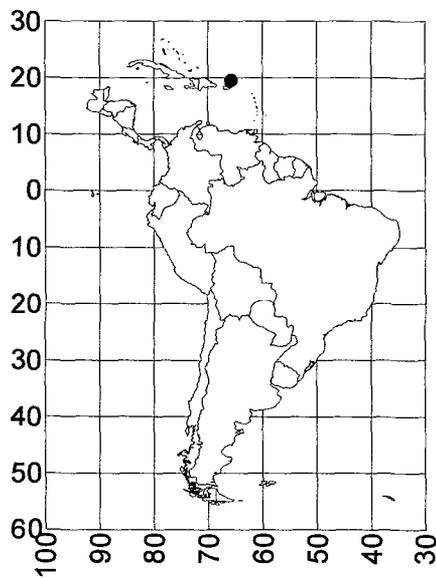
Map 13. *Solenopsis conjurata*.



Map 14. *Solenopsis corticalis*.



Map 15. *Solenopsis decipiens*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

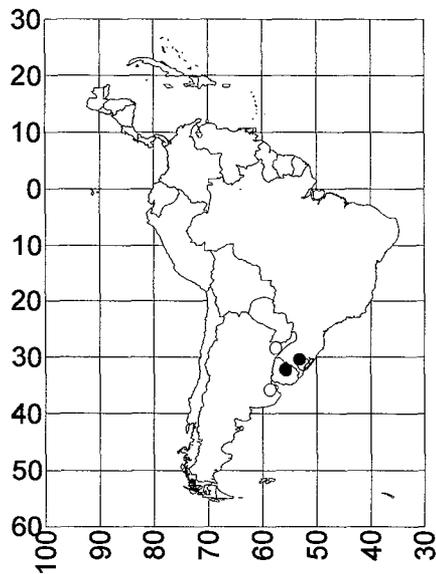


Map 16. *Solenopsis desecheoensis*.

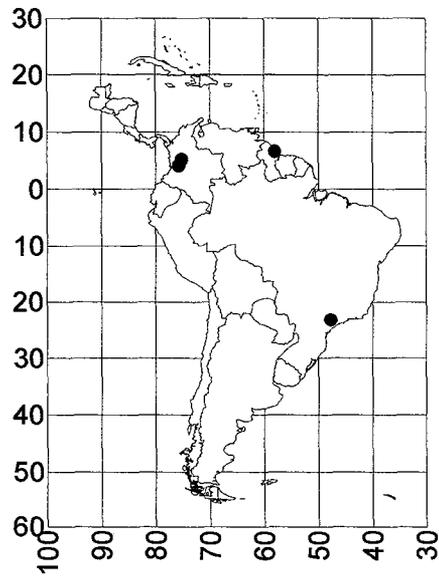
446 *dysderces, emiliae*



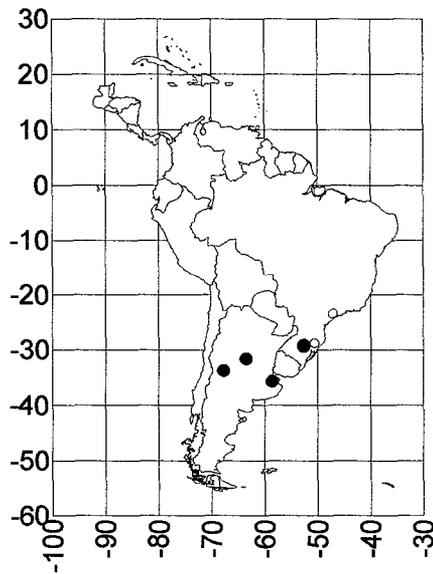
Map 17. *Solenopsis dysderces*.



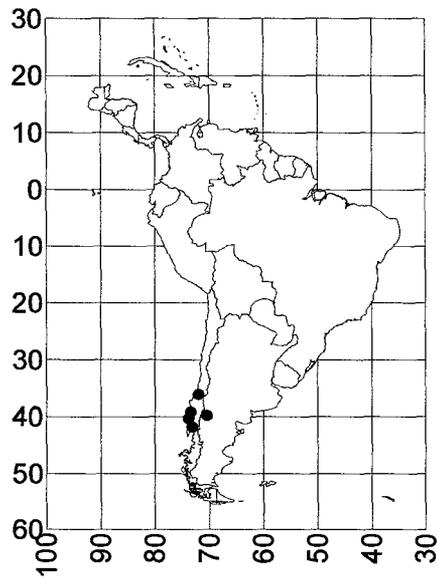
Map 18. *Solenopsis emiliae*. Darkened circles represent examined specimens and opened circles are from the literature (Creighton 1930, Kempf 1972).



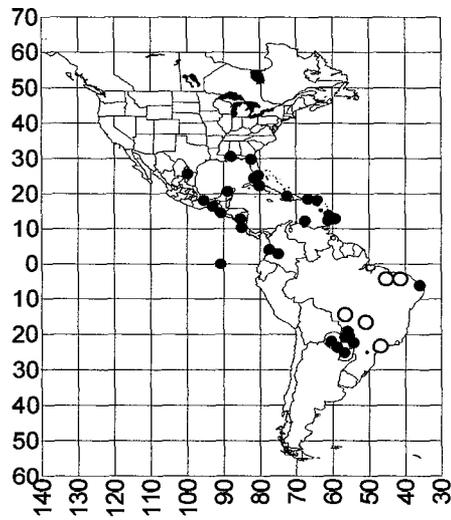
Map 19. *Solenopsis franki*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).



Map 20. *Solenopsis gensterblumi*. Darkened circles represent examined specimens and opened circles are from the literature (Creighton 1930, Kempf 1972).

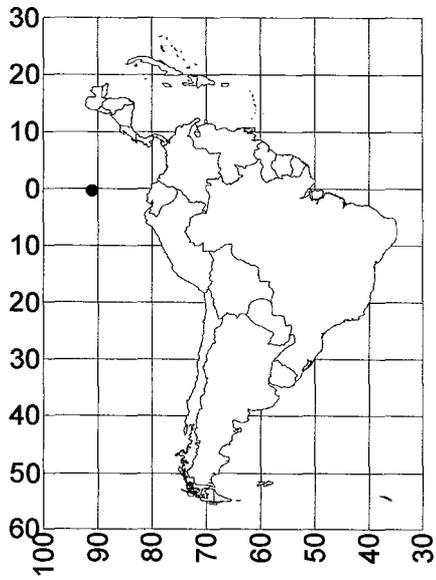


Map 21. *Solenopsis germaini*.

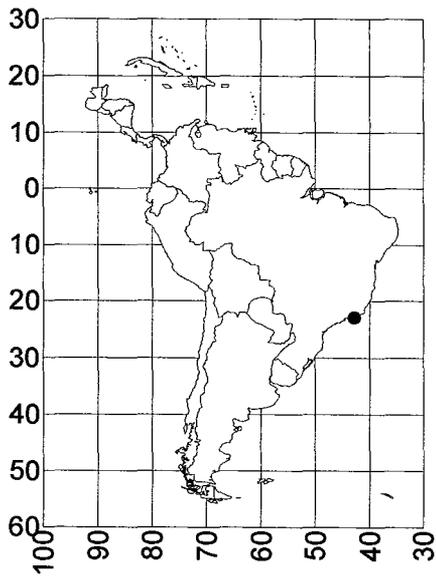


Map 22. *Solenopsis globularia*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972, Creighton 1930).

gnoma, goeldii 449

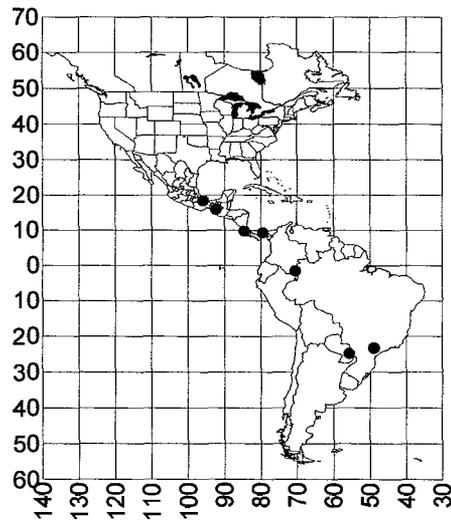


Map 23. *Solenopsis gnoma*.

