THE ANTS OF HISPANIOLA

Author: David Lubertazzi

Source: Bulletin of the Museum of Comparative Zoology, 162(2) : 59-210
Published By: Museum of Comparative Zoology, Harvard University
URL: https://doi.org/10.3099/MCZ-43.1

Bulletin
of the
Museum of Comparative Zoology

Volume 162, Number 2 29 March 2019

The Ants of Hispaniola

David Lubertazzi

HARVARD UNIVERSITY | CAMBRIDGE, MASSACHUSETTS, U.S.A.

THE ANTS OF HISPANIOLA

DAVID LUBERTAZZI[1]

ABSTRACT. This study presents what is known about the extant ant (Formicidae) fauna of the island of Hispaniola. Specimen-based occurrence records, published accounts, and newly collected data are synthesized here to provide a synopsis of the fauna: the species present, their known distribution, and details about their natural history. This study represents the only contemporary study of the ant fauna of one of the larger Caribbean islands. Forty-three genera and 144 named species and subspecies are now known from Hispaniola. Additional undescribed species, known from existing museum specimens, would readily add between 15 to 20 new endemic species to this total. Approximately half (61) of the native species (126) are island endemics. The discovery of novel species, both undescribed species and named species that were previously not know to occur on the island, is likely as further studies explore areas of the island that have yet to be sampled for ants.

Key words: Formicidae, Island biogeography, Haiti, Dominican Republic, Caribbean biodiversity

INTRODUCTION

The Caribbean island of Hispaniola, comprised of Haiti and the Dominican Republic, is the second largest island of the Greater Antilles (Cuba, the Cayman Islands, Hispaniola, Puerto Rico, and Jamaica). The island's large size makes it particularly important for understanding the region's biota, which is considered to be a biodiversity hotspot (Mittermeier et al., 1999). The Formicidae of Hispaniola are one of the island's better known insect groups (Perez-Gelabert, 2008). This status, rather than resulting from a well-characterized ant fauna, is mainly indicative of the poor understanding of Hispaniola's invertebrates. Few published studies have specifically focused on the island's ants. The research presented here synthesizes past studies and occurrence data with contemporary field research to provide a comprehensive synopsis of Hispaniola's ant fauna.

A brief historical account of past Hispaniolan ant studies, known collecting activities, and details about relevant museum collections is first given to provide context for and details about the sources of much of the data for this study. The collation of this information is used to present two general results. One is the summary information about the overall ant diversity. The other is the generic and species accounts, which provide details about the distribution and natural history of the individual species. It should be noted that this research presents an examination of the extant ant fauna. The diverse and well-known fossil ant fauna represented in Hispaniola's Dominican amber is not evaluated as part of this study.

Hispaniola Myrmecology: Past and Present

The earliest written accounts about Hispaniolan ants are centuries old and found in narratives and reports associated with European settlement of the New World. A study of fungus-growing ants by Wheeler (1907) noted some of these early writings (Fernández de Oviedo y Valdés, 1535; Cobo, 1890). Wilson (2005) also examined some early accounts of West Indies ants. He deduced a 1518–1519 ant infestation reported from Hispaniola (de las Casas, 1875)

[1] Museum of Comparative Zoology, 26 Oxford Street, Cambridge, Massachusetts 02138. Author for correspondence (dlubertazzi@oeb.harvard.edu).

was most likely an outbreak of *Solenopsis geminata* (Fabricius, 1804). These historical accounts illustrate that Hispaniola's ants are notable enough to have written records of their presence that extend back more than five centuries.

The 1912–13 ant-collecting expedition of William Mann marks the beginning of the scientific study of Hispaniola's ants. Mann was the first ant biologist to study the ant fauna of the island. The small number of ant species (for brevity, the term "species" is used throughout much of this paper to refer to species and subspecies) known from the island before Mann's visit were all published in taxonomic studies by European myrmecologists. The specimens were procured from naturalists that visited the island and happened to collect ants, rather than being collected by an ant specialist. Mann provides insights about these early taxonomic studies and the sources of the ant specimens in two publications. The first is a treatise (Wheeler and Mann, 1914) of the ants of Haiti. Here, Mann notes that Latreille (1802), Guérin-Méneville (1852), Frederick Smith (1858), and Roger (1863) provided the earliest taxonomic descriptions and that these were followed by what were more contemporary new species descriptions by Emery (1893a) and Forel (1901a,b, 1907). Overall, fewer than 25 ant species were known from Hispaniola in 1912. Mann's (1948) memoir also includes a fascinating account of his Haitian ant expedition. It is evident from comments in this latter publication that the previously described species represented common ants that could be found in and around the Haitian capital city of Port-au-Prince.

Knowing about these meager beginnings regarding what was known about the ant fauna before 1912 helps to appreciate more fully the advances resulting from Mann's Haitian research (Wheeler and Mann, 1914). Ninety species, subspecies, and varieties were recognized, with 37 of these described as new. This work has remained as one of the most significant studies of Hispaniola's ants. Three points should be noted about Mann's efforts. First, this expedition is the only field study of ants, faunal or otherwise, to occur in Haiti. A few biologists visited Haiti after Mann and collected ants (collectors and specimens as detailed in Wheeler [1936]; collections by Gregg in the Field Museum; records in the Illinois Natural History Survey specimen database), but this sampling was very limited. Second, the publication of Mann's research is only one of two scientific publications before 2014 to present the results of a field-based study of any Hispaniola ant fauna. Third, with the current extent of habitat loss in Haiti and the timing of Mann's expedition (1912–13), his research represents what will likely be the only broad survey of Haiti's native ants. No one before or after Mann has specifically studied the diversity of ants within this country's natural habitats. The expansive natural areas Mann explored and provided glimpses of (Mann, 1948) no longer exist. Modern Haiti is one of the most ecologically disturbed countries in the western hemisphere.

Determining how well Mann's efforts characterized the existing ant diversity is difficult without having more sampling data for comparison. Nonetheless, what Mann found and reported about his collecting, that his body of myrmecological work shows he was a good ant collector, and our current knowledge of the island's ant diversity suggest Mann sampled a good portion of the species present in the areas of Haiti he visited (Mann, 1948).

A field-based study of the ant diversity of the Dominican Republic (Menozzi and Russo, 1930) had a different focus than Mann. This study pointedly states the sampling and findings are limited in comparison to Mann's Haitian survey, although this qualification is not explained in detail, nor is much stated about the sampling

overall. The limited collecting details provided suggest the collections were primarily from insect sampling associated with agricultural areas. Russo, director of the Estación Agronómica de Moca, Dominican Republic (see Perez-Gelabert [2008: 10] for details about this short-lived agricultural station), likely provided the collection and biological details given in this publication. Menozzi may have confined his efforts to taxonomy and identification, because it is not clear that he ever visited the island. The study provides an insightful retrospective snapshot of a part of the Dominican Republic ant fauna and includes the description of two new species: *Crematogaster russoi* Menozzi, 1930, and *Temnothorax ciferrii* (Menozzi and Russo, 1930). Locality records, along with some minor collecting details and a key, are provided for the 43 ants (i.e., species, subspecies, and varieties) they sampled.

Wheeler (1936) published new collection information about ants sampled from Hispaniola after Mann's expedition. The material for this study was based on specimens from three non-myrmecological collectors. Despite the material being described as relatively minor in extent more than a dozen new forms were described. The most significant collections were those made by P. J. Darlington. The ant material he passed along to Wheeler came from a visit to Haiti's Tiburon peninsula. Several of Darlington's samples are types that remain as the only known specimens of their respective species. As with Mann's Haiti collections, Darlington likely provided a snapshot of a portion of Haiti's biodiversity from natural areas and habitats that no longer exist.

These three publications (Wheeler and Mann, 1914; Menozzi and Russo, 1930; Wheeler, 1936) are enlightening, information-rich studies that collectively present lists of species, occurrence records, biological observations, and new species descriptions. The last of these papers marks the end of what seemed a promising start to the study of the island's ants. The bulk of the published occurrence records after this time (1937–2014) are presented in taxonomic studies focused on particular genera. The only other published collection-based faunal research is a study of the ant diversity of Jaragua National Park (Pedernales Province, Dominican Republic; Lubertazzi and Alpert, 2014). This publication presented the results of the first of three contemporary ant-collecting expeditions that form an important part of this present study.

Based on the history given above, one might conclude myrmecologists had, after an initially promising start, lost interest in Hispaniola's ant fauna. Specimens in the Museum of Comparative Zoology (MCZ) reveal a different reality. Collecting information from MCZ specimen labels show that many myrmecologists have visited the island to conduct general ant collecting: Weber in 1936, Brown in 1975 and 1986, Ward in 1992, Cover in 2002 and 2004, and Cover, Wilson, Alpert, Deyrup, and Davis in 2004. Specimens from these collections have informed generic revisions (as detailed in the generic accounts given below) and been the source for new species descriptions (e.g., *Gnamptogenys falcaria* Lattke, 2002 and *Pheidole drepanon* Wilson, 2003). Over the past three decades ant taxonomists have also traveled to the Dominican Republic to gather material for generic revisions [e.g., Wild in 2001, *Linepithema* (Wild, 2007), and de Andre in 1995, *Cephalotes* (de Andrade and Baroni Urbani, 1999)]. Specimens from all of these collecting trips have been deposited in the MCZ, and the museum thus contains the single largest and most diverse collection of Hispaniola ants. In addition to these past collections, recent collecting expeditions were undertaken in 2012 by Lubertazzi and Alpert, in 2014 by Lubertazzi, and in 2015 by Lubertazzi and Prebus.

E. O. Wilson (1985, 1988) published two studies that included information about Hispaniola's ant diversity. The first was a

comparison of the generic diversity of the extant fauna and fossil ants known from Dominican amber. Thirty-seven extant ant genera were reported from the island. The second study (Wilson, 1988) was a Caribbean biogeography paper assessing how ant species richness varied with island size. Eighty-eight species of ants were stated to be present on Hispaniola. In both cases it was noted that occurrence data from the MCZ ant collection were used as the major source for the diversity data, but no species list was provided with either study. A recent treatise synthesized all of the occurrence data published about Hispaniola arthropod species and included the first published list of ants for the entire island (Perez-Gelabert, 2008). This list of 125 species increased the number of known species (Wilson, 1988) by 42%.

MATERIALS AND METHODS

This study of the Hispaniola ant fauna began with the databasing (MCZBase, 2016) of all the MCZ's pinned ant specimens from the island. Other pinned material from three contemporary collecting trips (a 2012 collecting expedition, as summarized in Lubertazzi and Alpert [2014]; a 2014 collecting expedition [Lubertazzi, unpublished data]; and a 2015 collecting expedition [Lubertazzi and Prebus, unpublished data; Prebus and Lubertazzi, 2016]) were also subsequently databased. The MCZ collection is, by far, the largest collection of Hispaniola ants in both the number of specimens and taxonomic coverage. During the databasing of historical specimens, localities with no specified latitude and longitude were geolocated whenever possible. The MCZ collection, as represented by its databased records (MCZBase, accessed 1 Jul 2016) serves as the most important data source for this study. AntWeb (2105) records of Hispaniola specimens (accessed 16 Oct 2015) are also included in the specimen dataset. The AntWeb data includes some unique material, but the majority of its databased Hispaniola records are of MCZ specimens that duplicate records in the MCZ database. The former are included in the specimen dataset, whereas the latter are not.

The majority of the published occurrence data from Wheeler and Mann (1914), Menozzi and Russo (1930), and Wheeler (1936) is treated as valid data. This was done without examining a specimen for each locality for every species. The quality of the work done and the distinctiveness of most of the species involved warrants confidence in the validity of the data. Any exceptions (i.e., determinations of species that should be questioned and their occurrence data not uncritically accepted) are noted in the details given for the individual species. The importance of the specimens from these studies necessitates providing information about the provenance of their collections. Most but not all of Mann's pinned material from his Haiti expedition (Wheeler and Mann, 1914) is housed in the MCZ. The research was undertaken while Mann was a graduate student working under William Morton Wheeler. Some alcohol material from the expedition was deposited in the Smithsonian National Museum of Natural History (NMNH) entomology collection (~35 vials, personal observation). These include six vials that contain *Camponotus* ants, which are specimens that would be important for any future generic revision of this genus within the Caribbean region. The NMNH also contains some pinned material from Mann's Haitian study, as do a few other prominent European entomological collections. These pinned specimens were likely distributed from the MCZ as part of W. M. Wheeler's regular exchange of specimens with his contemporaries (e.g., Forel and Emery). Pinned material from Wheeler's (1936) study is similarly distributed. Most of the specimens are in the MCZ with a subset of

some species sent to other collections. Menozzi's *Crematogaster russoi* types reside in the University of Bologna Entomology collection (Prebus, personal communication). It is possible other pinned ants from the Menozzi and Russo (1930) study are housed there as well.

Two notable Dominican Republic ant collections have not had their specimen data included in this study. These collections are in the Investigaciones Botanicas y Zoologicas entomological collection at the Universidad Autónoma de Santo Domingo and the Museo Nacional de Historia Natural "Prof. Eugenio de Jesús Marcano," (MNHNSD). Both collections contain numerous drawers of pinned ants. Some of this material has been preliminarily identified, but little is determined to the species level. The Field Museum, Chicago (FMNH), and The Illinois Natural History Survey, University of Illinois, also have a limited set of identified Hispaniolan ants. Specimens from these latter two collections are recorded in their respective museum databases but were not examined. The dubious nature of some specimen determinations from this material led to these data being entirely excluded from this study (see Appendix I for more information about these collections).

Other retrospective data used here includes what I believe to be an exhaustive examination of previously published occurrence records. Notes about individual records from these publications are included, where relevant, throughout the species accounts. Data from two publications were notably left out of the publication occurrence data set. The first is the occurrence data from Lubertazzi and Alpert (2014). Pinned specimens from all the collections from this study are in the MCZ collection and are represented in the specimen data. The second is the bulk of the records given in the Neotropical ant list compiled by Kempf (1972). These data are a synthesis of previously published records and, thus, are accounted for in records from the original publications. The only exceptions (i.e., records from Kempf that are included in the publication data set) are erroneous records that are listed to clarify that these records are not valid occurrence data.

These specimens and publication records were used to produce two species occurrence datasets, one of published records and the other of specimens. These data were then combined to generate lists of the ant genera and species. All names used here follow the Bolton catalogue (AntWiki, 2017c). Details regarding what is known about the individual genera and species are summarized and form the bulk of the results of this study. This information was gleaned from a range of sources (e.g., published data, field observations, and specimen label information).

The genus accounts given below are ordered alphabetically without regard to subfamily. Species within each genus are also presented alphabetically. Generic entries begin with a brief introduction to each taxon, including notes about their diversity (as used in these accounts: low diversity/small genera $<$ 12 species, moderately diverse = 12–60 species, diverse = 61–350 species, large = 351–1,000 species, and hyperdiverse $>$ 1,000 species), range, and natural history. The latter is typically summarized from information about species from places beyond Hispaniola. The respective species accounts follow after each generic treatment.

Each species listing begins with the species name, author, and year described, followed by a reference specimen (i.e., a pinned specimen that is designated by a unique barcode label) and distribution data. The latter includes the entire known range of a species followed by a list of departments (Haiti, Map 1) and provinces (Dominican Republic, Map 2) where it has been found. Table 1 provides the full names for the department and province abbreviations used in the text. The elevation range for each species is given for what is known from

Map 1. Departments of Haiti. Map modified from d-maps.com (2017b).

Hispaniola records. Elevations are stated in meters and represent reported elevation data (i.e., taken directly from label data or, less commonly, from published accounts). Elevation data is not estimated for specimens that do not include this information. Following these details, a written synopsis of what is known about the biology and habitat affinities of each species is given and may include information from non-Hispaniola locations.

Following the individual species accounts for each genus, an additional paragraph may summarize information given in the species treatments. There may also be a section of notes regarding problematic occurrence data. Specimens and published records that were wrongly determined, are questionable, or need further consideration are discussed in this section.

Automontage images are provided for most of the fauna. Most species are represented by a head and profile image of a point-mounted worker. These images were obtained from AntWeb.org or AntWiki.org or were photographed in the MCZ with a JVC digital camera attached to a Leica stereomicroscope. Photographs were taken with Auto-Montage software (Syncroscopy, Division of Synoptics Ltd.) and processed using the software programs Helicon Focus (Helicon Soft Inc.) and Adobe Photoshop (Adobe Systems Inc.).

Map 2. Provinces of the Dominican Republic. Map modified from d-maps.com (2017a).

Distribution maps showing the collection locations for each species were made with QGIS (2018). To create these maps, existing records with no specified latitude and longitude were geolocated whenever possible. Specimens were not included on the distribution maps if their locality information was specified only as being from the island, from either country, or had a stated locality that could not be placed to a current named place.

Identification keys are not included here, but preliminary Hispaniola keys to subfamilies, genera within subfamilies, and, for some genera, to their constituent species are available online (subfamily and generic keys, AntWiki [2017a]; species keys, AntWiki [2017b]).

RESULTS

Summary Details

A total of 1,085 publication records (Supplemental Data 1)[1] and 4,164 specimen records (Supplemental Data 2)[2] were combined to produce a list of Hispaniola ant genera (Table 2) and species (Table 3). Tallying all of the validly named species, plus the undescribed species of *Syscia* (one species) and *Thaumatomyrmex* (two species) that are the sole Hispaniola representatives for their respective genera, the extant Hispaniola ant fauna is represented by nine subfamilies, 43 genera, 137 species, and 10

[1] Supplementary material referenced in this paper is available online at www.mcz.harvard.edu/Publications/.

[2] Supplementary material referenced in this paper is available online at www.mcz.harvard.edu/Publications/.

Table 1. Dominican Republic province and Haiti department names and abbreviations.

Province or Department	Abbreviation
Dominican Republic	
Azua	Az
Baoruco	Bao
Barahona	Bar
Dajabón	Daj
Distrito Nacional	DN
Duarte	Du
El Seibo	ES
Elías Piña	EP
Espaillat	Esp
Hato Mayor	HaMa
Hermanas Mirabal	HeMi
Independencia	In
La Altagracia	LA
La Romana	LR
La Vega	LV
María Trinidad Sánchez	MTS
Monseñor Nouel	MN
Monte Cristi	MC
Monte Plata	MP
Pedernales	Ped
Peravia	Per
Puerto Plata	PP
Samaná	Sam
San Cristóbal	SC
San José de Ocoa	SJO
San Juan	SJ
San Pedro de Macorís	SPM
Sánchez Ramírez	SaRa
Santiago	San
Santiago Rodríguez	SaRo
Santo Domingo	SD
Valverde	Va
Haiti	
Artibonite	Ar
Centre	Ce
Grand'Anse	GA
Nippes	Ni
Nord	No
Nord-Est	NE
Nord-Ouest	NO
Ouest	Ou
Sud-Est	SE
Sud	Su

Table 2. List of Genera, listed alphabetically by subfamily, and the number of named species within each genus that are known to occur on Hispaniola.

Subfamily	Genus	No. of Species
Amblyoponinae	*Fulakora*	1
Dolichoderinae	*Bothriomyrmex*	1
	Dorymyrmex	1
	Linepithema	3
	Tapinoma	4
Dorylinae	*Cylindromyrmex*	1
	Syscia	1*
Ectatomminae	*Gnamptogenys*	7
Formicinae	*Acropyga*	2
	Brachymyrmex	2
	Camponotus	17
	Myrmelachista	2
	Nylanderia	6
	Paratrechina	1
	Zatania	2
Myrmicinae	*Aphaenogaster*	2
	Cardiocondyla	3
	Cephalotes	7
	Crematogaster	2
	Cyphomyrmex	2
	Eurhopalothrix	1
	Monomorium	4
	Mycocepurus	1
	Pheidole	14
	Pogonomyrmex	3
	Rogeria	4
	Solenopsis	6
	Strumigenys	9
	Temnothorax	5
	Tetramorium	5
	Trachymyrmex	2
	Trichomyrmex	1
	Wasmannia	1
Ponerinae	*Anochetus*	3
	Hypoponera	3
	Leptogenys	2
	Odontomachus	3
	Platythyrea	2
	Pseudoponera	2
	Thaumatomyrmex	2*
Proceratiinae	*Discothyrea*	1
	Proceratium	2
Pseudomymecinae	*Pseudomyrmex*	4

* *Syscia* and *Thaumatomyrmex* are only known from undescribed species.

subspecies. One hundred twenty-six species are native and 21 are introduced. Sixty-one of the native species are island endemics (48% of the native species). Seventy-eight species occur in both the Dominican Republic (DR) and Haiti (H). Ninety-nine species are known from Haiti and 126 from the Dominican Republic.

If we also consider a set of eight distinctive undescribed species (*Temnothorax*: 5, *Pheidole*: 1, *Strumigenys*: 1, and *Crematogaster*: 1), there are 155 species: 134 native and 21 introduced, with 69 endemic (51% of the native fauna). The

Figure 1. *Acropyga dubitata* male (MCZ-ENT00510576), head view. Photograph by Patrick McCormack.

Figure 2. *Acropyga dubitata* male (MCZ-ENT00510576), profile view. Photograph by Patrick McCormack.

known species richness has increased 26% (155 vs. 125 species in Perez-Gelabert, 2008). Other undescribed species are also present in the MCZ pinned material but are from genera that require a taxonomic revision. Specific details about these ants are explained in the generic accounts that follow. My own impression, based on my field and museum experience with this fauna, is that at least 15 new species (beyond the eight mentioned above) are present in this material. Regardless of the actual total number of new species, it is not clear by how much this would increase the total number of species known from the island. Generic revisions will likely show the misapplications of names (either a switching of one named species to another existing name or a new species described to replace what was thought to be a known, named species; this results in no net change in the total number of known species), synonyms (fewer known species), and valid new species (more known species).

Generic/Species Accounts

Acropyga

A moderately diverse genus (41 species) that occurs in warm temperate and tropical areas throughout the world. *Acropyga* are small hypogaeic ants that primarily subsist on mealybugs and their exudates (LaPolla et al., 2002; LaPolla, 2004). This relationship has putatively become obligate for many species. Alate queens of more than 10 species that have flown away from their natal nests have been observed carrying mealybugs in their mandibles. This behavior is presumed to be the means by which new colonies of all *Acropyga* species acquire their symbionts. Because of their subterranean existence, these ants are rarely collected or observed.

Acropyga dubitata (Wheeler and Mann, 1914)

Figures 1, 2. MCZ-ENT00021410, Lectotype.

Endemic (Types Only). DR—unknown province.

Elevation. No data.

Known from the type collection, all males. Locality information from the specimen labels and Wheeler and Mann (1914: 47) are given as "San Francisco Mts. of San Domingo" and variants thereof. There are no mountains with this name, but this likely represents a section of the Cordillera

Table 3. List of the extant ant species that are known from Hispaniola. The genera and species within each genus are listed in alphabetical order without regard to subfamily. Species are noted regarding: Native = Na for native and In for introduced species; Endemic = En for endemic and blank for species that also occur beyond Hispaniola; Occurs = DR (Dominican Republic) and Ha (Haiti).

Species	Native	Endemic	Occurs
Acropyga dubitata	Na	En	DR
Acropyga parvidens	Na	En	Ha, DR
Anochetus haytianus	Na	En	Ha
Anochetus longispinus	Na	En	Ha
Anochetus mayri	Na		Ha, DR
Aphaenogaster relicta	Na	En	Ha
Aphaenogaster relicta epinotalis	Na	En	Ha
Bothriomyrmex enigmaticus	Na	En	DR
Brachymyrmex heeri	Na		Ha, DR
Brachymyrmex obscurior	Na		Ha, DR
Camponotus albistramineus	Na	En	Ha, DR
Camponotus altivagans	Na	En	Ha
Camponotus augustei	Na	En	Ha, DR
Camponotus christophei	Na	En	Ha, DR
Camponotus claviscapus occultus	Na		Ha, DR
Camponotus fumidus fraterculus	Na	En	Ha
Camponotus fumidus haytianus	Na	En	Ha
Camponotus fumidus illitus	Na	En	Ha
Camponotus fumidus imbecillus	Na	En	Ha
Camponotus fumidus soulouquei	Na	En	Ha, DR
Camponotus lucayanus	Na		Ha, DR
Camponotus picipes plombyi	Na	En	Ha
Camponotus ramulorum vernulus	Na	En	Ha
Camponotus saussurei	Na	En	Ha, DR
Camponotus sexguttatus	Na		DR
Camponotus toussainti	Na	En	Ha
Camponotus ustus	Na		Ha, DR
Cardiocondyla emeryi	In		Ha, DR
Cardiocondyla minutior	In		DR
Cardiocondyla venustula	In		Ha, DR
Cephalotes argentiventris	Na	En	DR
Cephalotes auricomus	Na	En	Ha, DR
Cephalotes decoloratus	Na	En	Ha, DR
Cephalotes flavigaster	Na	En	DR
Cephalotes hamulus	Na	En	Ha, DR
Cephalotes unimaculatus	Na	En	Ha, DR
Cephalotes vinosus	Na	En	Ha
Crematogaster russoi	Na	En	DR
Crematogaster steinheili	Na		Ha, DR
Cylindromyrmex darlingtoni	Na		DR
Cyphomyrmex minutus	Na		Ha, DR
Cyphomyrmex rimosus	Na		Ha, DR
Discothyrea testacea	Na		DR
Dorymyrmex antillana	Na		Ha, DR
Eurhopalothrix floridana	Na		DR
Fulakora falcata	Na		DR
Gnamptogenys falcaria	Na	En	DR
Gnamptogenys haytiana	Na	En	Ha, DR
Gnamptogenys insularis	Na	En	DR
Gnamptogenys lineolata	Na	En	DR
Gnamptogenys schmitti	Na	En	DR
Gnamptogenys semiferox	Na	En	DR
Gnamptogenys striatula	Na		DR
Hypoponera opaciceps	Na		Ha, DR

TABLE 3. CONTINUED.

Species	Native	Endemic	Occurs
Hypoponera opacior	Na		Ha, DR
Hypoponera punctatissima	Na		Ha, DR
Leptogenys antillana	Na	En	Ha, DR
Leptogenys pubiceps	Na		Ha, DR
Linepithema dispertitum	Na		DR
Linepithema flavescens	Na	En	Ha
Linepithema keiteli	Na	En	Ha, DR
Monomorium bicolor	In		DR
Monomorium ebeninum	Na		Ha, DR
Monomorium floricola	In		Ha, DR
Monomorium pharaonis	In		DR
Mycocepurus smithii	Na		Ha, DR
Myrmelachista gagates	Na	En	Ha, DR
Myrmelachista ramulorum	Na		DR
Nylanderia fulva	Na		Ha, DR
Nylanderia guatemalensis	Na		Ha, DR
Nylanderia guatemalensis itinerans	Na		Ha, DR
Nylanderia pubens	Na		Ha, DR
Nylanderia steinheili	Na		Ha, DR
Nylanderia vividula	Na		Ha, DR
Odontomachus bauri	Na		Ha, DR
Odontomachus insularis	Na		Ha, DR
Odontomachus ruginodis	Na		Ha, DR
Paratrechina longicornis	In		Ha, DR
Pheidole darlingtoni	Na	En	Ha
Pheidole drepanon	Na	En	DR
Pheidole flavens	Na		Ha, DR
Pheidole harlequina	Na	En	DR
Pheidole hispaniolae	Na	En	DR
Pheidole indica	In		DR
Pheidole jamaicensis	Na		Ha, DR
Pheidole jelskii	Na		Ha, DR
Pheidole megacephala	In		Ha, DR
Pheidole moerens	Na		Ha, DR
Pheidole noar	Na	En	DR
Pheidole subarmata	Na		Ha, DR
Pheidole susannae	In		DR
Pheidole terresi	Na	En	Ha, DR
Platythyrea punctata	Na		Ha, DR
Platythyrea strenua	Na	En	Ha, DR
Pogonomyrmex aterrimus	Na	En	Ha, DR
Pogonomyrmex saucius	Na	En	Ha, DR
Pogonomyrmex schmitti	Na	En	Ha, DR
Proceratium longiscapus	Na	En	DR
Proceratium taino	Na	En	DR
Pseudomyrmex cubaensis	Na		Ha, DR
Pseudomyrmex haytianus	Na	En	Ha, DR
Pseudomyrmex simplex	Na		Ha, DR
Pseudomyrmex subater	Na		Ha, DR
Pseudoponera stigma	Na		Ha, DR
Pseudoponera succedanea	Na		Ha, DR
Rogeria alzatei	Na		DR
Rogeria brunnea	Na		DR
Rogeria curvipubens	Na		Ha, DR
Rogeria leptonana	Na		DR
Solenopsis geminata	Na		Ha, DR
Solenopsis globularia	Na		Ha, DR

Table 3. Continued.

Species	Native	Endemic	Occurs
Solenopsis pollux	Na		Ha, DR
Solenopsis pygmaea	Na		Ha
Solenopsis succinea	Na		Ha
Solenopsis terricola	Na		DR
Strumigenys eggersi	Na		Ha, DR
Strumigenys emmae	In		DR
Strumigenys gundlachi	Na		DR
Strumigenys lanuginosa	Na		DR
Strumigenys louisianae	Na		Ha, DR
Strumigenys membranifera	In		DR
Strumigenys nigrescens	Na		Ha, DR
Strumigenys rogeri	In		Ha, DR
Strumigenys silvestrii	In		DR
Syscia sp1	Na	En	DR
Tapinoma litorale	Na		DR
Tapinoma melanocephalum	In		Ha, DR
Tapinoma opacum	Na	En	Ha, DR
Tapinoma rasenum	Na		DR
Temnothorax ciferrii	Na	En	DR
Temnothorax creolus	Na	En	DR
Temnothorax flavidulus	Na	En	Ha
Temnothorax hispaniolae	Na	En	DR
Temnothorax sallei	Na	En	Ha, DR
Tetramorium bicarinatum	In		Ha, DR
Tetramorium caldarium	In		Ha, DR
Tetramorium lanuginosum	In		DR
Tetramorium lucayanum	In		DR
Tetramorium simillimum	In		Ha, DR
Thaumatomyrmex sp1	Na	En	DR
Thaumatomyrmex sp2	Na	En	DR
Trachymyrmex haytianus	Na		Ha
Trachymyrmex jamaicensis	Na		Ha, DR
Trichomyrmex destructor	In		Ha, DR
Wasmannia auropunctata	Na		Ha, DR
Zatania darlingtoni	Na	En	Ha
Zatania gibberosa	Na		Ha

Septentrional north of the city of San Francisco de Macoris.

Acropyga parvidens (Wheeler and Mann, 1914)

Figures 3, 4. MCZ-ENT00021412, Lectotype.

Endemic. H—Ou (type locality); DR—HaMa, MTS, SC. Map 3.

Elevation. 200–1,372 m.

Acropyga parvidens is known from the worker and queen castes. Haitian collections are all in the vicinity of Port-au-Prince. Weber (1944) collected a colony that

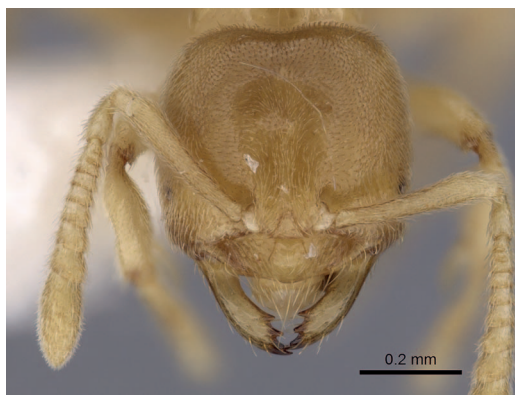


Figure 3. *Acropyga parvidens* worker (CASENT0249923), head view. Photograph by Will Ericson.

Figure 4. *Acropyga parvidens* worker (CASENT0249923), profile view. Photograph by Will Ericson.

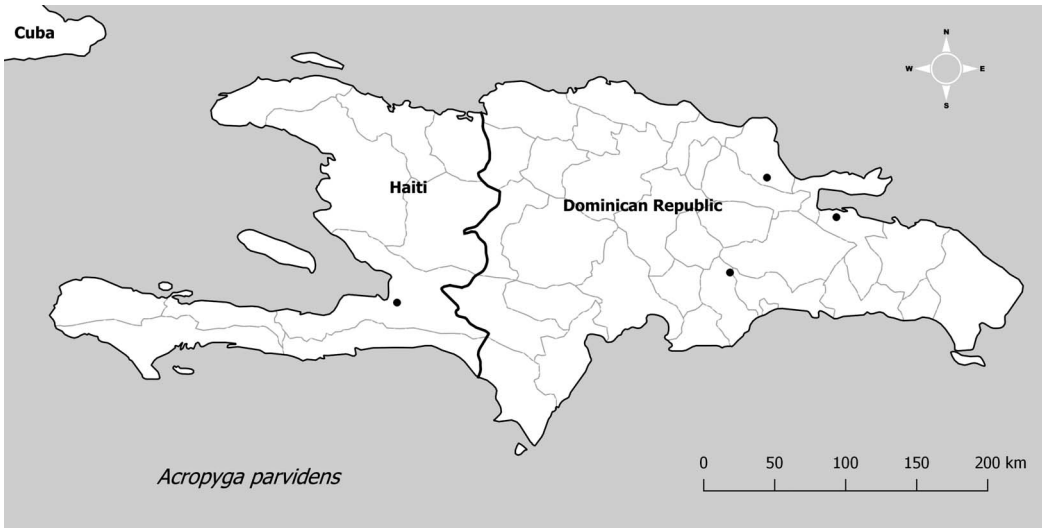
contained coccids that were being tended on coffee plant roots in the soil. LaPolla (2004) reported Dominican Republic records from Hato Mayor and San Cristobal. One of these specimens was noted as being a queen holding a mealybug between her mandibles.

Acropyga Notes. A nest with males needs to be found to determine if these two names represent one or two species. The presumed type locality of the male *A. dubitata* is notable as being not far west of a recent collection of *A. parvidens* from Loma Quita Espuela Scientific Reserve. Finding nests of *Acropyga* can be challenging. *Acropyga* typically remain underground, except when they release sexuals from their nests. During this time, their subterranean nests are opened at the ground surface via multiple entrances. Workers can be observed milling about these openings, seemingly attempting to entice the sexuals to exit the colony and alight. Knowing what time of the year mating flights occur would be helpful in finding such nests. The *A. dubitata* type labels, presumably collected during a mating flight(s?) and not from a nest, do not include clearly stated collection dates. The labels do contain some cryptic handwritten numbers (e.g., 27.9, 7-9, 14.9.05) that suggest they were found in September.

Problematic Acropyga Record. Wheeler (1935) erroneously reported *Acropyga dubitata* as occurring in Haiti.

Anochetus

A diverse genus (112 species) found throughout the tropics and in some warmer



Map 3. Locality records of the endemic *Acropyga parvidens*. All locations are marked by black circles.

Figure 5. *Anochetus haytianus* worker (MCZ-ENT00020515), head view. Photograph by Charles Whittemore Farnum.

Figure 6. *Anochetus haytianus* worker (MCZ-ENT00020515), profile view. Photograph by Charles Whittemore Farnum.

temperate areas. These so called trap-jaw ants form small nests of less than 100 workers in soil, rotten wood, termite nests and under objects on the ground (Brown, 1978). Most *Anochetus* forage in the leaf litter and have relatively small workers. These ants are adept at using their elongate mandibles to capture the invertebrates they prey upon. Some species specialize on termites.

Anochetus haytianus Wheeler and Mann, 1914

Figures 5, 6. MCZ-ENT00020515, Syntype.

Endemic (Types Only). H—Ou, SE. Map 4.

Elevation. No data.

Mann's type collections constitute all of the known specimens of *Anochetus haytianus*. Wheeler and Mann (1914) reported finding small colonies nesting under stones. Brown (1978) noted the yellowish color of these ants suggests they are nocturnal foragers.

Map 4. The type localities of *Anochetus haytianus* (Haiti) and *Bothriomyrmex enigmaticus* (Dominican Republic). Both species are known only from their type material. All locations are marked by black circles.