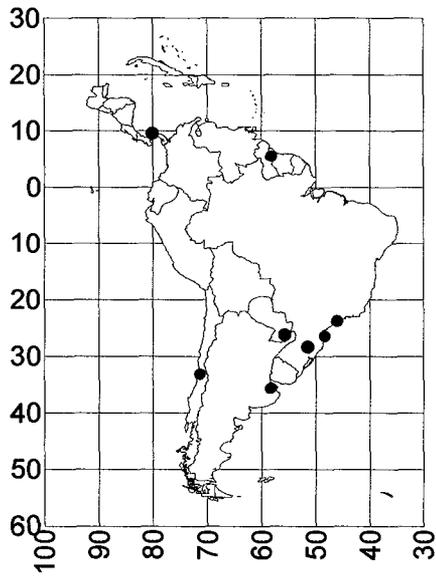


Map 24. *Solenopsis goeldii*.

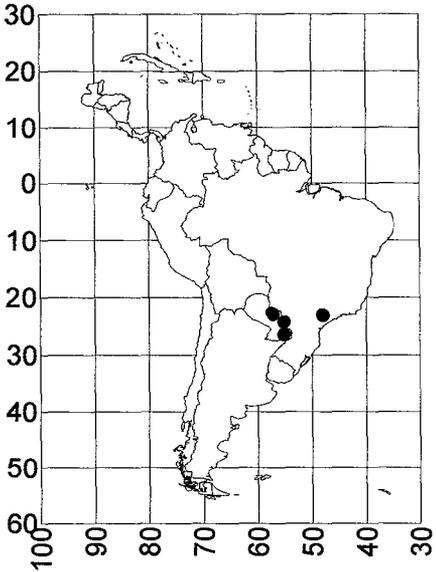
450 *hayemi, helena*



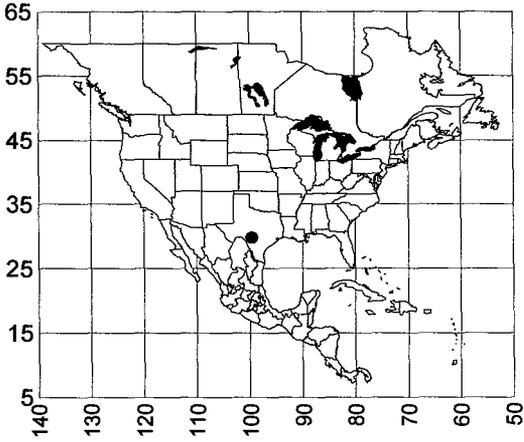
Map 25. *Solenopsis hayemi*. Darkened circles represent examined specimens; opened circles are from the literature (Kempf 1972).



Map 26. *Solenopsis helena*.

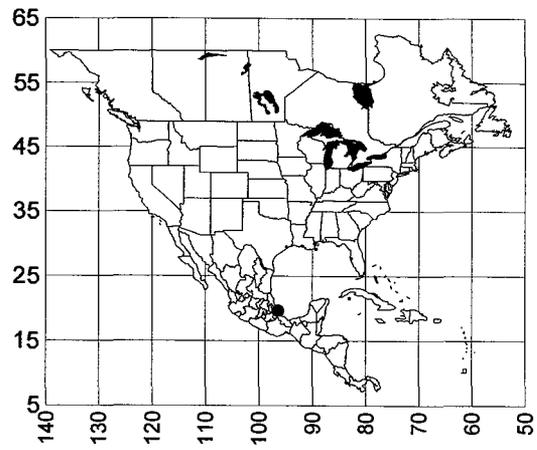


Map 27. *Solenopsis iheringi*.

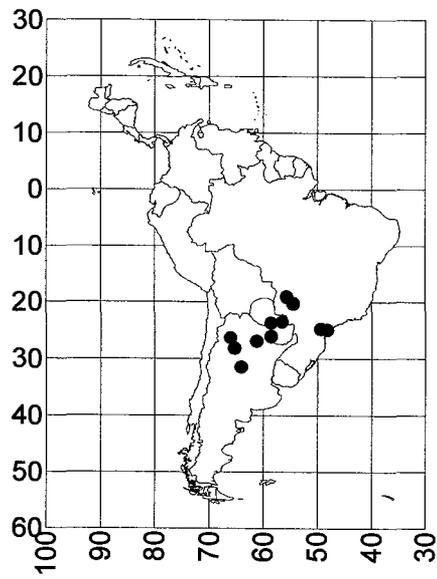


Map 28. *Solenopsis impolita*.

452 *isopilis, joergenseni*

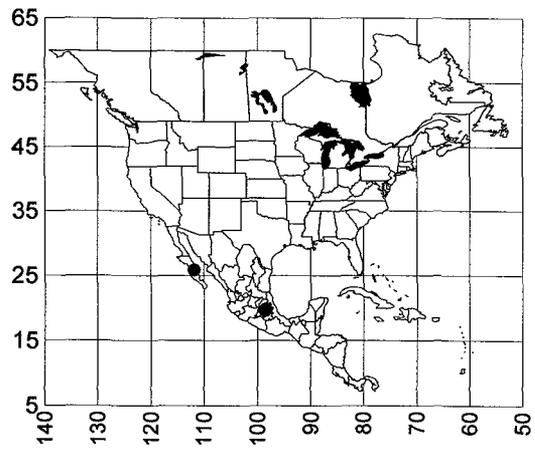


Map 29. *Solenopsis isopilis*.

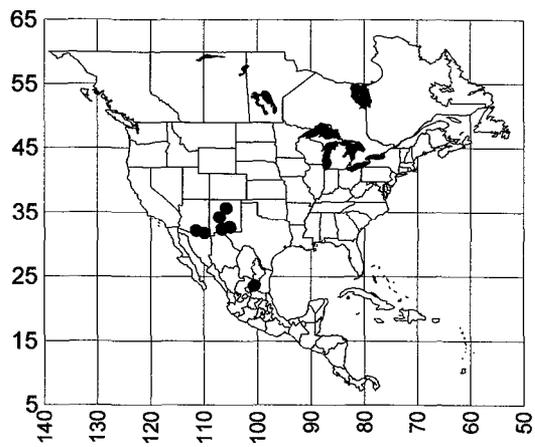


Map 30. *Solenopsis joergenseni*.

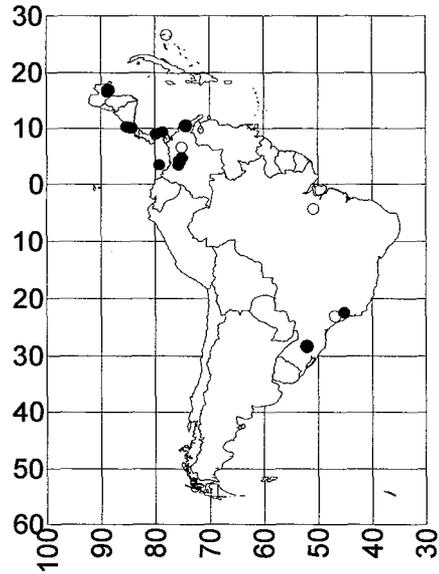
johnsoni, krockowi 453



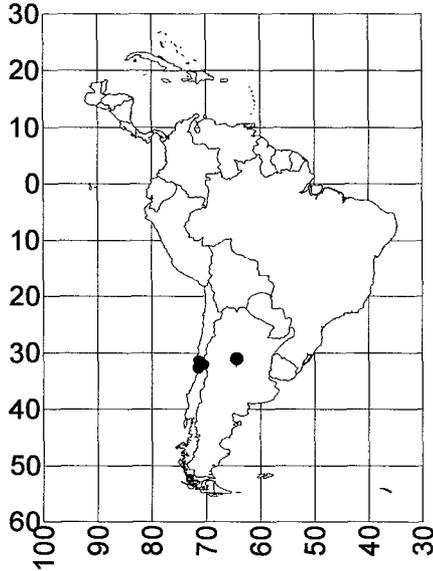
Map 31. *Solenopsis johnsoni*.