Figure 7. *Anochetus longispinus* worker (MCZ-ENT00510581), head view. Photograph by Patrick McCormack.

Figure 8. *Anochetus longispinus* worker (MCZ-ENT00510581), profile view. Photograph by Patrick McCormack.

Anochetus longispinus Wheeler, 1936
Figures 7, 8. MCZ-ENT00022859, Syntype.

Endemic (Types Only). H—GA. Map 5.

Elevation. 61–122 m

The types were collected by Darlington from the foothills of the Massif de la Hotte, Haiti. Brown (1978) suggests this species, like *A. haytianus*, is a nocturnal forager.

Anochetus mayri Emery, 1884
Figures 9, 10. MCZ-ENT00521519.

Caribbean, Central America, and South America. H—SE, No, Ou; DR—DN, Du, ES, LV, MTS, MN, Ped, SC. Map 6.

Elevation. 45–800 m.

A common species in many parts of its range. *Anochetus mayri* can be found in a variety of habitats, including disturbed areas

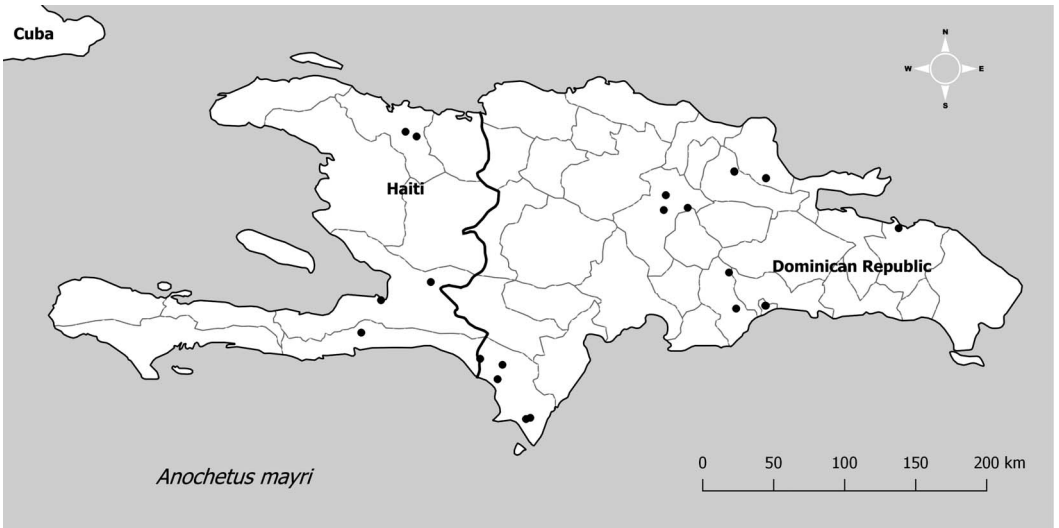
Map 5. La Hotte (Haiti) is the type locality for *Anochetus longispinus* and *Pheidole darlingtoni*, with both species known only from their type material. The Dominican Republic localities are the Hispaniola distribution of *Tapinoma litorale*. All locations are marked by black circles.

Figure 9. *Anochetus mayri* worker (CASENT0260501), head view. Photograph by Shannon Hartman.

Figure 10. *Anochetus mayri* worker (CASENT0260501), profile view. Photograph by Shannon Hartman.

(Deyrup, 2002). Brown (1978: 619) noted: "*A. mayri* is found mostly in forests under stones, in moss on rocks or logs, in rotten twigs on the forest floor, or in larger bodies of rotten wood. The workers and queen feign death, and are difficult to see." This characterization does not include this ant often being found in more open and disturbed vegetation, including areas where coffee or bananas are planted. Their nesting sites can be opportunistically placed, co-opting whatever usable cavities or cover are available. Many Dominican Republic specimens were collected from litter samples.

Problematic Anochetus Records. *Anochetus longispinus*. Wheeler's 1936 description states the elevation for the type material as 3,000–4,000 ft. Darlington's specimen labels state an elevation of "2–400 ft" and further indicate they are from "foothills." Darlington's labels are assumed to be correct, and



Map 6. Hispaniola locality records of *Anochetus mayri*. All locations are marked by black circles.

Figure 11. *Aphaenogaster relicta* worker (MCZ-ENT00510583), head view. Photograph by Patrick McCormack.

Figure 12. *Aphaenogaster relicta* worker (MCZ-ENT00510583), profile view. Photograph by Patrick McCormack.

this is reflected in the elevation range given above for this species. Brown (1978) listed this ant as occurring above 1,000 m (repeated in Fernández, 2008), likely based on Wheeler's description, and erroneously reported *Anochetus haytianus* as occurring in the Dominican Republic.

Aphaenogaster

A diverse genus (220 species) found in most regions of the world. Nests and foragers can be common, abundant elements of their local ant faunas. Many species nest in downed dead wood or the soil. They form small to moderate-sized colonies with hundreds to thousands of workers (Umphrey, 1992). Many *Aphaenogaster* species are known to be omnivorous, with a few being important dispersers of elaiosome-bearing seeds (Lubertazzi, 2012).

Aphaenogaster relicta Wheeler and Mann, 1914

Figures 11, 12. MCZ-ENT00020629, Syntype.

Endemic (Types Only). H—Ou, SE. Map 7.

Elevation. No data.

Known only from a number of Mann collections. He reported in Wheeler and Mann (1914: 27) that *Aphaenogaster relicta* was found in "holes beneath stones in moist localities, usually on hill-sides. The workers are timid and very rapid in their movements."

Aphaenogaster relicta epinotalis Wheeler and Mann, 1914

Figures 13, 14. MCZ-ENT00020630, Syntype.

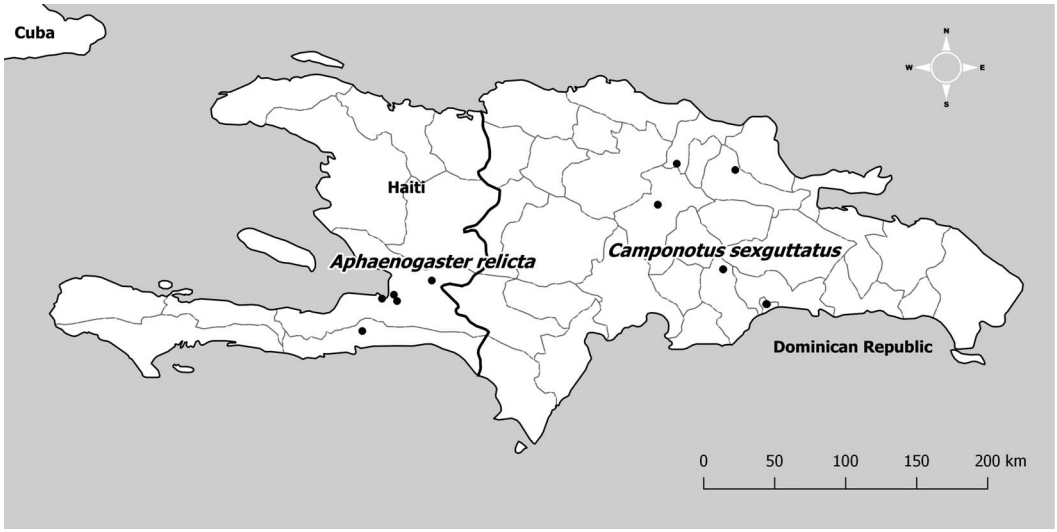
Endemic (Types Only). H—Ou. Map 8.

Elevation. The type locality (Wheeler and Mann, 1914) was stated to be just above sea level. A Darlington specimen (Wheeler, 1936) was collected at 1,372 m (4,500 ft).

The type series was collected in Manneville, Haiti, in the Cul-de-Sac plain near the border with the Dominican Republic. Mann's description of this area stated (Wheeler and Mann, 1914: 2): "on the west shore of Lake Assuei; hot and dry, with desert vegetation, such as cacti and thorny bushes; with a few small, sporadic, cultivated tracts." The only other collection of this species, a 1934 Darlington specimen from Mt. Trou d'Eau, Haiti, cannot be placed to a known locality.

Bothriomyrmex

A moderately diverse genus with 29 species (Prebus and Lubertazzi, 2016),

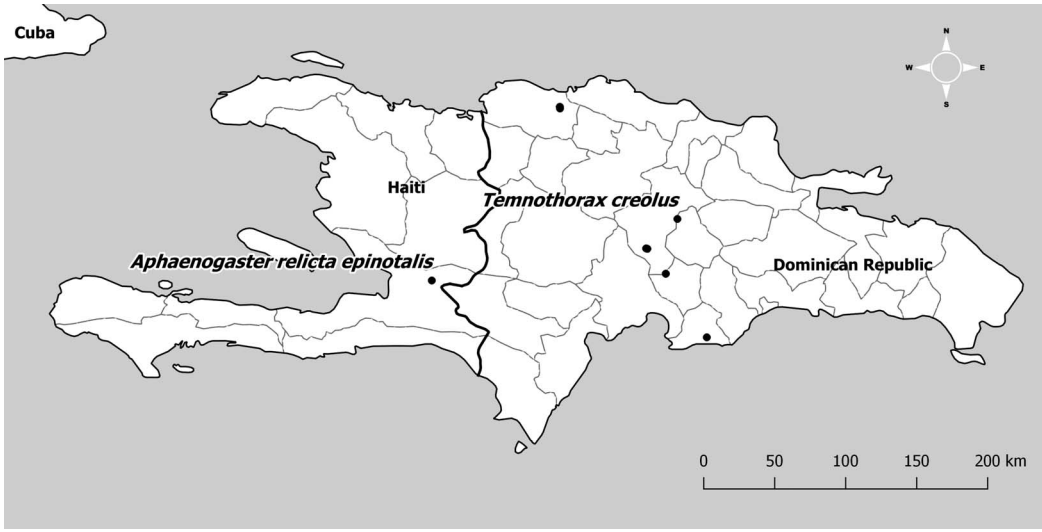


Map 7. Locality records of the endemic *Aphaenogaster relicta*, known from Haiti, and the Hispaniola locality records of *Camponotus sexguttatus*, known from the Dominican Republic. All locations are marked by black circles.

Bothriomyrmex have been found in a broad range of habitats, including grassland, savannah, lowland tropical moist forest and cloud forest. Seifert (2012) suggested all members of the genus are temporary social parasites of other ants. Other Dolichoderinae in the genus *Tapinoma* are their putative hosts. Primarily an Old World genus, the first New World species was described from Costa Rica in 2004 (*Bothriomyrmex paradoxus* Dubovikoff and Longino, 2004). The lone *Bothriomyrmex* species known from Hispaniola was discovered in 2015.

Figure 13. *Aphaenogaster relicta epinotalis* worker (CASENT0913122), head view. Photograph by Zach Lieberman.

Figure 14. *Aphaenogaster relicta epinotalis* worker (CASENT0913122), profile view. Photograph by Zach Lieberman.



Map 8. The Haitian type locality of the endemic *Aphaenogaster relicta epinotalis*. A second record, also from Haiti, is not placeable to a known location. The Dominican Republic localities are all the known records of the endemic *Temnothorax creolus*. All locations are marked by black circles.

Bothriomyrmex enigmaticus Prebus and Lubertazzi, 2016
Figures 15, 16. MCZ-ENT00035850, Holotype.

Endemic (Types Only). DR—MTS. Map 4.

Elevation. 195 m.

Known from a single nest from Loma Guaconejo Scientific Reserve (Prebus and Lubertazzi, 2016). Prebus collected workers and brood from decomposing wood at the top of a 1.5-m-tall live sapling. The habitat was a patch of scrubby secondary growth within 100 m of a more mature closed-canopy secondary lowland moist forest.

Figure 15. *Bothriomyrmex enigmaticus* worker (MCZ-ENT00539147), head view. Photograph by Patrick McCormack.

Figure 16. *Bothriomyrmex enigmaticus* worker (MCZ-ENT00539147), profile view. Photograph by Patrick McCormack.

Figure 17. *Brachymyrmex heeri* worker (CASENT0905791), head view. Photograph by Zach Lieberman.

Tapinoma litorale was abundant at this site, and in the field this species is superficially similar in appearance to *B. enigmaticus*. The type nest did not contain any other ant species. A return visit to the type locality in April 2016 yielded no additional collections.

Brachymyrmex

A diverse (61 species) New World genus. *Brachymyrmex* nest in the soil and rotting wood (Ortiz and Fernández, 2014). Workers are small, morphologically unremarkable, and have a weak integument. Mounted material is easily damaged, and specimens often present very poorly. Many *Brachymyrmex* species descriptions were published before 1935 and do not provide adequate diagnostic detail. In sum, it is often difficult to be confident previous determinations are correct and to assign names to newly collected material. The bulk of the pinned MCZ *Brachymyrmex* specimens from the island are of newly collected material (>2011) that has not been identified to species. Records that have been determined to species from the island are treated here as suspect, and the discussion of species is restricted to a single treatment that encompasses all the known records.

Figure 18. *Brachymyrmex heeri* worker (CASENT0905791), profile view. Photograph by Zach Lieberman.

Figure 19. *Brachymyrmex obscurior* worker (CASENT0903120), head view. Photograph by Will Ericson.

Two species have been stated to be present on the island:

Brachymyrmex heeri Forel, 1874. Figures 17, 18.

Brachymyrmex obscurior Forel, 1893. Figures 19, 20.

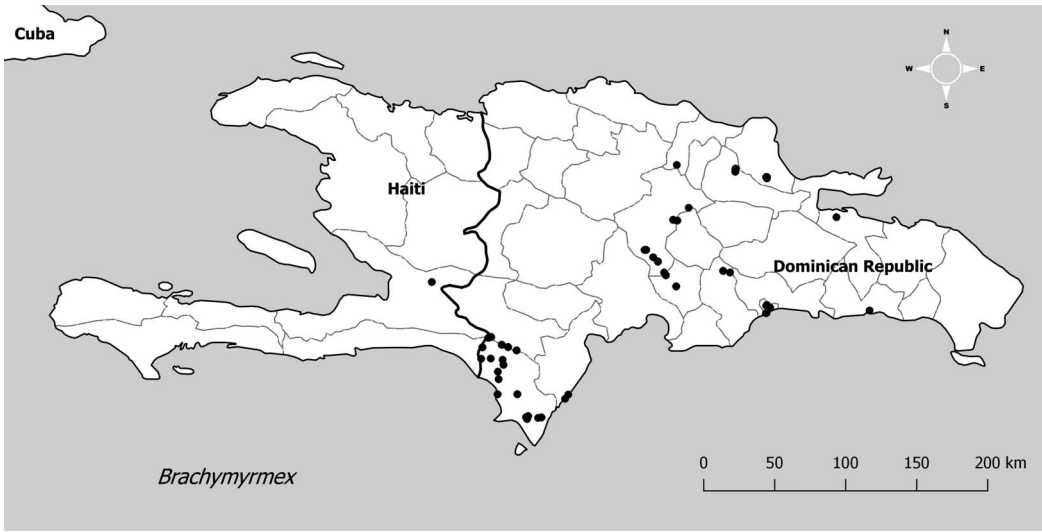
Brachymyrmex is known from many Hispaniola localities (H—Ou; DR—Bar, DN, Du, Esp, HaMa, LV, MN, MTS, Ped, SC, SJO, SPM; Map 9) across a wide elevational range (1–2,388 m). At least three morphospecies appear to be present, and it is uncertain which of these forms should be assigned to *B. heeri* or *B. obscurior*. Both of these species putatively have ranges that include the Caribbean region, Central America, and South America; yet, many previously determined non–type specimens of *Brachymyrmex*, from Hispaniola and

Figure 20. *Brachymyrmex obscurior* worker (CASENT0903120), profile view. Photograph by Will Ericson.

beyond, were likely determined to species based on dubious grounds. This includes being found in the range and possessing a few similar characters of *heeri* or *obscurior* (e.g., is brown and has no erect hairs on the mesosoma or was compared with and found to be similar to other dubiously determined material). Deyrup (2016) summarizes some of the taxonomic issues involving *B. heeri* and *B. obscurior,* and with Neotropical *Brachymyrmex* in general, in his species accounts of *B. minutus* Forel, 1893, and *B. obscurior*. A taxonomic study of the Caribbean *Brachymyrmex* is needed to resolve the present problems.

A portion of the newly collected Hispaniola *Brachymyrmex* material now in the MCZ consists of collections from colonies, some of which include queens and males. Nest collections have been a target of recent collecting efforts, specifically to provide material for future taxonomic study.

In the southwestern Dominican Republic, *Brachymyrmex* tend to be common in open areas, provided the soils are adequately moist. They can also be found in some forested areas. In Bahoruco National Park's high-elevation pine forests above 2,000 m, a *Brachymyrmex* morphospecies is one of just a few ant species present. In open sites at this elevation this ant can also be quite abundant. Searching under rocks and other ground objects in a clearing during late May 2014 led to finding many *Brachymyrmex* colonies. The exposed soil nest chambers found there included brood, dealate queens, and alates of both sexes.



Map 9. The locality records of all *Brachymyrmex* collections from Hispaniola, irrespective of species identity. All locations are marked by black circles.

Figure 21. *Camponotus albistramineus* major (MCZ-ENT0021625), head view. Photograph by Patrick McCormack.

Figure 22. *Camponotus albistramineus* major (MCZ-ENT0021625), profile view. Photograph by Patrick McCormack.

Camponotus

A hyperdiverse genus (1,486 species), *Camponotus* are a common element of ant faunas throughout the world. Constituent species have adapted to living in a wide variety of nesting situations and habitats. The taxonomy of the genus in Hispaniola, as in most places in the world, is poorly resolved. *Camponotus* overall is rife with species exhibiting confounding within- and between-nest variation in worker size, color, and pilosity. There are also many informal species groups composed of taxa that are difficult to determine to species (see Snelling and Torres [1998]; Snelling [2006] for two examples from the Caribbean region).