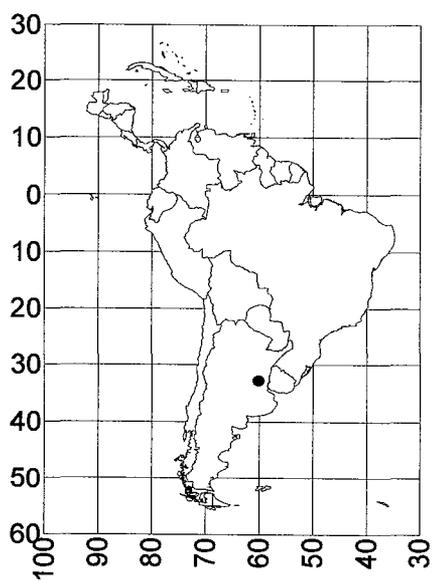
Map 32. *Solenopsis krockowi*.



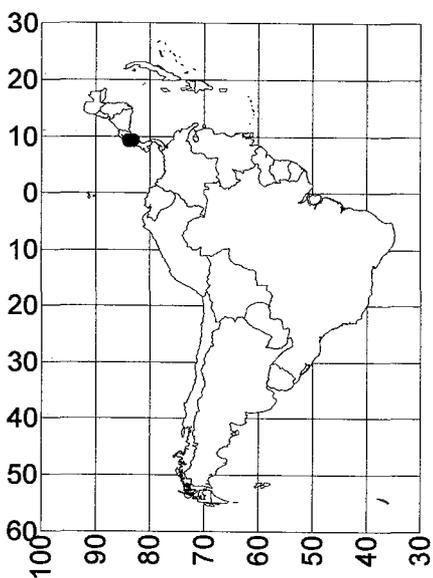
Map 33. *Solenopsis laeviceps*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).



Map 34. *Solenopsis latastei*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

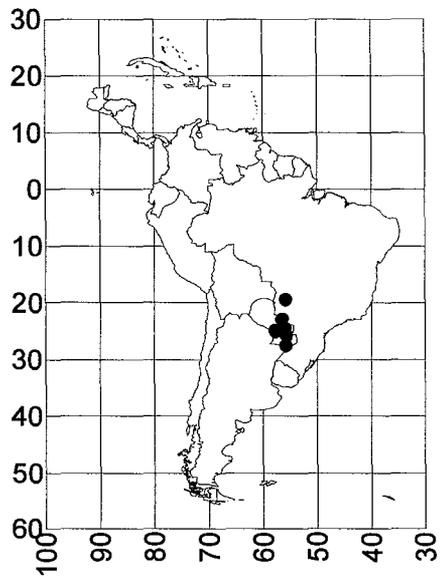


Map 35. *Solenopsis leptanilloides*.

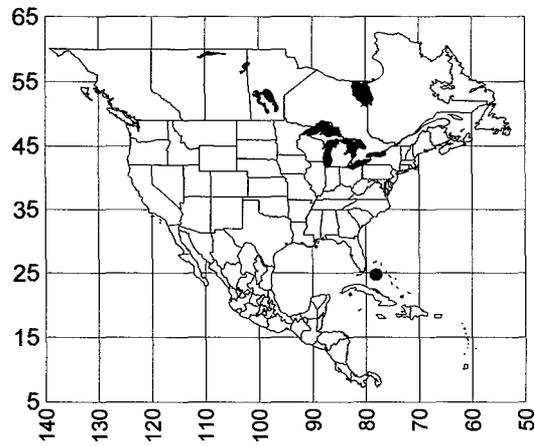


Map 36. *Solenopsis longinoi*.

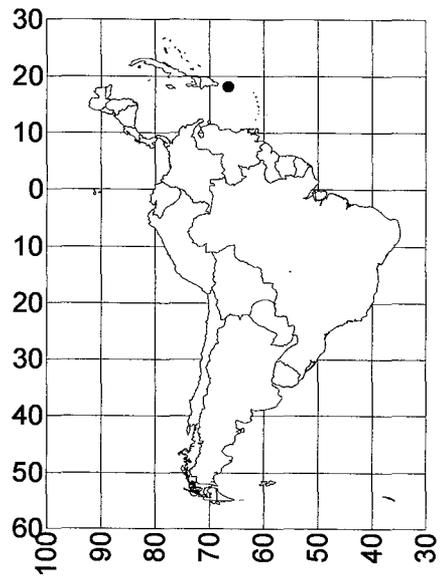
456 *loretana*, *lucayensis*



Map 37. *Solenopsis loretana*.



Map 38. *Solenopsis lucayensis*.

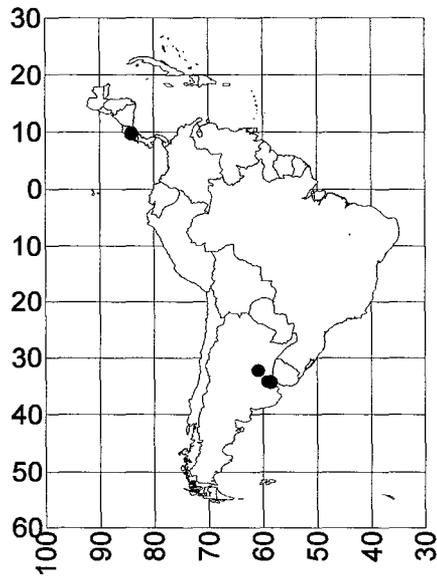


Map 39. *Solenopsis maboya*.

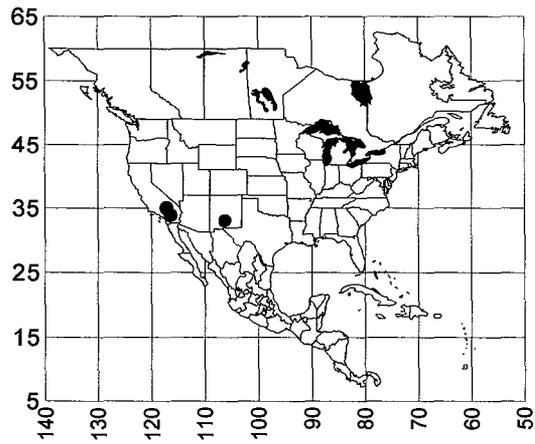


Map 40. *Solenopsis macrops*.

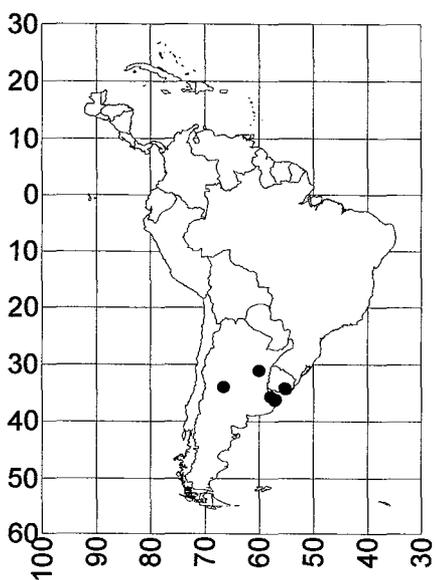
458 *major, melina*



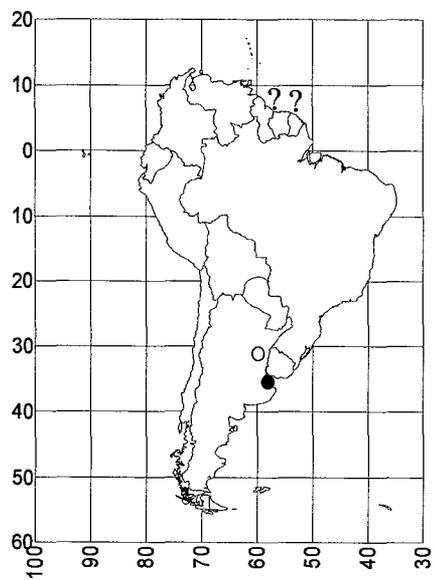
Map 41. *Solenopsis major*.