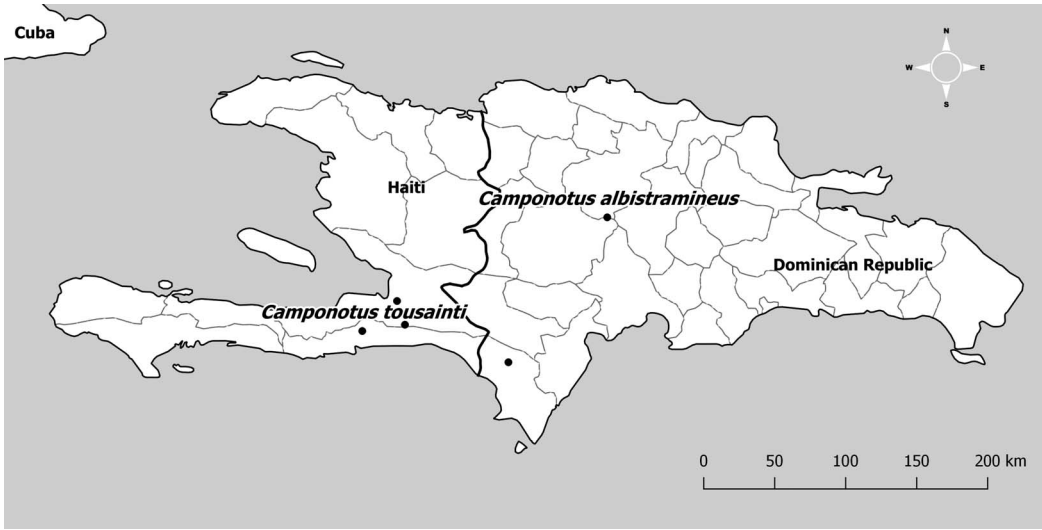
The following species accounts do not critically evaluate the existing taxonomy or validity of prior determinations. Species with tentative determinations or stated to be similar to a named species are here arbitrarily considered to be the named species. Their occurrence data is thus included under the respective species name. Overall, existing names and determinations are subject to change once a needed taxonomic revision is undertaken to evaluate the Caribbean *Camponotus*. There also appears to be a significant number of new species present in the large amount (>450 pins, MCZ) of unidentified material. Recent collecting has been attentive to collecting as many nest series of *Camponotus* as possible to provide a rich set of specimens for future taxonomic research.

Camponotus albistramineus Wheeler, 1936
Figures 21, 22. MCZ-ENT00021625, Holotype.

Endemic. H (type locality)—unknown department; DR—Ped. Map 10.

Elevation. 1,219–2,438 m.

Darlington collected the single type specimen of *C. albistramineus* in 1934 from Mt. Trou d'Eau in Haiti (Wheeler, 1936) and subsequently found this species again in 1938. The former cannot be associated with a contemporary locality. The latter was collected in the Dominican Republic. The stated place name (Loma La Rucilla) cannot be assigned to a province because the location is at the convergence of three provincial borders. A putative third collection of this species was made from Sierra de Bahoruco in the southwestern Dominican Republic. The contemporary collection offers a few biological details (Lubertazzi, unpublished field notes). The specimen was found in a pine forest and was part of an incipient nest in a live pine tree. The nest was situated in a small stub of a dead stick at



Map 10. Locality records of the endemic *Camponotus albistramineus* shown as two points in the Dominican Republic and *Camponotus toussainti* (SE Haiti). The former is known from an older record to occur in Haiti, but the location is not assignable to a named place. All locations are marked by black circles.

a height of 2 m. It is not known if these ants typically begin their nests above ground in dead sticks and wood of living trees, if they nest arboreally, or if they forage upon trees on a regular basis. This species is a member of the subgenus *Myrmeurynota*. Its species resemble some of the island's *Cephalotes* species, all of which are arboreal nesters. The occurrence records for this species overall, while few in number, suggest it may be found in other high-elevation pine forests across southern Hispaniola.

Camponotus altivagans Wheeler, 1936
Figures 23, 24. MCZ-ENT00021626, Syntype.

Endemic (Types Only). H—Ou. Map 11.
Elevation. 1,829–2,134 m.

Figure 23. *Camponotus altivagans* major (MCZ-ENT0021626), head view. Photograph by Patrick McCormack.

Figure 24. *Camponotus altivagans* major (MCZ-ENT0021626), profile view. Photograph by Patrick McCormack.

Map 11. The Haitian type locality and only record of the endemic *Camponotus altivagans*, and the Hispaniola locality records from the Dominican Republic of the introduced *Monomorium bicolor*. All locations are marked by black circles.

The only specimens of this species are from the type collection: three major and three minor workers.

Camponotus augustei Wheeler and Mann, 1914

Figures 25, 26. MCZ-ENT00510223.

Endemic. H—GA, Ou (type locality), Su; DR—Ped. Map 12.

Elevation. 700–1,190 m.

Described from workers collected from vegetation. Colony collections from the southwestern Dominican Republic were from moist forest located between lowland dry forest and higher elevation pine forest. Nesting locations varied from rotten downed tree boles, within wood at the base of a live tree, and in downed sticks. In one of two cases where a nest was found in a rotting tree bole, the colony contained

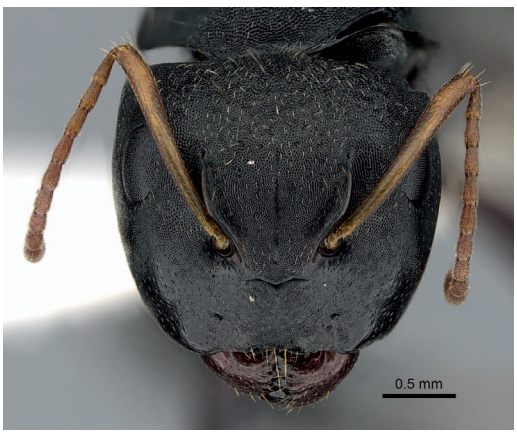
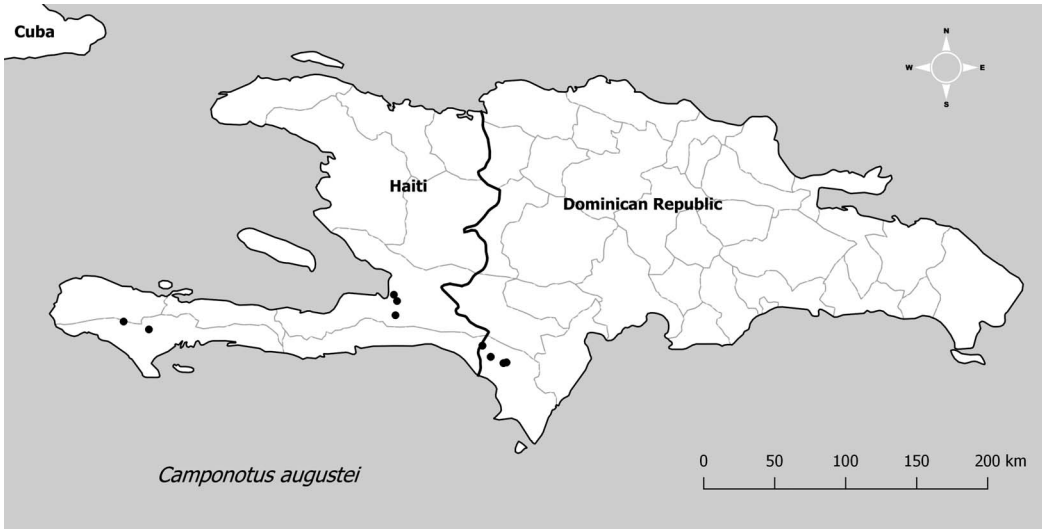


Figure 25. *Camponotus augustei* major (CASENT0280083), head view. Photograph by Shannon Hartman.

Figure 26. *Camponotus augustei* major (CASENT0280083), profile view. Photograph by Shannon Hartman.



Map 12. Locality records of the endemic *Camponotus augustei*. All locations are marked by black circles.

hundreds of workers (Lubertazzi, unpublished field notes). When the nest chambers within the wood were exposed, the ants remained still as if to hide through their inaction, a striking behavior considering the frenetic activity typically found when disturbing most *Camponotus* nests.

Camponotus christophei Wheeler and Mann, 1914

Figures 27, 28. MCZ-ENT00021627, Syntype.

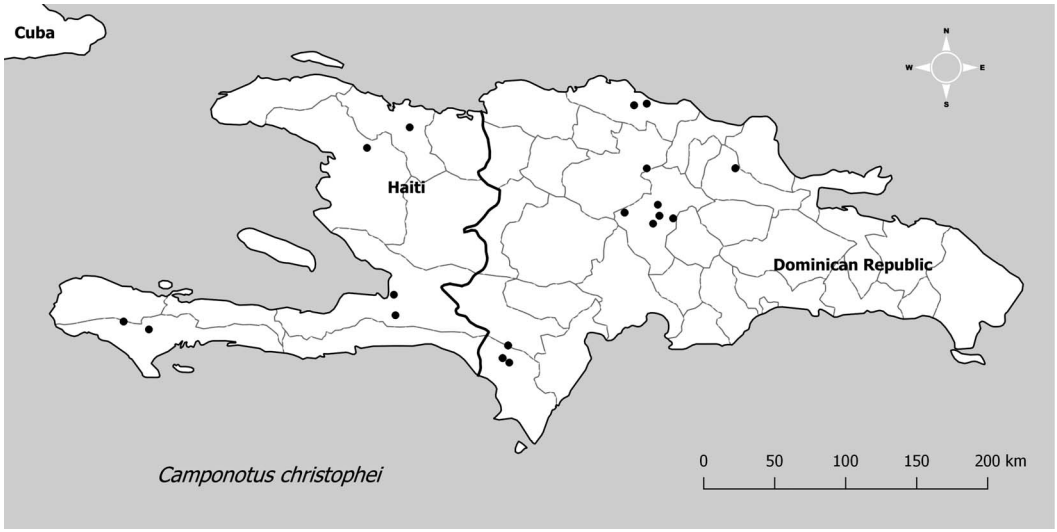
Endemic. H—Ar, GA, No (type locality), Ou, Sud; DR—Du, LV, Ped, PP, San. Map 13.

Elevation. 61–1,910 m.

First discovered (Wheeler and Mann, 1914: 59) "near Milot on blades of a tall grass outside the citadel of Henri Christo-

Figure 27. *Camponotus christophei* major (MCZ-ENT00510698), head view. Photograph by Patrick McCormack.

Figure 28. *Camponotus christophei* major (MCZ-ENT00510698), profile view. Photograph by Patrick McCormack.



Map 13. Locality records of the endemic *Camponotus christophei*. All locations are marked by black circles.

phe . . . and also running about on the stonework inside the fortification." *Camponotus christophei* has subsequently been found numerous times in Haiti and the Dominican Republic, with most collections from above 800 m and in pine forest or mixed-forest habitats that include pine.

Camponotus claviscapus occultus Wheeler and Mann, 1914

Figures 29, 30. MCZ-ENT00021577, Syntype.

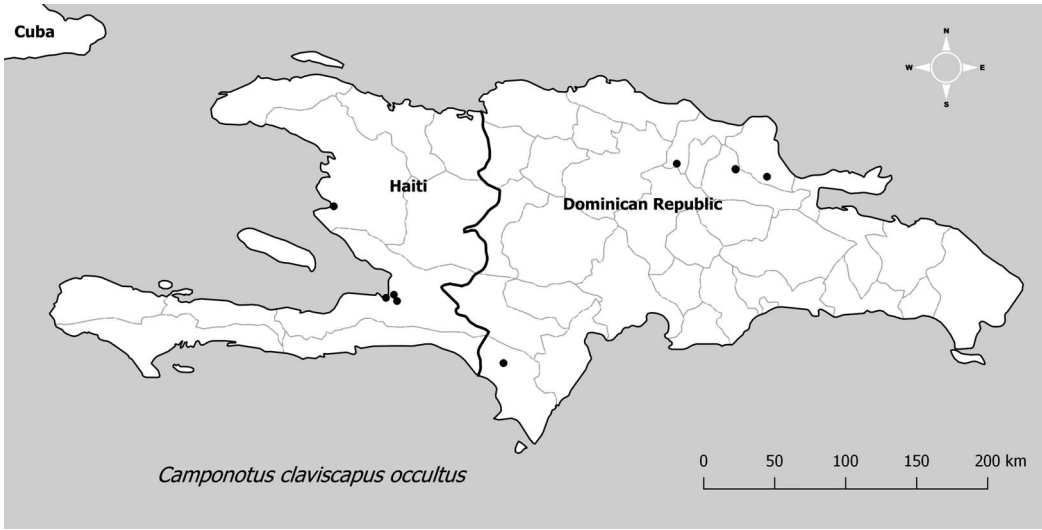
Caribbean. H—Ar (type locality), Ou (type locality); DR—Du, Esp, MTS, Ped. Map 14.

Elevation. 190–800 m.

Beyond Mann's syntype records from Haiti, there are Dominican Republic specimens listed in AntWeb.org (determined as *Camponotus claviscapus* Forel, 1899),

Figure 29. *Camponotus claviscapus occultus* major (MCZ-ENT00021577), head view. Photograph by Patrick McCormack.

Figure 30. *Camponotus claviscapus occultus* major (MCZ-ENT00021577), profile view. Photograph by Patrick McCormack.



Map 14. Hispaniola locality records of *Camponotus claviscapus occultus*. All locations are marked by black circles.

three Prebus collections of *C. claviscapus* nr., and a literature record with no traceable specimens (Menozzi and Russo, 1930). All of these occurrences are included here as specimens of *Camponotus claviscapus occultus*. Taxonomic analysis is needed to discern if this subspecies is distinctive from *C. claviscapus* and if one or two species are present on Hispaniola. This ant has been collected from hollow twigs, mangrove trees, and bamboo in forest habitats.

Camponotus fumidus fraterculus Wheeler and Mann, 1914

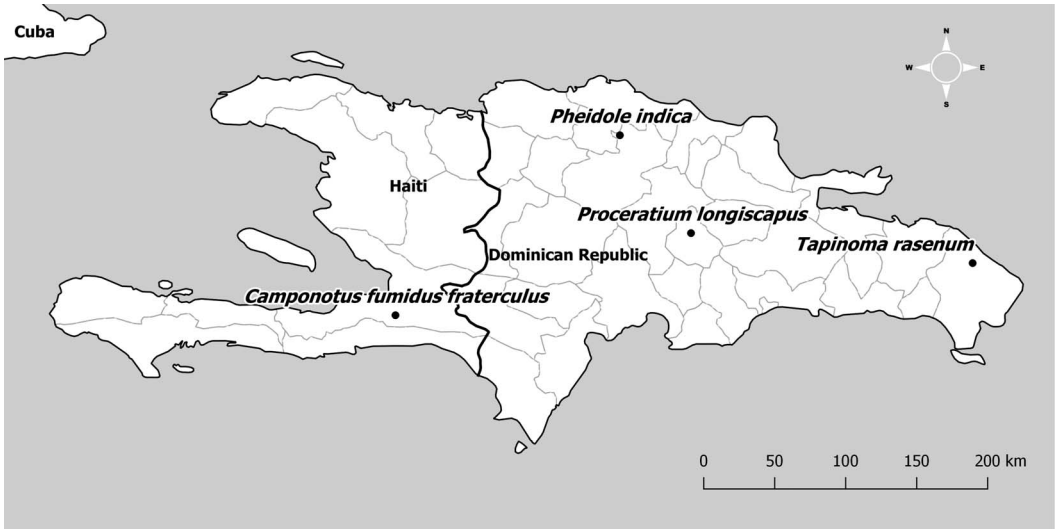
Figures 31, 32. MCZ-ENT00021467, Syntype.

Endemic (Types Only). H—Ou. Map 15.
Elevation. No data.

Known only from the Haitian type material, these specimens were collected

Figure 31. *Camponotus fumidus fraterculus* major (MCZ-ENT00510630), head view. Photograph by Patrick McCormack.

Figure 32. *Camponotus fumidus fraterculus* major (MCZ-ENT00510630), profile view. Photograph by Patrick McCormack.



Map 15. The type locality and only know record of the endemic *Camponotus fumidus fraterculus* and *Proceratium longiscapus*. The localities of the introduced *Pheidole indica* and the Greater Antilles native *Tapinoma rasenum* are the lone respective records of these species from Hispaniola. All locations are marked by black circles.

from crater nests in the ground (Wheeler and Mann, 1914).

Camponotus fumidus haytianus Wheeler and Mann, 1914
Figures 33, 34. MCZ-ENT00021468, Syntype.

Endemic. H—GA, Ou (type locality). Map 16.

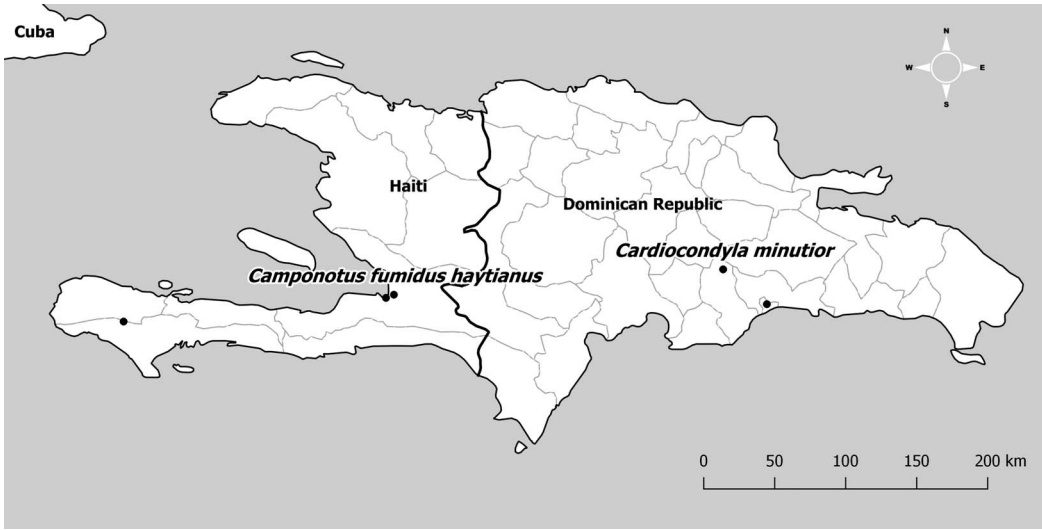
Elevation. No data.