Map 42. *Solenopsis melina*.

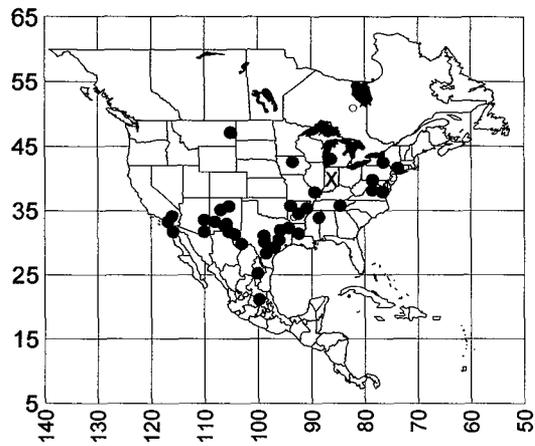


Map 43. *Solenopsis metanotalis*.

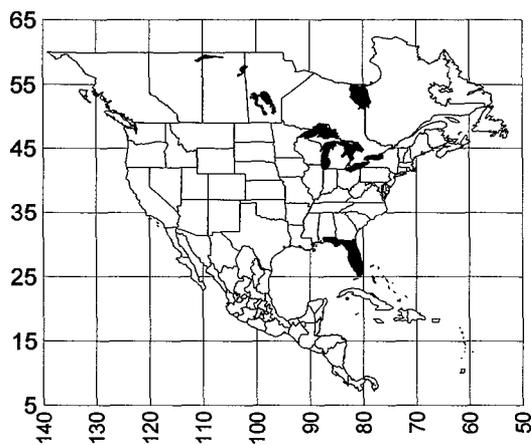


Map 44. *Solenopsis minutissima*.

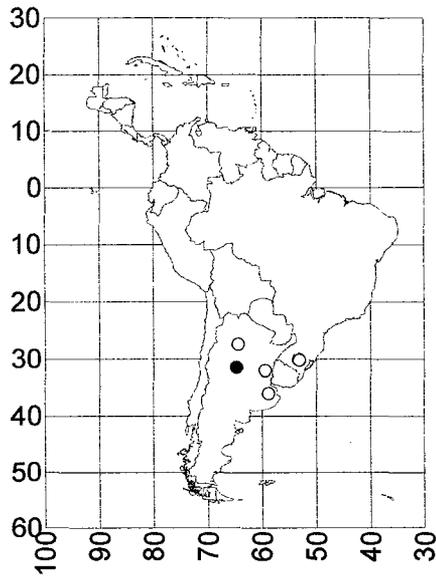
460 *molesta, nickersoni*



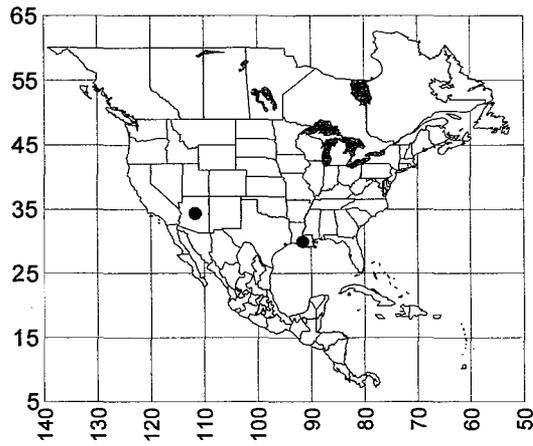
Map 45. *Solenopsis molesta*. Darkened circles represent examined specimens and opened circles are from the literature (Say 1836, Buckley 1867, Mayr 1886; Mallis, 1941; Grundmann and Peterson, 1953; Ayre, 1963; Gregg, 1963 Wheeler and Wheeler, 1963, 1973 Smith 1965).



Map 46. *Solenopsis nickersoni*. Darkened circles represent examined specimens and opened circles are from the literature (Thompson 1982, 1989).

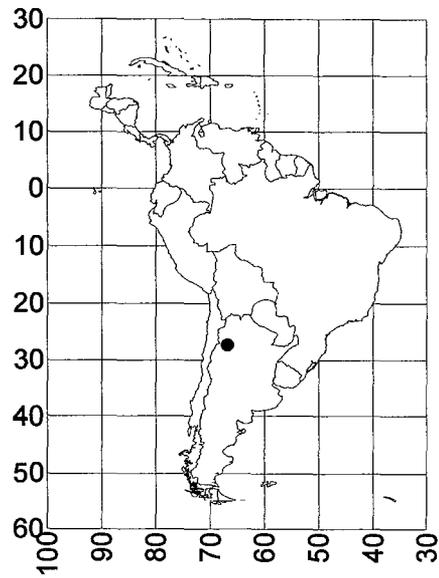


Map 47. *Solenopsis nigella*. Darkened circles represent examined specimens and opened circles are from the literature (Creighton 1930, Kempf 1972).

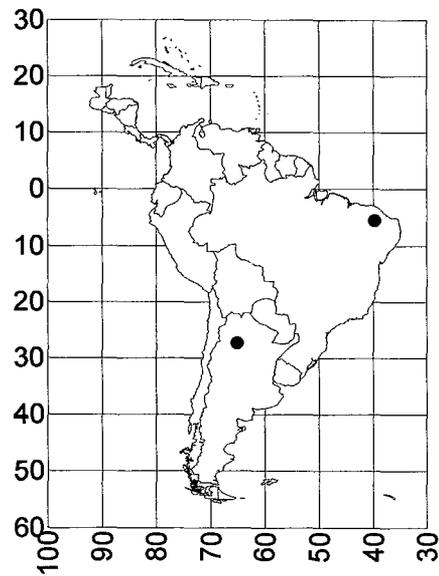


Map 48. *Solenopsis ocellata*.

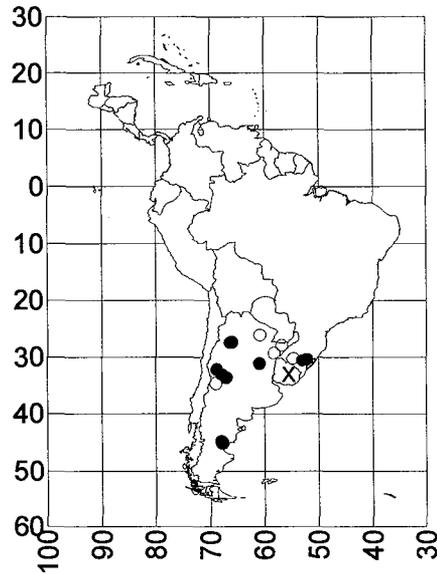
462 *oculata, orestes*



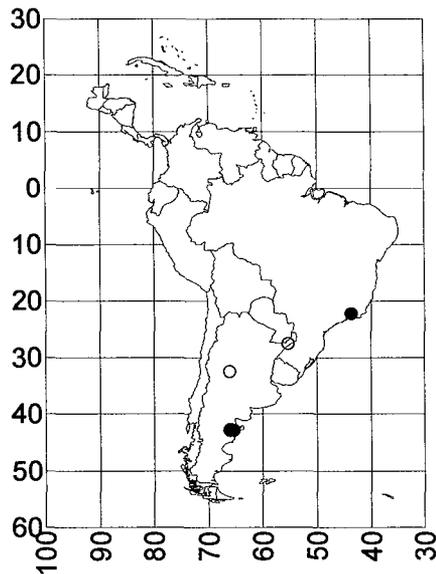
Map 49. *Solenopsis oculata*.



Map 50. *Solenopsis orestes*.

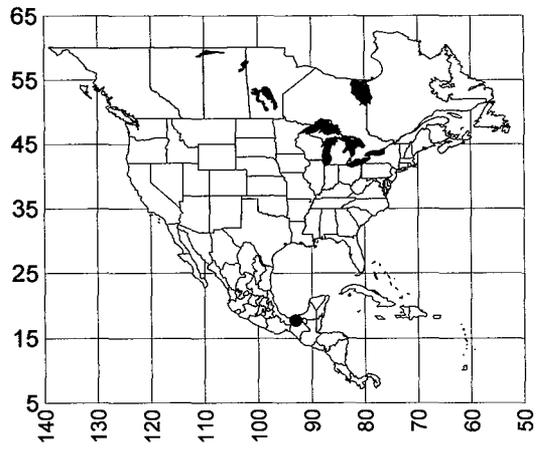


Map 51. *Solenopsis parva*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972). The “X” indicates an unknown locality.

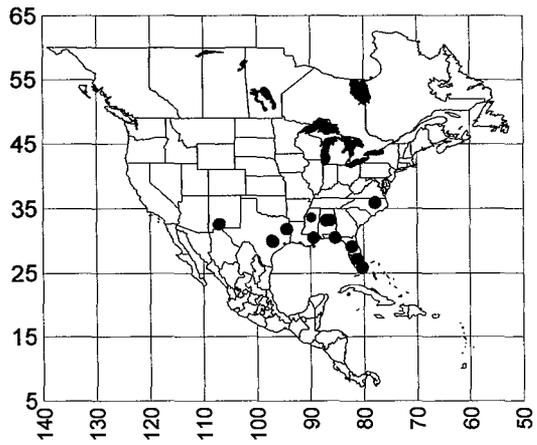


Map 52. *Solenopsis patagonica*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

464 *patriciae*, *pergandei*



Map 53. *Solenopsis patriciae*.



Map 54. *Solenopsis pergandei*.

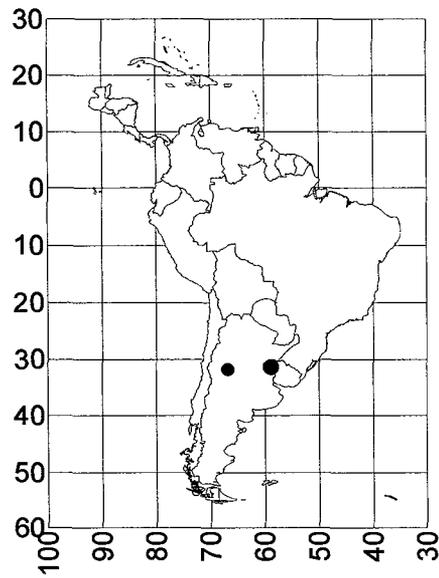
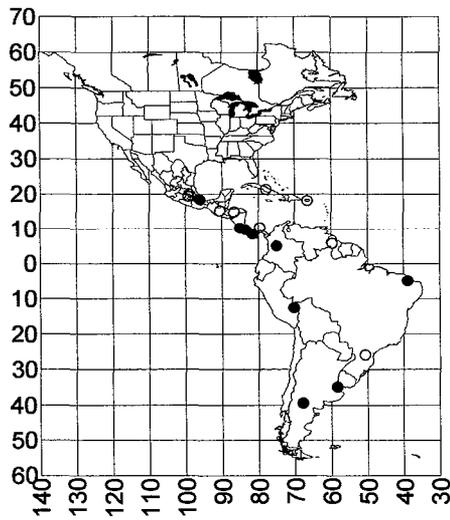
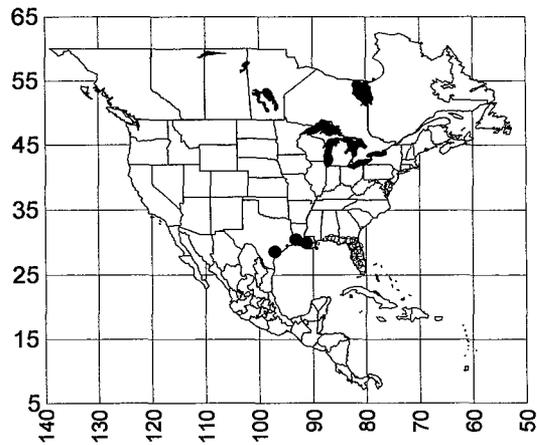


Fig. 55. *Solenopsis photophila*.

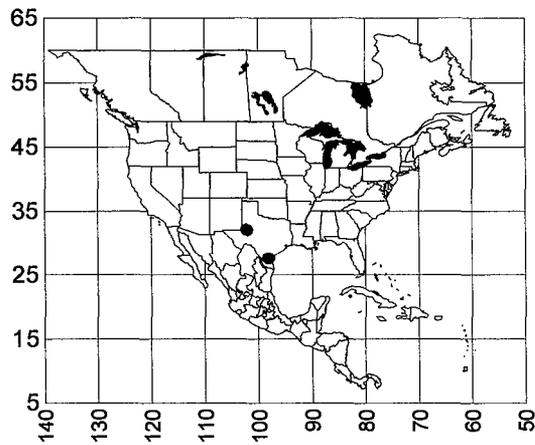


Map 56. *Solenopsis picea*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

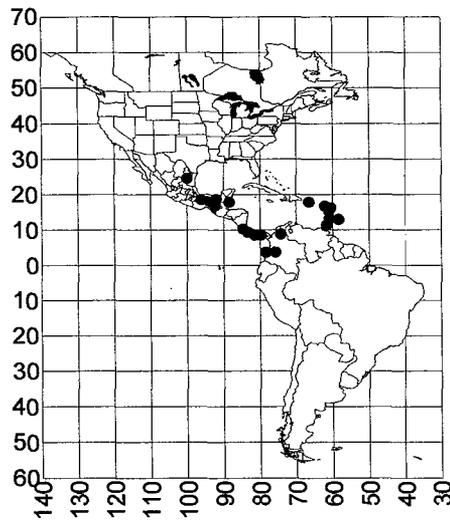
466 *picta, pilosula*



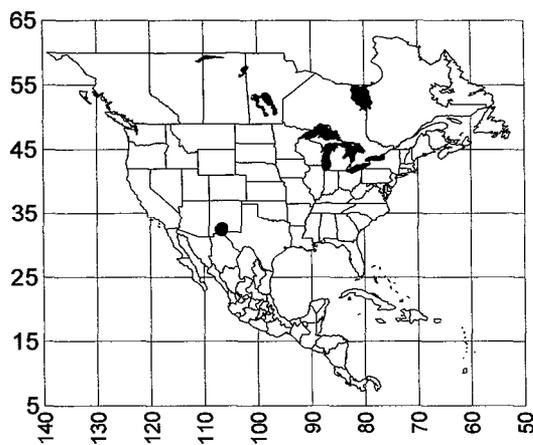
Map 57. *Solenopsis picta*. Darkened circles represent examined specimens and opened circles are from the literature (Thompson & Johnson, 1989).



Map 58. *Solenopsis pilosula*.