Three of the four collections of this species can be placed to specific locations, and all are from southern Haiti. The type material was collected from nests in the soil.

Camponotus fumidus illitus Wheeler and Mann, 1914
Figures 35, 36. MCZ-ENT00021463, Syntype.

Figure 33. *Camponotus fumidus haytianus* major (MCZ-ENT00510631), head view. Photograph by Patrick McCormack.

Figure 34. *Camponotus fumidus haytianus* major (MCZ-ENT00510631), profile view. Photograph by Patrick McCormack.



Map 16. Locality records of the endemic *Camponotus fumidus haytianus*, known only from Haiti, and the introduced *Cardiocondyla minutior*. The latter has only been found in the Dominican Republic. All locations are marked by black circles.

Endemic. H—Ce, No (type locality), Ou (type locality). Map 17.

Elevation. No data.

The type material was collected from nests in the ground.

Camponotus fumidus imbecillus Wheeler and Mann, 1914
Figures 37, 38. MCZ-ENT00021464, Syntype.

Endemic (Types Only). H—No. Map 18.

Elevation. No data.

Known from the type material from Grande Riviere, Haiti.

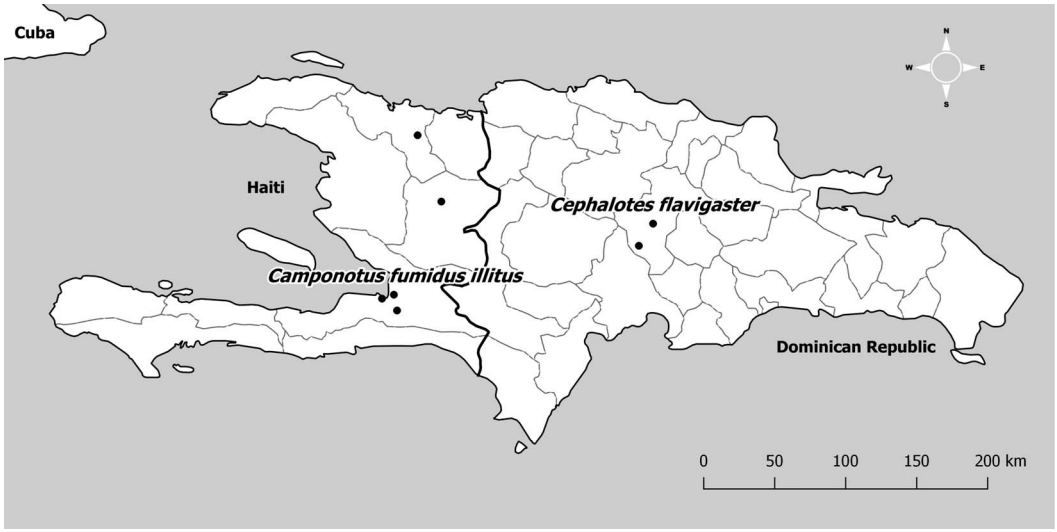
Camponotus fumidus soulouquei Forel, 1901
Figures 39, 40. MCZ-ENT00510735.

Endemic. H—Ou (type locality); DR—LV. Map 19.

Elevation. 2,134–3,048 m.

Figure 35. *Camponotus fumidus illitus* major (MCZ-ENT00021463), head view. Photograph by Patrick McCormack.

Figure 36. *Camponotus fumidus illitus* major (MCZ-ENT00021463), profile view. Photograph by Patrick McCormack.



Map 17. Locality records of the endemic *Camponotus fumidus illitus* and *Cephalotes flavigaster*. The former is known only from Haiti and the latter from the Dominican Republic. All locations are marked by black circles.

Two of the three Dominican Republic locality records are not placeable to a province. One, Camu, is an unknown location, and the other, Loma Rucilla, is situated along the borders of three provinces. Nothing is known about the biology of this species.

Camponotus lucayanus Wheeler, 1936

Figures 41, 42. MCZ-ENT00510712.

Caribbean. H—Ce, GA, Ou; DR—LV. Map 20.

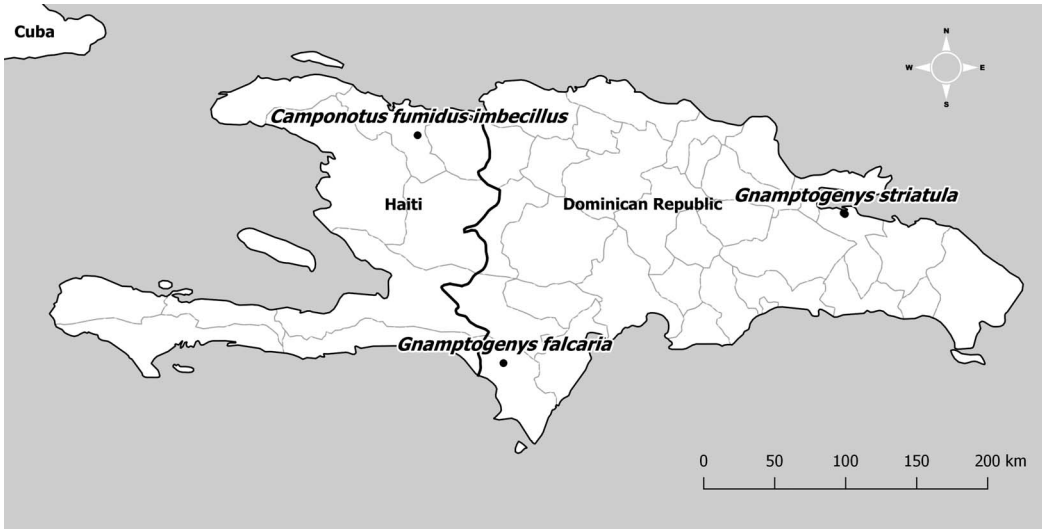
Elevation. 914–2,000 m.

Nothing is known about this ant's biology in Hispaniola. Wheeler (1905) found this species nesting in and under palmetto logs and stumps in the Bahamas.

Camponotus picipes plombyi Wheeler and Mann, 1914

Figure 37. *Camponotus fumidus imbecillus* major (MCZ-ENT00021464), head view. Photograph by Patrick McCormack.

Figure 38. *Camponotus fumidus imbecillus* major (MCZ-ENT00021464), profile view. Photograph by Patrick McCormack.



Map 18. The type locality and only record of the endemic *Camponotus fumidus imbecillus* and *Gnamptogenys falcaria*. Locality records of *Gnamptogenys striatula*, from Los Haitises National Park, represent two of the three Hispaniola records of this species. A third, also from the Dominican Republic, cannot be placed to a known location. All locations are marked by black circles.

Figures 43, 44. MCZ-ENT00021477, Syntype.

Endemic. H—Ou (type locality). Map 21.
Elevation. 1,524–2,134 m.

Discovered (Wheeler and Mann, 1914: 48) "living in crater nests in the ground," this species is known from southern Haiti (Wheeler and Mann, 1914; Wheeler, 1936).

Camponotus ramulorum vernulus Wheeler, 1936

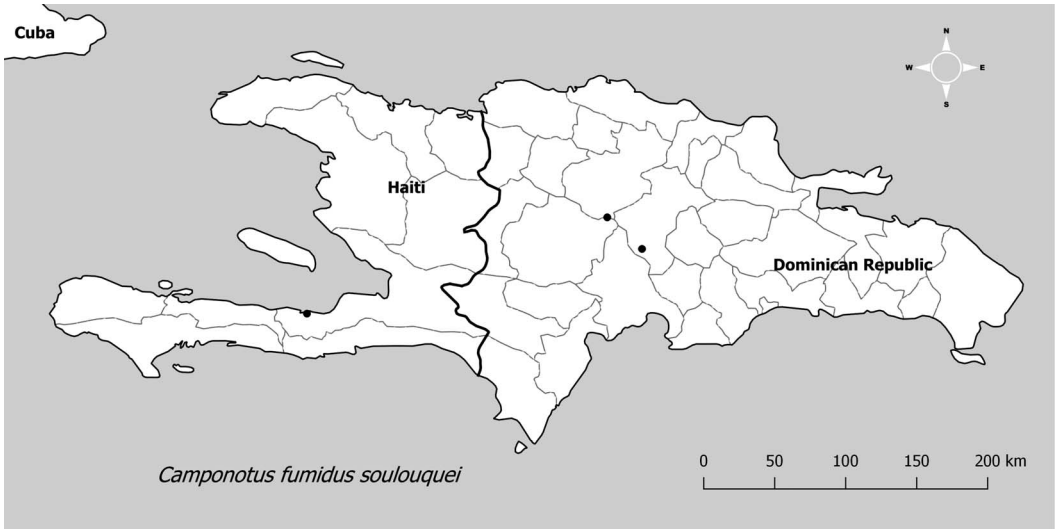
Figures 45, 46. MCZ-ENT00021480, Syntype.

Endemic (Types Only). H—GA. Map 5.
Elevation. ±914 m.

Known from the type collection from the Massif de la Hotte, southwestern Haiti.

Figure 39. *Camponotus fumidus soulouquei* major (CASENT0909992), head view. Photograph by Will Ericson.

Figure 40. *Camponotus fumidus soulouquei* major (CASENT0909992), profile view. Photograph by Will Ericson.



Map 19. Locality records of the endemic *Camponotus fumidus soulouquei*. All locations are marked by black circles.

Camponotus saussurei Forel, 1879
Figures 47, 48. MCZ-ENT00510734.

Endemic. H; DR—LV, MN, SJO. Map 22.

Elevation. 230–980 m.

Described from a collection that was putatively from St. Thomas. Despite this, it is considered a Hispaniola endemic (Wheeler, 1936; see notes under the name *Hypocryptocerus haemorrhoidalis steinheili* Forel, 1908). Wheeler stated there was potential confusion with some of the collections of Henri de Saussure, who visited both St. Thomas and Haiti in 1857. Specimens of *C. saussurei* in the MCZ are all contemporary collections from the Dominican Republic. One is noted as being from a forest habitat.

Camponotus sexguttatus Fabricius, 1793
Figures 49, 50. MCZ-ENT00513224.

Caribbean, North, Central, and South America. DR—DN, Du, Esp, LV, SC. Map 7.

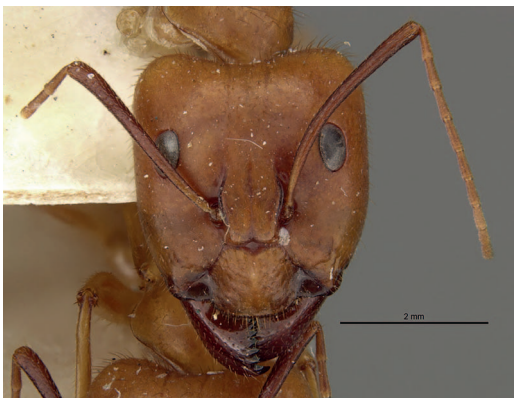
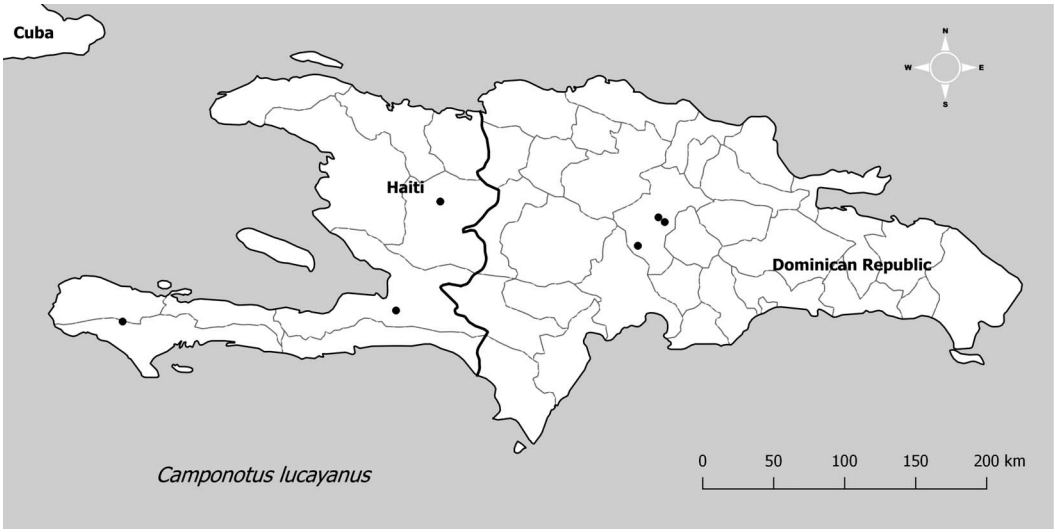


Figure 41. *Camponotus lucayanus* major (MCZ-ENT00021469), head view. Photograph by Charles Whittemore Farnum.

Figure 42. *Camponotus lucayanus* major (MCZ-ENT00021469), profile view. Photograph by Charles Whittemore Farnum.



Map 20. Hispaniola locality records of *Camponotus lucayanus*. All locations are marked by black circles.

Elevation. 54–440 m.

One of the better known Caribbean *Camponotus* species. In other parts of its range it is known to nest in dead wood. It is most commonly found in areas with open vegetation. Colonies are polygynous. Little is known about this ant in Hispaniola. Workers have been observed foraging on the ground and low vegetation along the disturbed crest of a foothill of the Cordillera Central.

Camponotus toussainti Wheeler and Mann, 1914

Figures 51, 52. MCZ-ENT00021629, Syntype.

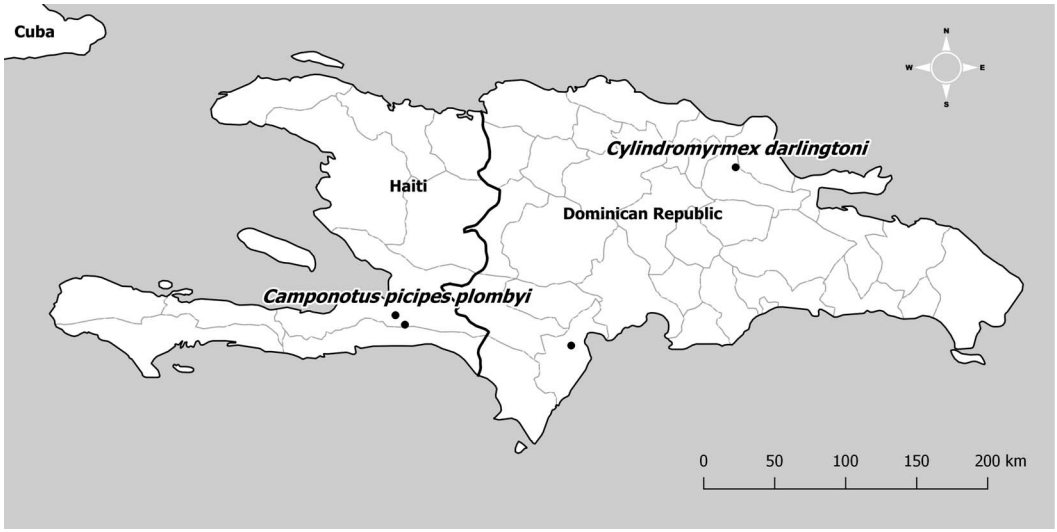
Endemic. H—Ou (type locality), SE (type locality). Map 10.

Elevation. 1,829–2,134 m.

The type workers were found running on leaves (Wheeler and Mann, 1914).

Figure 43. *Camponotus picipes plombyi* major (CASENT0912013), head view. Photograph by Zach Lieberman.

Figure 44. *Camponotus picipes plombyi* major (CASENT0912013), profile view. Photograph by Zach Lieberman.



Map 21. Locality records of the endemic *Camponotus picipes plombyi*, known only from Haiti, and the Hispaniola records, both from the Dominican Republic, of *Cylindromyrmex darlingtoni*. All locations are marked by black circles.

Camponotus ustus Forel, 1879
Figures 53, 54. MCZ-ENT00510740.

Caribbean, South America. H—Ar, No, Ou; DR—Az, DN, Du, Esp, In, LV, MC, MTS, Ped, PP, Sam, San, SJ. Map 23.

Elevation. 190–2,460 m.

The described Hispaniola subspecies (Wheeler and Mann, 1914; Menozzi and Russo, 1930; Wheeler, 1936) that are synonymized under this name highlight this ant's morphological variability. MCZ label data show *C. ustus* has been found in forest habitats nesting under rocks, in dead branches on living trees, in a hollow vine and in dead wood on the ground.

Camponotus Notes. Six named *Camponotus* species (*C. albistramineus*, *C. altivagans*, *C. augustei*, *C. christophei*, *C. saussurei*, *C. toussainti*) are members of

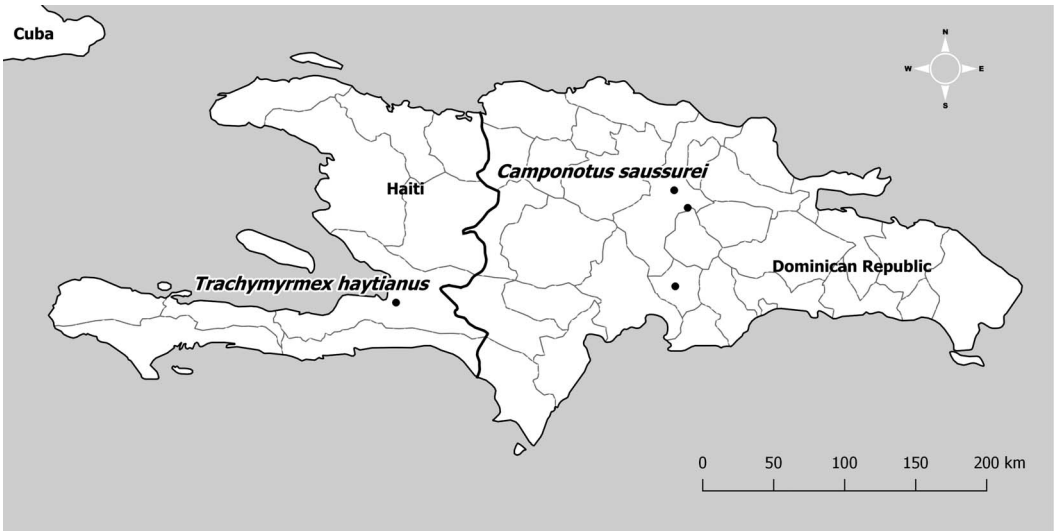
Figure 45. *Camponotus ramulorum vernulus* major (MCZ-ENT00021480), head view. Photograph by Patrick McCormack.