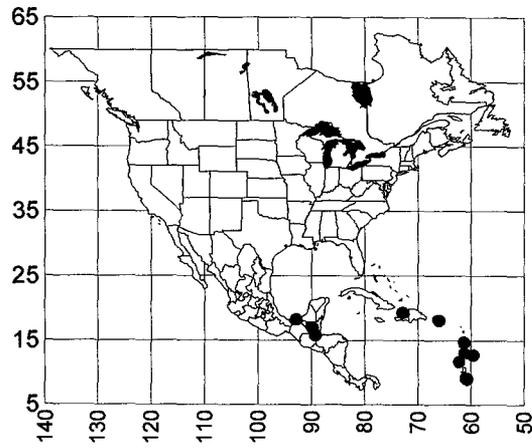


Map 59. *Solenopsis pollux*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

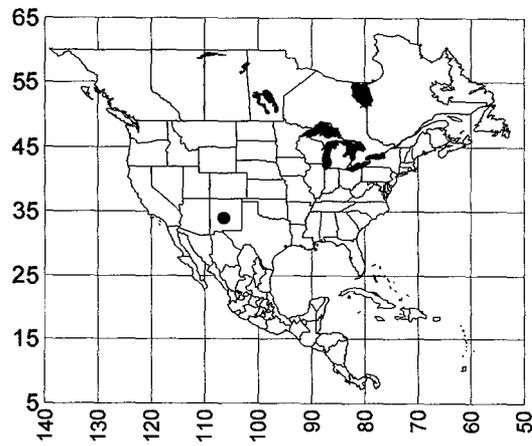


Map 60. *Solenopsis pulleni*.

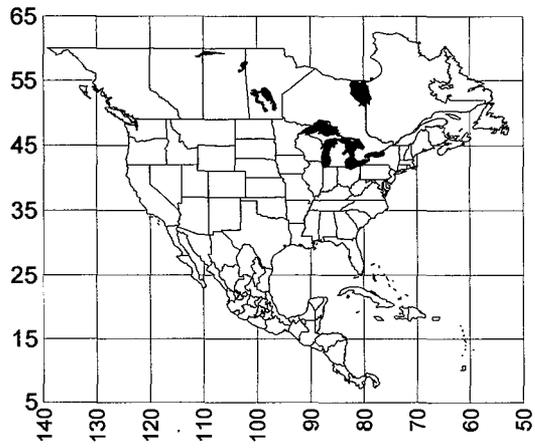
468 *pygmaea*, *quadridentata*



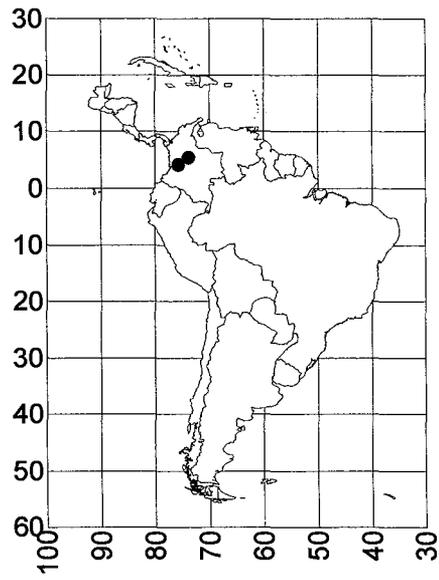
Map 61. *Solenopsis pygmaea*.



Map 62. *Solenopsis quadridentata*.

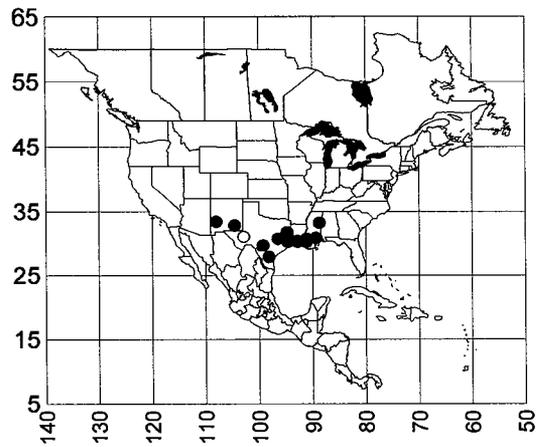


Map 63. *Solenopsis rosella*.

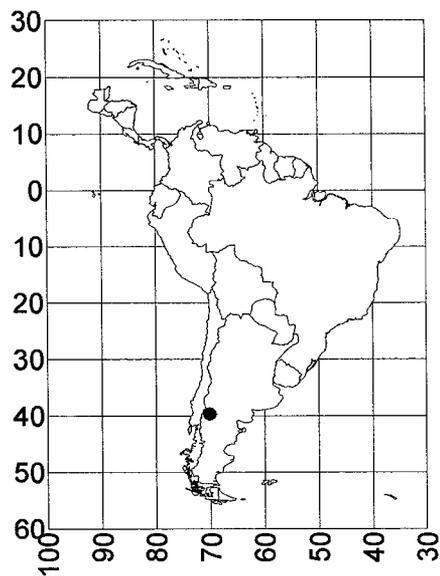


Map 64. *Solenopsis rugiceps*.

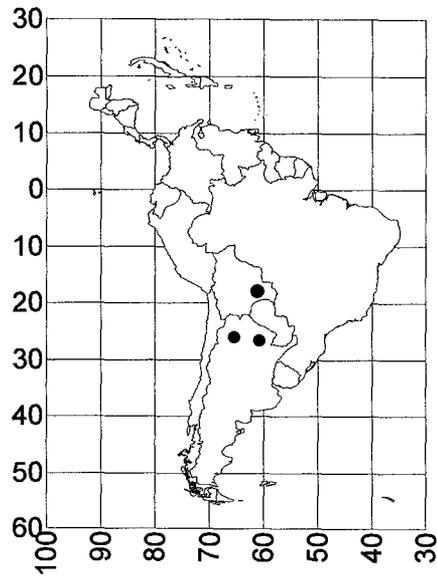
470 *salina, schilleri*



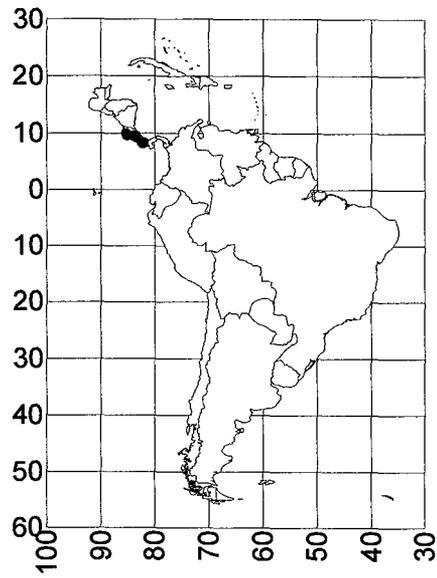
Map 65. *Solenopsis salina*. Darkened circles represent examined specimens and opened circles are from the literature (Wheeler W.M. 1908; Creighton 1950 “ranges into California”).



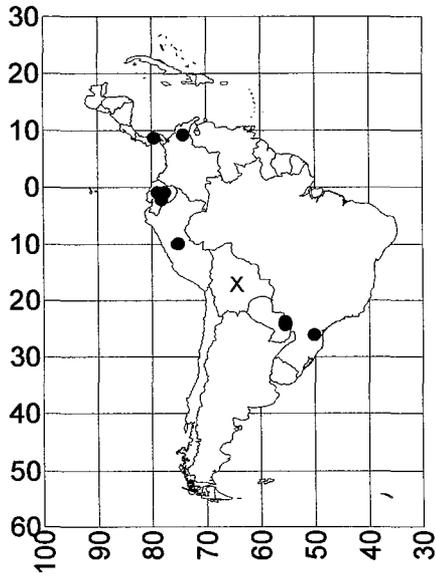
Map 66. *Solenopsis schilleri*.



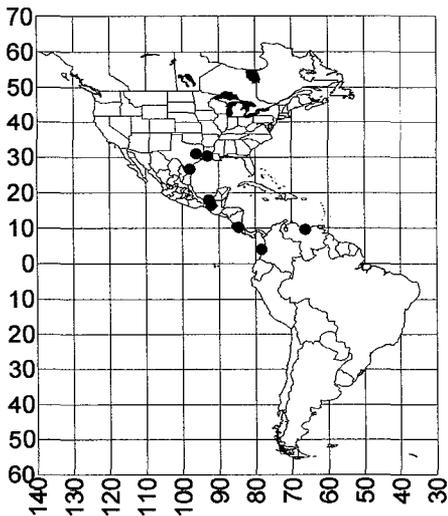
Map 67. *Solenopsis shiptoni*.



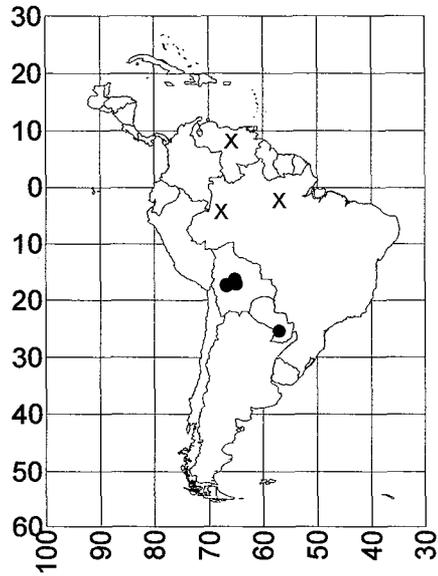
Map 68. *Solenopsis striata*.



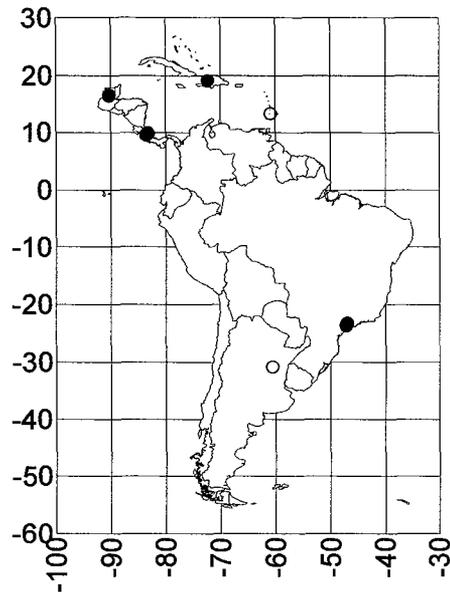
Map 69. *Solenopsis stricta*. Darkened circles represent examined specimens and opened circles are from the literature (Emery 1896). The “X” indicates an unknown locality.



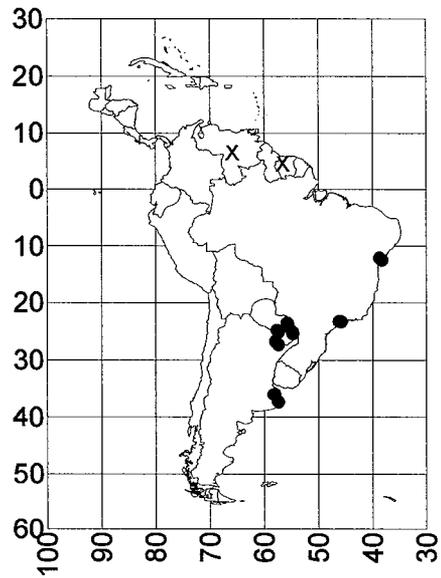
Map 70. *Solenopsis subterranea*.



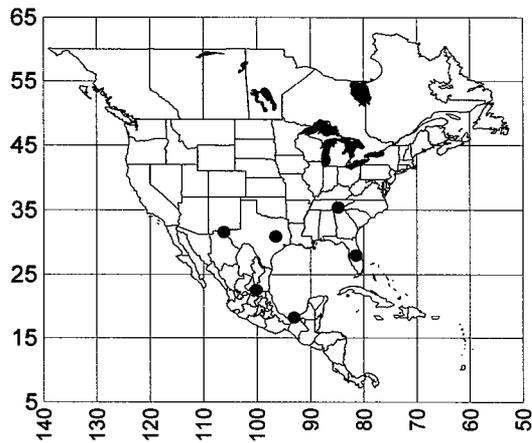
Map 71. *Solenopsis subtilis*. Darkened circles represent examined specimens and opened circles are from the literature (Emery 1896, Kempf 1972). The “X’s” indicate unknown localities.



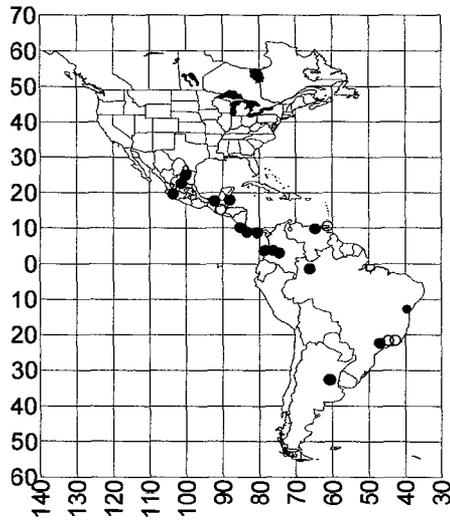
Map 72. *Solenopsis succinea*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).



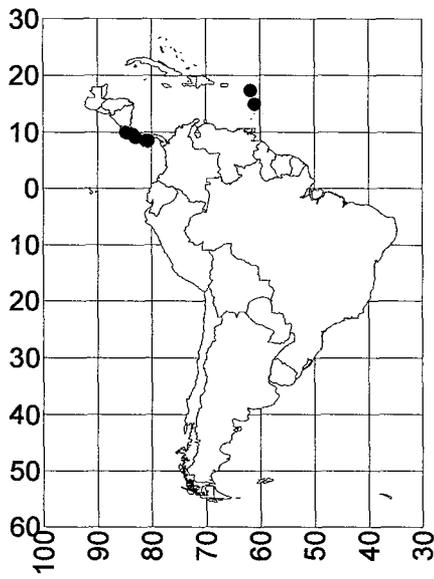
Map 73. *Solenopsis sulfurea*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972). The type locality of the nominal is unknown; likely between Venezuela and the Guianas represented by two open dots (Kempf 1972).



Map 74. *Solenopsis tennesseensis*.

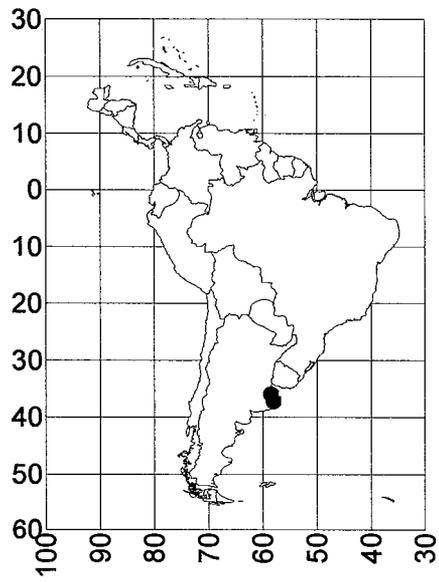


Map 75. *Solenopsis tenuis*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

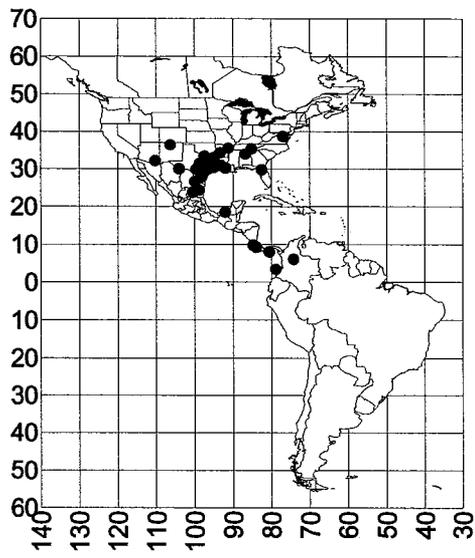


Map 76. *Solenopsis terricola*.