Figure 46. *Camponotus ramulorum vernulus* major (MCZ-ENT00021480), profile view. Photograph by Patrick McCormack.

Figure 47. *Camponotus saussurei* major (MCZ-ENT00539212), head view. Photograph by Patrick McCormack.

Figure 48. *Camponotus saussurei* major (MCZ-ENT00539212), profile view. Photograph by Patrick McCormack.

the subgenus *Myrmeurynota*. All of these species are endemic. As a group, these ants are all black or are mostly so, are robust in size, and possess angulate morphological features that are relatively unusual for the genus. Their habitus resembles some Hispaniola *Cephalotes* species in the color of their integument, general body form, and the color and arrangement of prominent hairs. Anectodatal evidence, as noted in the species accounts above, suggests they forage in the vegetation, further aligning their life history with the arboreal nesting *Cephalotes*. The *Cephalotes* species the *Myrmeurynota* resemble are also of particular interest because of their lack of a soldier caste. There are also salticid spiders that



Map 22. The Dominican Republic locality records of the endemic *Camponotus saussurei*. This species is putatively described from a collection from an unspecified Haitian location (see the species treatment of this species for a discussion of the type locality). The lone Hispaniola record of *Trachymyrmex haytianus* is also shown. All locations are marked by black circles.

Figure 49. *Camponotus sexguttatus* major (CASENT0173451), head view. Photograph by April Nobile.

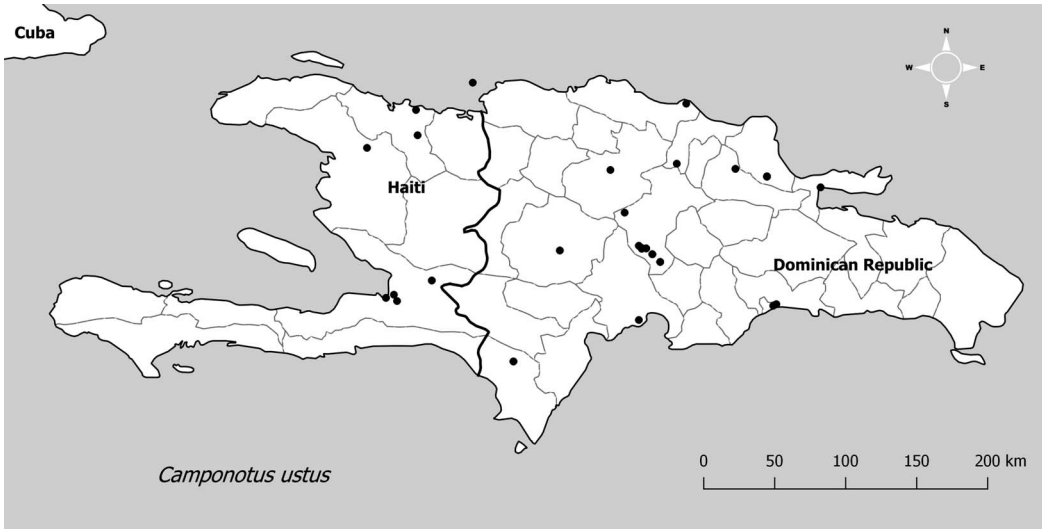
Figure 50. *Camponotus sexguttatus* major (CASENT0173451), profile view. Photograph by April Nobile.

Figure 51. *Camponotus toussainti* major (CASENT0910748), head view. Photograph by Will Ericson.

Figure 52. *Camponotus toussainti* major (CASENT0910748), profile view. Photograph by Will Ericson.

Figure 53. *Camponotus ustus* major (CASENT0910669), head view. Photograph by Zach Lieberman.

Figure 54. *Camponotus ustus* major (CASENT0910669), profile view. Photograph by Zach Lieberman.



Map 23. Hispaniola locality records of *Camponotus ustus*. The northern point located beyond the coastline represents a record from a small Dominican Republic island that is not rendered on the map. All locations are marked by black circles.

appear to have evolved to mimic both of these ant taxa.

Problematic Camponotus Records.

1. *Camponotus abdominalis ustulatus* var. *atricipito-esuriens* (Smith F., 1858). Forel (1879) reported this ant as occurring in Haiti (repeated in Kempf, 1972: 61). This unavailable name resolves to *C. atriceps* (Smith F., 1858), a species that has not otherwise been recorded as occurring on Hispaniola. It is not included in the species list.
2. *Camponotus fumidus* Roger, 1863. Reported by Dalla Torre (1893: 232; repeated by Wheeler, 1905: 134) as being found in Colorado, Venezuela, and Haiti. This is the only record of this species from the island. Since 1893 there have been new descriptions of numerous *C. fumidus* subspecies, but *C. fumidus* is not known to occur on Hispaniola. It is excluded from the current species list.
3. *Camponotus fumidus pubicornis* Emery, 1893 [= *Camponotus festinatus* (Buckley, 1866)]. Emery (1896: 770) reported this ant as being found in Colorado and Haiti, presumably referring to his 1893 description as the source of this occurrence record. In his original description (Emery, 1893a) he stated the newly described form (*C. fumidus pubicornis*) has pilosity that is similar to a Haitian *Camponotus* variety without mentioning this other ant's name. This appears to be a bookkeeping error (i.e., the Emery [1896] occurrence record is based on misreading his own earlier description and should be disregarded). *Camponotus festinatus* is not included in the list of species occurring on the island.
4. *Camponotus fragilis* Pergande, 1893. Reported by Forel (1901b: 371, and repeated by Wheeler, 1905: 134) as a minor worker that was (translated from original) "slightly larger than the type and rather more hairy." It is unclear if he was trying to indicate this was a variety of *C. fragilis* or simply *C. fragilis*. Regardless, *C. fragilis* is a member of a complex of species (Snelling, 2006) that all have indistinguishable minor workers. Although it is not known what species this record represents, it is highly unlikely to

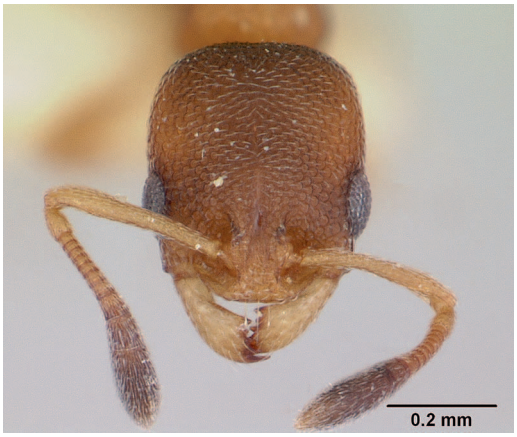


Figure 55. *Cardiocondyla emeryi* worker (CASENT0103472), head view. Photograph by April Nobile.

be *C. fragilis*. It is known from Mexico but does not occur in the Caribbean.

5. *Camponotus picipes* was erroneously reported as occurring in Haiti in Kempf (1972). The subspecies *Camponotus picipes plomybi* does occur on the island but not *C. picipes*.
6. *Camponotus fumidus soulouquei*. In his description, Forel (1901a) stated the type locality was Gonaives, Haiti (repeated in Wheeler and Mann, 1914). A specimen label of a type specimens states Petit Goave, Hayti (label image, AntWeb: CASENT0909992). The latter is presumed here to be the type locality.
7. *Camponotus ramulorum vernulus*. Wheeler's description states the elevation for the type material (Wheeler, 1936: 207) "3000–4000 ft," and Darlington's specimen labels state ±3,000 ft. Darlington's labels are assumed to be correct, and this is reflected in the elevation range given above for this species.

Cardiocondyla

A diverse genus (72 species) of small myrmicine ants. Native to the Old World, some species have been spread to many warmer areas of the New World. Many

Figure 56. *Cardiocondyla emeryi* worker (CASENT0103472), profile view. Photograph by April Nobile.

Cardiocondyla species have soil nests with a cryptic entrance, solitary foragers, and small colonies (several dozen to a few hundred workers). Most species favor open, dry habitats (Seifert, 2003).

The three *Cardiocondyla* species known from the island are part of a larger subset of species within the genus that have spread throughout the world's tropical and subtropical regions. All of the species recorded from Hispaniola nest in the ground.

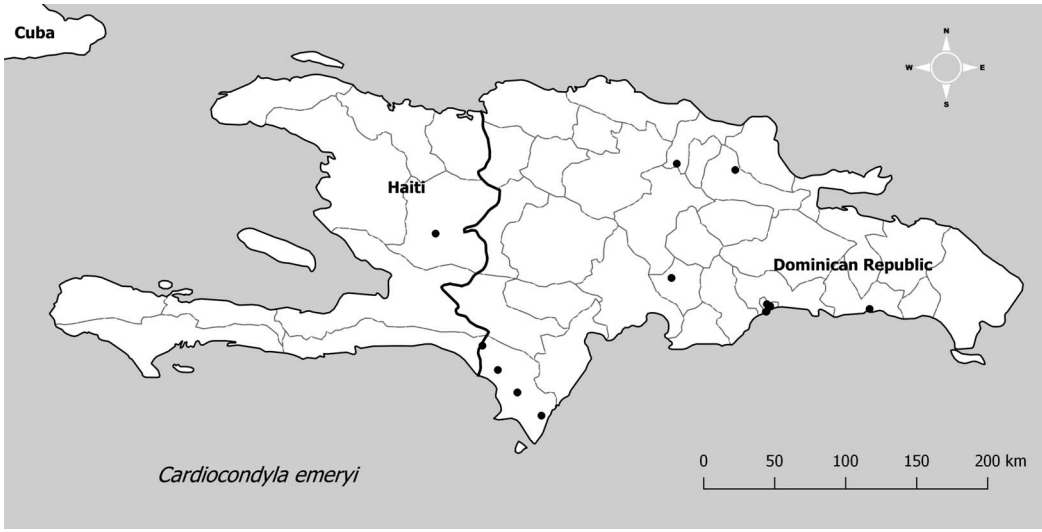
Cardiocondyla emeryi Forel, 1881
Figures 55, 56. MCZ-ENT00510251.

Pantropical. H—Ce; DR—DN, Du, Esp, Ped. SJO, SPM. Map 24.

Elevation. 5–1,260 m.

An African species (Seifert, 2003) that has become established in numerous tropical regions. *Cardiocondyla emeryi* live in ground nests with tiny inconspicuous entrances. They appear benign but there have been no studies of their competitive abilities, foraging behavior, or potential influence on native faunas in their introduced range.

Cardiocondyla emeryi is commonly found in highly disturbed areas (Wetterer, 2012a). It has been collected across a range of habitats in Hispaniola, from dry forest to the hotel grounds of a Santo Domingo hotel. Specimen records also show collections



Map 24. Hispaniola locality records of the introduced *Cardiocondyla emeryi*. All locations are marked by black circles.

were made in leaf litter and from a tuna bait.

Cardiocondyla minutior Forel, 1899
Figures 57, 58. MCZ-ENT00513291.

Pantropical. DR—DN, SC. Map 16.
Elevation. 305 m.

Believed to be native to the Indomalayan region (Seifert, 2003), this species has been spread to many tropical areas throughout the world. Older collections of *C. minutior* from the Caribbean may have been incorrectly determined as *Cardiocondyla nuda* (Seifert, 2003), a species that does not occur in the Caribbean region. In Okinawa, *C. minutior* was reported as nesting in shallow soil in open, disturbed areas with bare or weakly herbaceous ground cover. *Cardio-*

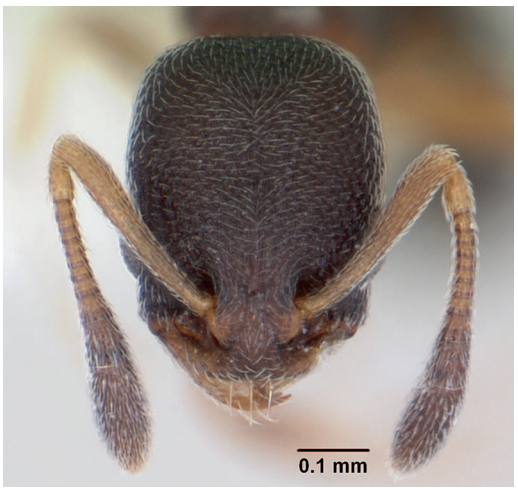


Figure 57. *Cardiocondyla minutior* worker (CASENT0173261), head view. Photograph by April Nobile.

Figure 58. *Cardiocondyla minutior* worker (CASENT0173261), profile view. Photograph by April Nobile.

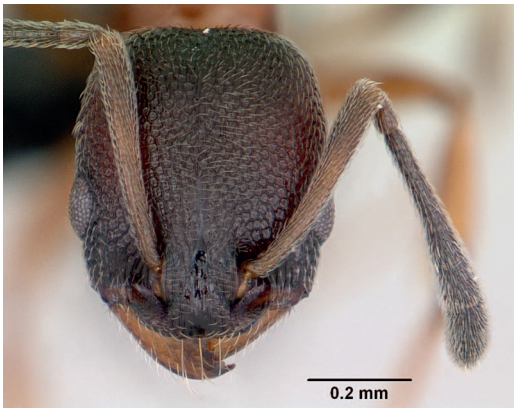


Figure 59. *Cardiocondyla venustula* worker (CASENT0119699), head view. Photograph by April Nobile.

Figure 60. *Cardiocondyla venustula* worker (CASENT0119699), profile view. Photograph by April Nobile.

condyla emeryi (see above) and *C. minutior* (see below) share similar nesting biology. Although it has not been studied in any detail, this ant is believed to be benign in its introduced range.

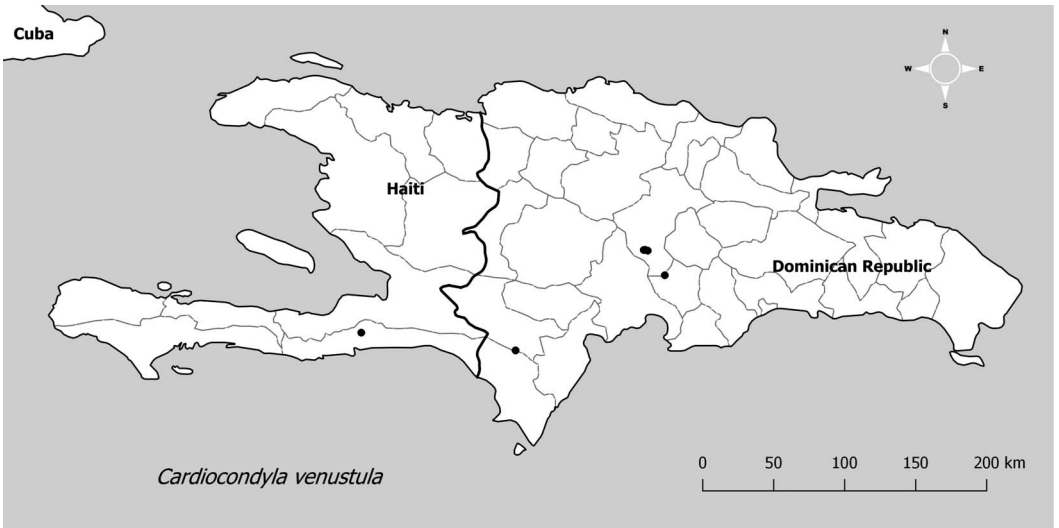
Cardiocondyla minutior is known from the Botanical Garden of Santo Domingo (Jardín Botánico Nacional Dr. Rafael Ma. Moscoso) and a disturbed forest in an area with little natural habitat.

Cardiocondyla venustula Wheeler, 1908
Figures 59, 60. MCZ-ENT00521377.

Caribbean, North and Central America, Africa, and beyond. H—SE; DR—LV, Ped. Map 25.

Elevation. 1,585–2,030 m.

An African native (Seifert, 2003) that has become established in North America and the Caribbean. Wheeler (1908) and Wilson (1959) both published observations from



Map 25. Hispaniola locality records of the introduced *Cardiocondyla venustula*. All locations are marked by black circles.

Puerto Rico about the biology of this species. On that island, *C. venustula* was "abundant in the lowlands of Puerto Rico, especially in urban and other cultivated areas near the shore" (Wilson, 1959: 29). These ants inhabit sandy soils and can also be found in places with a gravelly substrates (e.g., along the edges of creek and stream courses). Colony size is at most a few hundred workers. Their small soil nest entrances can be found in open areas and are typically marked by a small ring of debris. A colony may utilize a few nests that are within a few meters of each other. Foragers are active during the warmest part of the day and are general scavengers of dead invertebrates. The small workers venture as far as 6 m from their nest entrance.

Mann collected a single specimen of *C. venustula* in Haiti. In the Dominican Republic it has been found in higher elevations sites from a range of habitats and situations: foragers collected in a grassy field, nesting under a rock in a transitional forest, and from a pine forest under the bark of a pine stump. The elevational range and some habitats where this ant has been found in Hispaniola are curious in that they contrast with *C. venustula*'s occurrence in open, lowland habitats in Puerto Rico.

Cardiocondyla Notes. *Cardiocondyla mauritanica* is not known from but may occur on the island.

Cephalotes

A diverse (119 species) New World genus (de Andrade and Baroni Urbani, 1999). Most species nest in the canopy or shrub layer within previously compromised wood that is part of a living plant. At least one species nests in dead grass stems. Most *Cephalotes* have soldiers with enlarged heads that guard the small rounded entrances that lead into the nest (Powell, 2009). The soldiers' shield-like heads serve as living doors that closely fit their nest entrances. Potential intruders are effectively excluded while the returning foragers are allowed access to the nest upon antennating the soldier's head. The *Cephalotes* species that occur on Hispaniola, except for one species, form an endemic clade (*hamulus* group) that appears to have secondarily lost their soldiers (Scott Powell, personal communication).

Cephalotes argentiventris de Andrade, 1999
MCZ-ENT00034930, Holotype.

Endemic (Types Only). DR—LV. Map 26.

Elevation. 914–1,219 m.

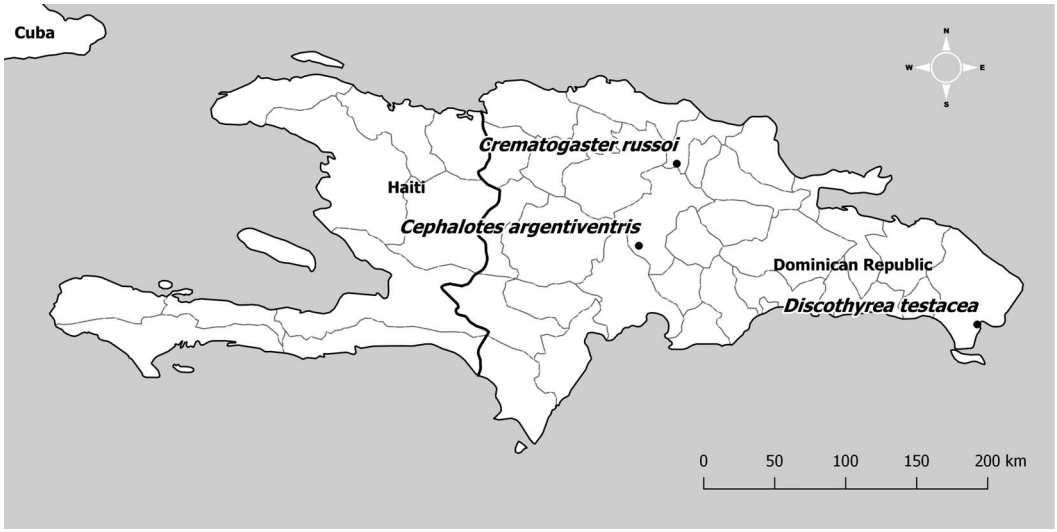
Known from the holotype worker (Costanza, DR).

Cephalotes auricomus (Wheeler, 1936)
Figures 61, 62. MCZ-ENT00022624, Syntype.

Endemic. H—Ou; DR—Du, MTS, LV, PP, Sam (type locality), SC. Map 27.

Elevation. 185–720 m.

Known from a number of widely separated localities. De Andrade and Baroni Urbani (1999) reported details of a nest collection from a dead tree branch. The colony had close to 500 workers and almost 200 alates. This species was found to be common in lowland moist forest sites in Loma Guaconejo Scientific Reserve (Lubertazzi and Prebus, unpublished). Small nest chambers with workers and brood were found in dead sticks still attached to standing, live trees. Foragers were active during the day and, in a few bait trials, recruited nestmates to food. What appeared to be established trail networks were observed. These were found crossing branches, tree trunks, and vines that extended within and between trees and shrubs. Workers were occasionally found on the ground, in most cases traveling along trails that crossed from one tree to another.



Map 26. The localities of *Cephalotes argentiventris* and *Crematogaster russoi* represent the type collection and only record of these two endemic species. The lone locality of *Discothyrea testacea* is the only record of this species from Hispaniola. All locations are marked by black circles.

Cephalotes decoloratus de Andrade, 1999 Figures 63, 64. MCZ-ENT00021095, Syntype.

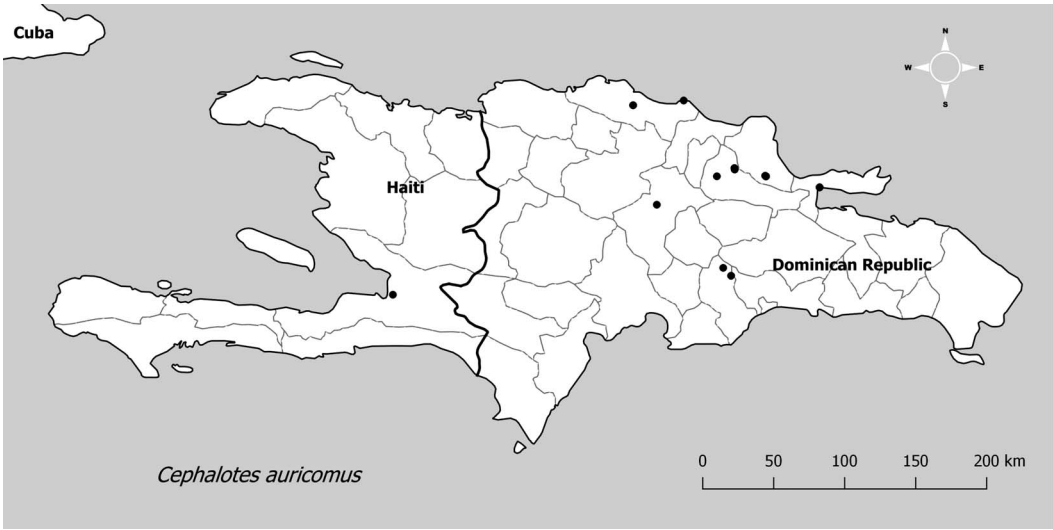
Endemic. H—Ar, Ou (type locality); DR—Ped, Per. Map 28.

Elevation. 7–638 m.

The only Hispaniola species in its genus that is known to have a soldier caste. This species is a member of the *pallens* clade, a group of 10 species that are distributed widely across the Neotropics. Mann reported collecting the type material of *Cephalotes decoloratus* (as *Cryptocerus varians marginata*, Wheeler and Mann, 1914: 40) from "colonies (that) were nesting in hollow twigs . . . frequently also in bamboo." In the

Figure 61. *Cephalotes auricomus* worker (MCZ-ENT00539326), head view. Photograph by Patrick McCormack.

Figure 62. *Cephalotes auricomus* worker (MCZ-ENT00539326), profile view. Photograph by Patrick McCormack.



Map 27. Locality records of the endemic *Cephalotes auricomus*. All locations are marked by black circles.

Dominican Republic, collections have been made from dry forest in Jaragua National Park.

Cephalotes flavigaster de Andrade, 1999
Figures 65, 66. MCZ-ENT00035436, Holotype.

Endemic (Types Only). DR—LV. Map 17.

Elevation. 610–1,219 m.

Figure 63. *Cephalotes decoloratus* major (CASENT0909300), head view. Photograph by Alexandra Westrich.

Known from its type material, two collections by Darlington in and just north of Constanza, La Vega Province.

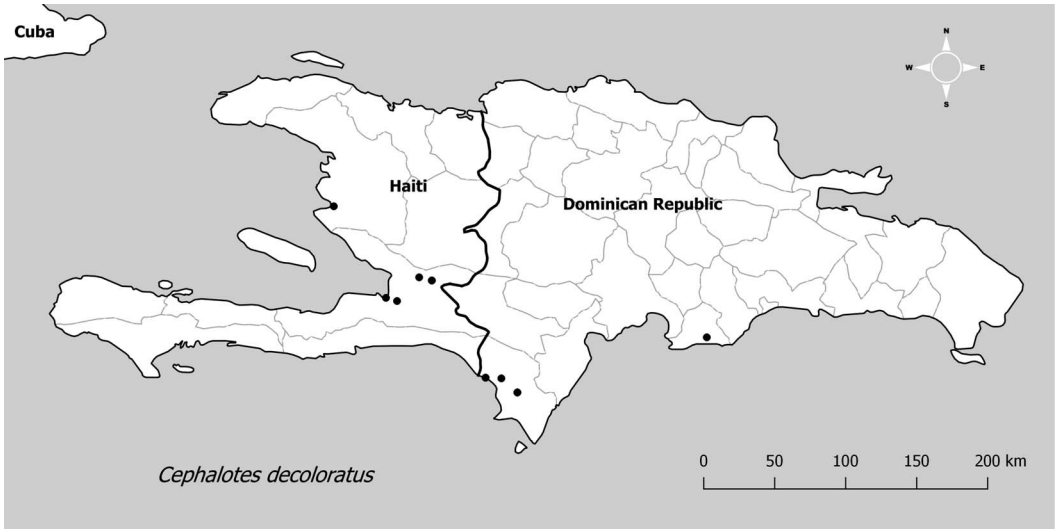
Cephalotes hamulus (Roger, 1863)
Figures 67, 68. MCZ-ENT00510622.

Endemic. H—Ar, Ou, SE; DR—LV, MC. Map 29.

Elevation. 183–610 m.

Described in 1863 from "St. Domingo," *Cephalotes hamulus* is only known from a few records. Mann remarked about his field experiences with this species (as *Cryptocerus haemorrhoidalis*), noting its lack of

Figure 64. *Cephalotes decoloratus* major (CASENT0909300), profile view. Photograph by Alexandra Westrich.



Map 28. Locality records of the endemic *Cephalotes decoloratus*. All locations are marked by black circles.

soldiers and details of its nesting habits. "Although many colonies of this ant were seen in Haiti, only one type of worker was found in them . . . . The nests are usually in hollow twigs, but at Port-au-Prince several colonies were found nesting in fence-posts" (Wheeler and Mann, 1914: 39). Two contemporary collections are from Villa Elisa Scientific Reserve in Monte Criste Province. One was noted as being from a dead twig on a shrub in scrub forest, whereas the other states a series was taken in dry forest. A second Dominican Republic provincial record, for La Vega, is noted by de Andrade and Baroni Urbani (1999) for a NMNH specimen. A Haiti collection by Darlington has a locality label "Poste Terre Rouge." This location was assigned to Centre De-

Figure 65. *Cephalotes flavigaster* worker (MCZ-ENT00510611), head view. Photograph by Patrick McCormack.

Figure 66. *Cephalotes flavigaster* worker (MCZ-ENT00510611), profile view. Photograph by Patrick McCormack.

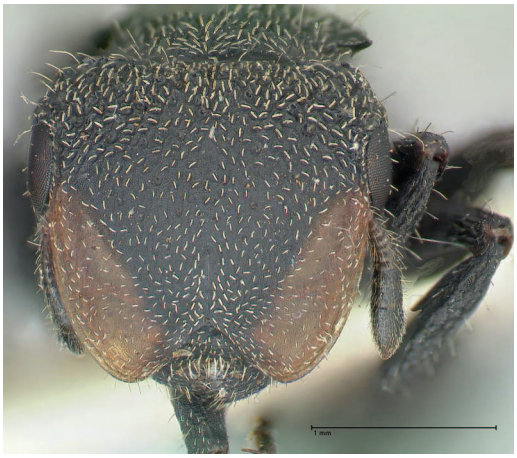


Figure 67. *Cephalotes hamulus* worker (FOCOL2146), head view. Photograph by Chrisiana Klingenberg.

Figure 68. *Cephalotes hamulus* worker (FOCOL2146), profile view. Photograph by Chrisiana Klingenberg.

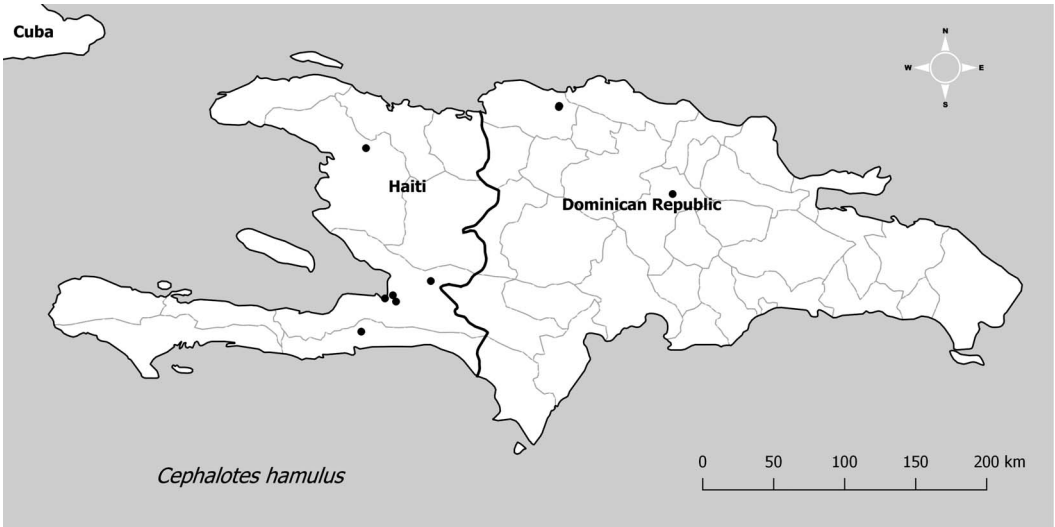
partment by Johnson and Cover (2015). It is unclear what the location given by Darlington represents. There is a Terre Rouge, or some variant thereof, in Centre, Nord-Ouste and Sud-Este Departments. Attempting to assign this place name to a physical location is further muddled by the implied port designation in this name. Presumably a low elevation site, Darlington's specimen label states it was collected at 2,000 feet.

Cephalotes unimaculatus (Smith, 1853)
Figures 69, 70. MCZ-ENT00510262.

Endemic. H—unknown department; DR—LA, Ped, Per, Sam, San. Map 30.

Elevation. 7–1,372 m.

The single Haitian record of this species is a collection by Darlington from Mt. Basil, a name that cannot be placed to any



Map 29. Locality records of the endemic *Cephalotes hamulus*. All locations are marked by black circles.

Figure 69. *Cephalotes unimaculatus* worker (CASENT0922528), head view. Photograph by Wade Lee.

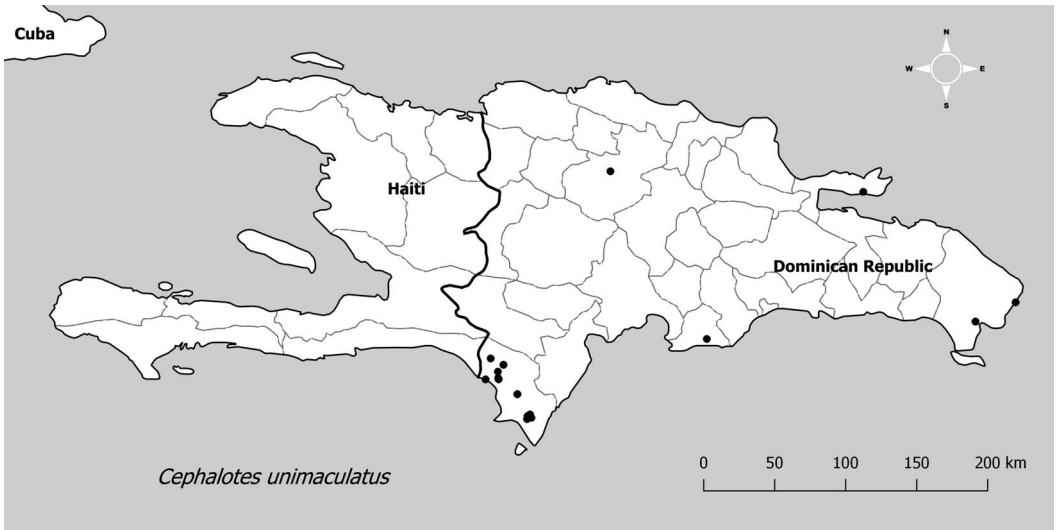
Figure 70. *Cephalotes unimaculatus* worker (CASENT0922528), profile view. Photograph by Wade Lee.

contemporary location. In the Dominican Republic, *Cephalotes unimaculatus* has been found in numerous areas and in a range of forest habitats. This ant is an abundant, common species in the dry forests of Jaragua National Park. The distinctive yellow gasters of this species are readily noticeable as the workers forage on the vegetation, which they do throughout the day. Nesting details noted in collection records are all from within wood above the ground (e.g., living and dead branches of live and dead trees, a stump, etc.).

Cephalotes vinosus (Wheeler, 1936)
Figures 71, 72. MCZ-ENT00021088.

Endemic (Types Only). H—unknown department.

Elevation. No data.



Map 30. Locality records of the endemic *Cephalotes unimaculatus*. The lone Haitian record is not shown because the place name is not placeable to a known locality. All locations are marked by black circles.

Figure 71. *Cephalotes vinosus* worker (MCZ-ENT00510629), head view. Photograph by Patrick McCormack.

Figure 72. *Cephalotes vinosus* worker (MCZ-ENT00510629), profile view. Photograph by Patrick McCormack.

Known from the type collection. The type locality, Mt. Rochelois, Haiti, cannot be placed. This may refer to a mountain on the southern paleoisland; a geological study (Goldich and Bergquist, 1948) provides details for what is called the Rochelois Plateau, an area south and slightly west of Miragoâne. One specimen label from the series of pinned type workers includes the only clue regarding the biology of *C. vinosus*: "very pugnacious … nest in a beech."

Cephalotes Notes. All but one species (*C. decoloratus*) from the island are unusual for this genus in having monomorphic workers (Kempf, 1951; de Andrade and Baroni Urbani 1999). Workers of the soldierless species are larger than workers of most *Cephalotes* (Scott Powell, personal communication). It appears this clade has evolved a single intermediate-sized worker caste. Overall there have been few colony samples collected, both for each species and for the genus as a whole. Additional data would be useful to rule out the possibility that soldiers are present but are either present in low abundance or have simply yet to be collected.

It would be interesting to investigate if a lessening of potential threats (i.e., presumably a less diverse and antagonistic arboreal insect fauna on the island) may have allowed for the loss of soldiers. Also of interest is the presence of a group of *Camponotus* species (in the subgenus *Myrmeurynota*) and numerous salticid spiders that mimic the morphological habitus of the island's *Cephalotes*. It is not clear if the *Camponotus* and spider mimics are gaining some form of protection from predators because of their resemblance to *Cephalotes* or are preying on *Cephalotes* and utilizing their appearance to fool the ants (de Andrade and Baroni Urbani, 1999).

Problematic Cephalotes Records.