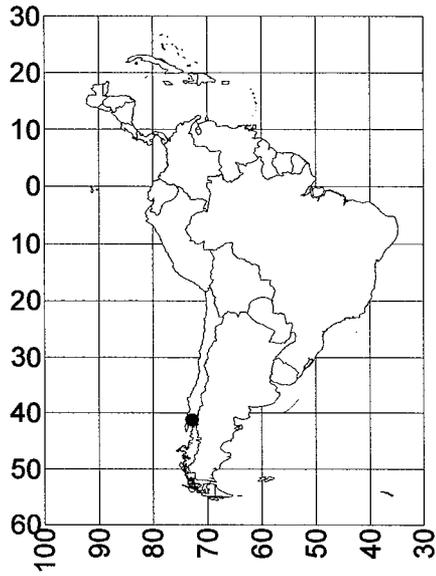
476 *tetracantha, texana*



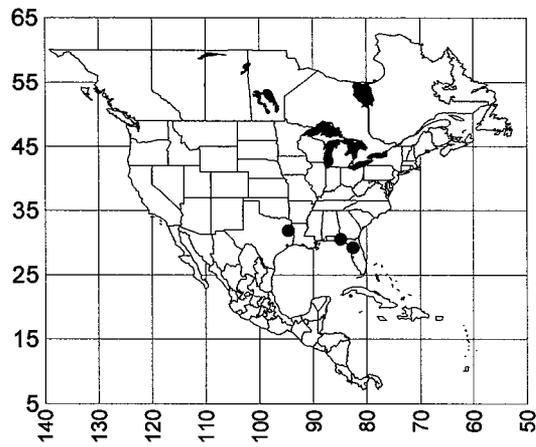
Map 77. *Solenopsis tetracantha*.



Map 78. *Solenopsis texana*.

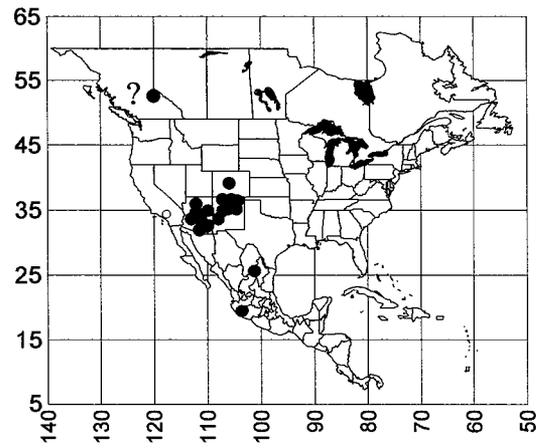


Map 79. *Solenopsis thoracica*.

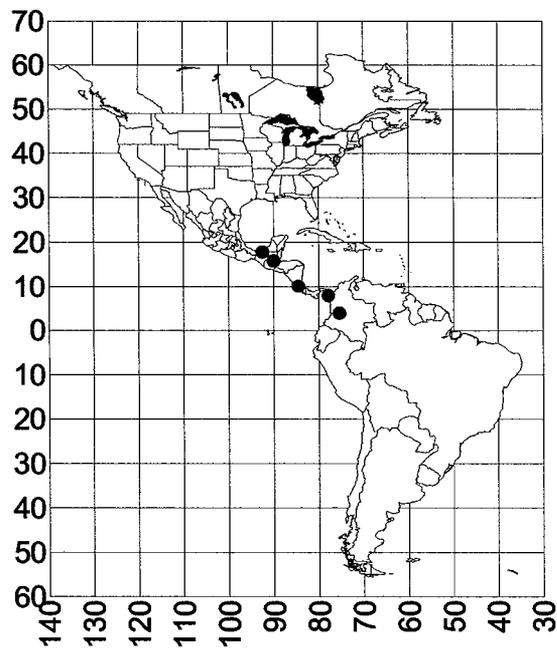


Map 80. *Solenopsis tonsa*.

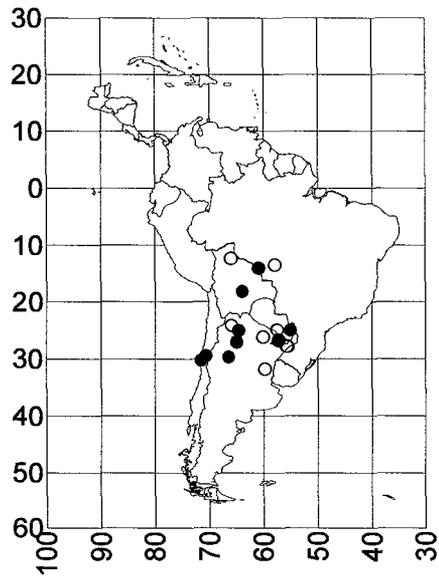
478 *validiuscula*, *vinsoni*



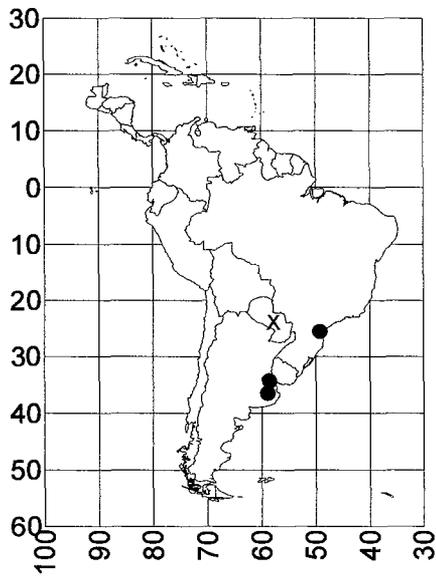
Map 81. *Solenopsis validiuscula*. Darkened circles represent examined specimens and opened circles are from the literature (Emery 1895).



Map 82. *Solenopsis vinsoni*.

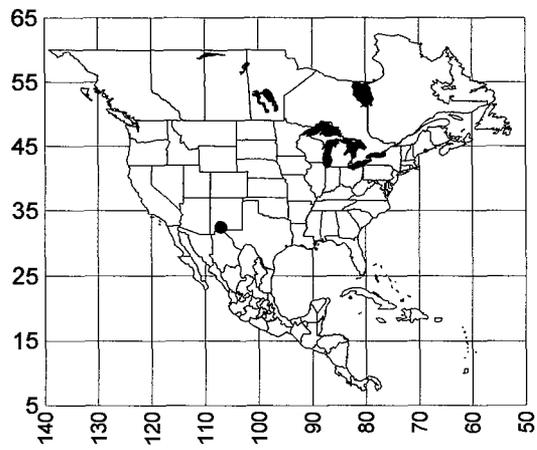


Map 83. *Solenopsis wasmannii*. Darkened circles represent examined specimens and opened circles are from the literature (Kempf 1972).

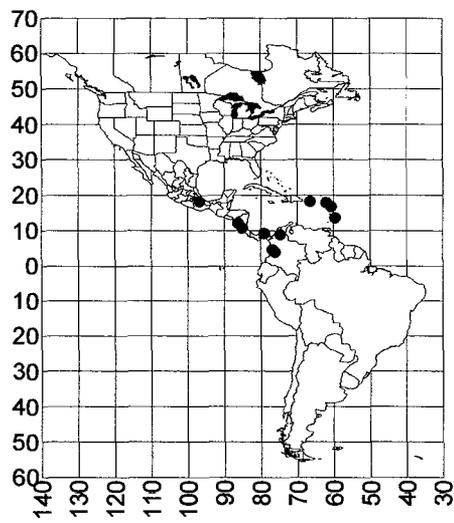


Map 84. *Solenopsis westwoodi*. The "X" indicates an unknown locality.

480 *whitfordi*, *zeteki*



Map 85. *Solenopsis whitfordi*.



Map 86. *Solenopsis zeteki*.

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