1. *Formica haemorrhoidalis* (Latreille, 1802). The first ant species described from Hispaniola, the type cannot be located (de Andrade and Baroni Urbani, 1999: 735) and its relatively vague description renders this form an unidentifiable species (Wheeler, 1936; de Andrade and Baroni Urbani, 1999). It is presumed to be a *Cephalotes* ant. A few subspecies of *C. haemorrhoidalis* have been described, but each has subsequently been raised to species (e.g., *C. hamulus*, *C. unimaculatus*) or are now synonymized under other names. *Cephalotes haemorrhoidalis* is not included in the list of extant ants. Wheeler and Mann (1914) noted *Cephalotes haemor-*

rhoidalis occurred on the island, with their specimens having since been identified as *C. hamulus* (e.g., MCZ-ENT00510622). All of the localities noted in their manuscript for this species are included here as valid records for *C. hamulus*. *Cephalotes haemorrhoidalis* records from Menozzi and Russo (1930), and from other publications, are not included under *C. hamulus*. These specimens have not been examined and could represent a number of different species.

2. *Cephalotes pallens* (Klug, 1824). Kempf (1958) synonymized *Cryptocerus varians* subsp. *marginata* Wheeler and Mann, 1914, with *Cephalotes pallens*. This form was later amended to be assigned the replacement name *Cephalotes decoloratus* by de Andrade (de Andrade and Baroni Urbani, 1999). *Cephalotes pallens* does not occur on the island and any literature references to this species should be ignored (Kempf, 1972; Brandão, 1991).
3. *Cephalotes varians* (Smith, F., 1876). Workers of this species can be confused with *Cephalotes decoloratus*. A MNHNSD specimen tentatively thought to be *C. varians* (Wetterer 2016) has been determined to be *C. decoloratus*. The former is not known to occur in Hispaniola, but its ability to thrive in coastal habitats in areas adjacent to the island (i.e., the Florida Keys, the Bahamas, Cuba, and Jamaica) means it is possible this species will be found here.
4. *Cephalotes resinae* De Andrade and Baroni Urbani, 1999, and *Cephalotes taino* De Andrade and Baroni Urbani, 1999. Both of these species were described from Dominican copal. The respective species treatments include the suggestion these ants may be extant today, but no non-copal collections of these ants are known. These species are not included in the current species list.
5. *Cephalotes unimaculatus*. The type specimen of *Cephalotes unimaculatus* bears a label stating it was collected in Brazil. This has been rejected as an error (Kempf, 1951; De Andrade and Baroni Urbani, 1999), and this ant is considered an endemic Hispaniola species.

Crematogaster

A large (778 species) globally distributed genus. Many *Crematogaster* species are found in forest and shrub habitats and nest in wood (Blaimer, 2010). Ants in this genus can be common and abundant in tropical and subtropical areas (Longino, 2003).

Crematogaster russoi Menozzi, 1930
No material examined.

Endemic (Types Only). DR—Esp. Map 26.

Elevation. No data.

Known only from the type material, two workers, collected in Moca, Dominican Republic. No biological details were noted. Menozzi stated this species is similar to *C. steinheili* in color and pilosity but differs in its somewhat larger size, lack of sculpture, shorter but larger funicular segments, wider base of the spines on the propodeum, and longer node of the petiole. The types are located at the University of Bologna (Prebus, personal communication). The specimens were not available for loan and there are no images of this ant.

Crematogaster steinheili Forel, 1881
Figures 73, 74. MCZ-ENT00510265.

Caribbean. H—No, Ou; DR—Bar, DN, Esp, MC, MN, MTS, Ped, PP, SC, SPM. Map 31.

Elevation. 1–800 m.

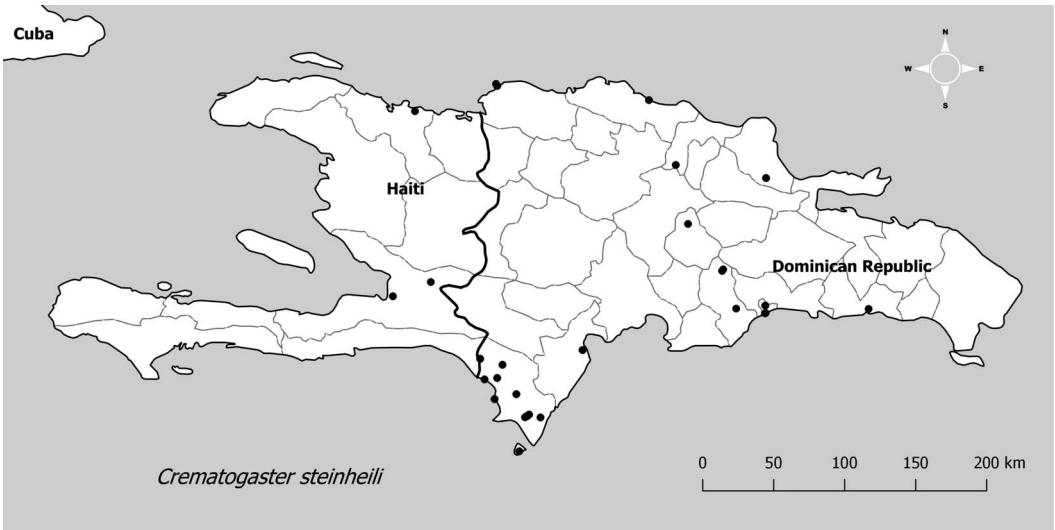
A common ant in the Greater Antilles. Hispaniola records include nests found in dead wood on living trees, in downed wood, and under bark. Workers have also been collected from soil and litter at the base of a

Figure 73. *Crematogaster steinheili* worker (CASENT0914645), head view. Photograph by Zach Lieberman.

Figure 74. *Crematogaster steinheili* worker (CASENT0914645), profile view. Photograph by Zach Lieberman.

living tree. A foraging trail was observed (Lubertazzi, unpublished field notes) on the trunk of a mature living tree located in a clearing of a Loma Guaconejo Scientific Reserve guard house (at Toro Palomo in the SE corner of the reserve; see Prebus and Lubertazzi [2016] for more details about this area). The trail was present on two consecutive nights and was filled with a steady stream of foragers moving up and down the tree. A few scattered workers were seen on this tree trunk during the day but were randomly walking about and not following a trail.

Crematogaster Notes. An undescribed species of *Crematogaster* is known from the Dominican Republic. A set of pinned specimens from what appears to be a nest series of this ant is housed in MNHNSD (Republica Dominica, Prov. Santiago, San José de las Matas, Centro El Pinar; 10-IV-2014, G. de los Santos). This species



Map 31. Hispaniola locality records of *Crematogaster steinheili*. All locations are marked by black circles.

Figure 75. *Cylindromyrmex darlingtoni* worker (MCZ-ENT00022463), head view. Photograph by Patrick McCormack.

possesses a black head and mesosoma with a strikingly contrasting orangish-yellow gaster.

Cylindromyrmex

A low-diversity (10 species), relatively poorly sampled, and biologically mysterious genus of Neotropical ants (Brown, 1975; de Andrade, 1998). They putatively prey on termites, but this has only been inferred from a few collections having been made from within termite galleries. *Cylindromyrmex* feeding on termites has never been directly observed. In addition to being found within termite galleries, *Cylindromyrmex* nests have been found in cavities within decaying wood, under bark, and in hollow twigs. These ants occur as far south as Paraguay/southern Brazil. The Caribbean occurrence of *Cylindromyrmex darlingtoni* represents a slightly higher latitude than the northernmost mainland occurrence of this genus from southern Mexico.

Figure 76. *Cylindromyrmex darlingtoni* worker (MCZ-ENT00022463), profile view. Photograph by Patrick McCormack.

Cylindromyrmex darlingtoni Wheeler, 1937
Figures 75, 76. MCZ-ENT00594869.

Cuba, Dominican Republic. DR—Bar, Du. Map 21.

Elevation. 960 m.

Described from a Cuba type collection that was found in decayed wood in a mountainous area. In Hispaniola, a male was sampled in a flight intercept trap, and a dealate queen was found in a rotten, downed log in a high-elevation wet forest.

Cyphomyrmex

This moderately diverse (23 species) New World genus is primarily Neotropical. A few species are found in lower latitude temperate areas of North and South America. *Cyphomyrmex* are small-bodied, fungus-growing ants that can be common where they occur (Snelling and Longino, 1992). Workers of most species are slow moving and feign death when disturbed. Their fungus cultivars are typically grown on a substrate of foraged insect frass.

Cyphomyrmex minutus Mayr, 1862
Figures 77, 78. MCZ-ENT00510275.

Caribbean, North, Central, and South America. H—Ar, GA, No, Ou, SE, Su; DR—Bar, DN, Du, Esp, HaMa, LA, LV, MC, MN, MTS, Ped, SC. Map 32.

Elevation. 18–1,070 m.

This species forms colonies of a few hundred workers and typically nest in places on the ground where they can co-opt

Figure 77. *Cyphomyrmex minutus* worker (FMNHINS0000062861), head view. Photograph by Gracen Brilmyer.

existing space. This may be under objects such as rocks or within objects (i.e., under bark or within decomposing downed wood). *Cyphomyrmex minutus* colonies were found to be abundant in some moist forest habitats in the Dominican Republic.

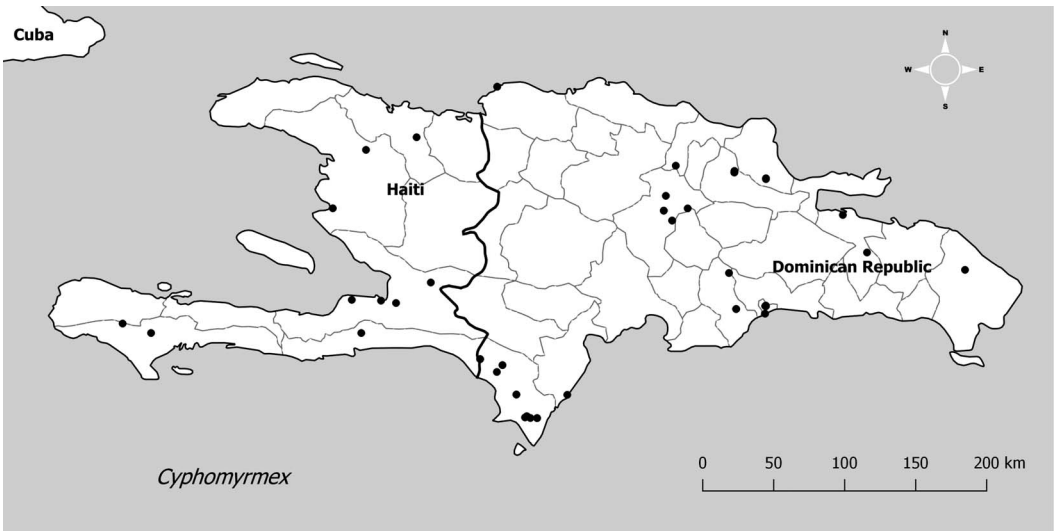
Figure 78. *Cyphomyrmex minutus* worker (FMNHINS0000062861), profile view. Photograph by Gracen Brilmyer.

Cyphomyrmex rimosus (Spinola, 1851)
Figures 79, 80. MCZ-ENT00513266.

Caribbean, North, Central, and South America. DR—DN. Map 32.

Elevation. 54 m.

This species lives in ground nests, with mature colonies that contain more than a



Map 32. Locality records of *Cyphomyrmex*. Two collections from the botanical garden in Santo Domingo (Dominican Republic) have been identified as *Cyphomyrmex rimosus*, although material assigned to *Cyphomyrmex minutus* has also been collected from this location. Other specimens from this genus either are identified as *Cyphomyrmex rimosus* or cannot be definitively identified as one or the other of these two species (see *Cyphomyrmex* notes in text). All locations are marked by black circles.

Figure 79. *Cyphomyrmex rimosus* worker (CASENT0173243), head view. Photograph by April Nobile.

Figure 80. *Cyphomyrmex rimosus* worker (CASENT0173243), profile view. Photograph by April Nobile.

few hundred workers (Stefan Cover, personal communication).

Cyphomyrmex Notes. The distributions reported above for each species are as represented in publications and on specimen determination labels. These two species are common and widely distributed in the New World (Snelling and Longino, 1992; Murakami and Higashi, 1997; Mehdiabadi and Schultz, 2010). These ants are also known to be part of a taxonomically problematic species complex and are difficult to identify definitively (Snelling and Longino, 1992). Numerous collections in the MCZ are only determined to genus or, for Hispaniola worker specimens, assigned to *C. minutus*. Stefan Cover (personal communication) suggests nesting details can be useful in distinguishing between these species in Hispaniola.

Discothyrea

A moderately diverse genus (35 species) with representative species occurring on every continent. *Discothyrea* are small, cryptic ants that are relatively poorly known. Nests are situated under and in objects on the ground surface or in the soil. Disturbed workers feign death and can be easy to overlook. *Discothyrea* are rarely found unless litter sampling is conducted or many large cover objects (e.g., boulders and downed tree boles) are moved and the soil under them is patiently inspected. Available evidence suggests constituent species are all predators of spider eggs and that mature colonies of most species contain fewer than 100 individuals. (Brown, 1957, 1958).

Discothyrea testacea Roger, 1863
Figures 81, 82. MCZ-ENT00531368.

North America, Central America, and the Greater Antilles. DR—LA. Map 26.

Elevation. 9 m.

A widely distributed ant, this name may subsume numerous closely related species. *Discothyrea testacea* is known from the island from a single specimen collected from forest litter.

Discothyrea Notes. A second unidentified species of this genus was collected in Independencia Province (AntWeb JTL021477, PSWC). Jack Longino noted the species resembled *Discothyrea humilis* (Weber, 1939) but has a punctate face.

Dorymyrmex

A diverse (86 species) New World genus (Shattuck, 1992). These ants can be numerically dominant members of ant communi-

Figure 81. *Discothyrea testacea* worker (CASENT0103847), head view. Photograph by April Nobile.

ties in habitats that are typically harsh environments for most ants. All species of *Dorymyrmex* are ground nesting and many occur in drier habitats, especially grasslands. Nests typically occur in open areas and have an entrance that is marked by an irregular mound of loose soil.

Dorymyrmex antillana Snelling, 2005
Figures 83, 84. MCZ-ENT00510278.

Caribbean. H—Ou; DR—Az, Bar, Du, Esp, HaMa, LV, MC, Ped, PP, San, SC, SPM. Map 33.

Elevation. 1–2,000 m.

A native species found on many Caribbean islands. *Dorymyrmex antillana* is abundant in open sandy areas adjacent to the sea. In these locations, the sandy circular mounds that surround the nest entrances are readily noticeable. On the back-beach, workers can be observed running rapidly in and out of their soil nest openings, even during the warmest part of the day. This species can also thrive in other open, warm habitats as well. *Dorymyrmex antillana* has been collected from nests in a variety of disturbed and natural areas.

Figure 82. *Discothyrea testacea* worker (CASENT0103847), profile view. Photograph by April Nobile.

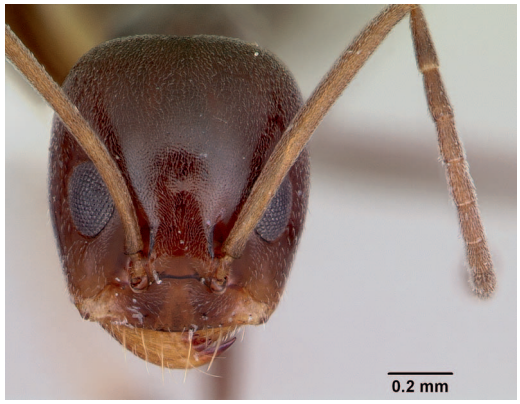
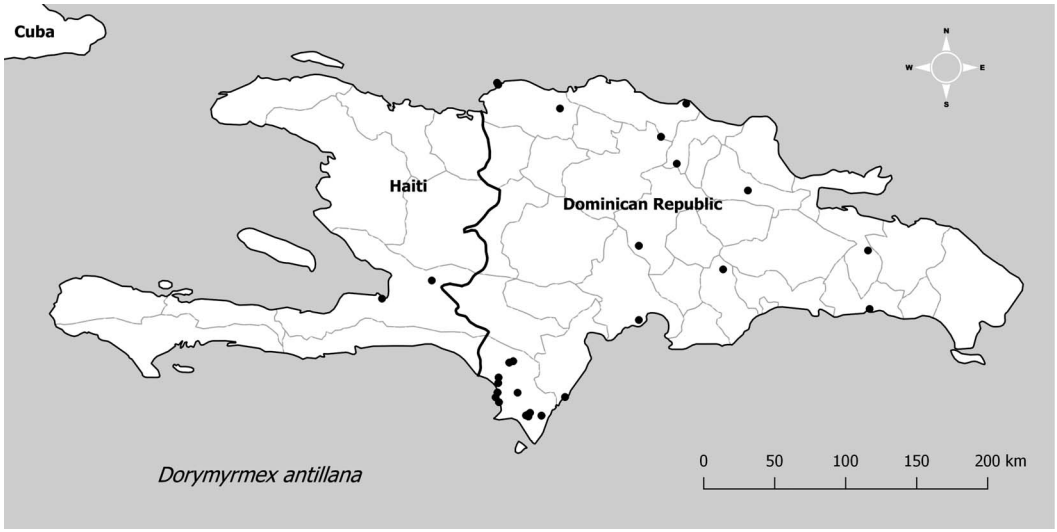


Figure 83. *Dorymyrmex antillana* worker (CASENT0103447), head view. Photograph by April Nobile.

Figure 84. *Dorymyrmex antillana* worker (CASENT0103447), profile view. Photograph by April Nobile.



Map 33. Hispaniola localities of *Dorymyrmex antillana*. All locations are marked by black circles.

Workers were also observed in abundance on a tree at a roadside pull-off in Barahona Province, showing that this species will forage arboreally.

Problematic Dorymyrmex Records. All past records of *Dorymyrmex* from the island, under a variety of names [e.g., *Dorymyrmex insanus* (Buckley, 1866) and *Dorymyrmex pyramicus* (Roger, 1863)] are all assumed to be *D. antillana* and included in the distribution data given above. *Dorymyrmex* names have often been misapplied because of numerous problems (Snelling, 1995), not the least of which is a paucity of morphological characters that can be used to separate workers of similar species. In Hispaniola, there is no evidence to support there being other than a single species.

Eurhopalothrix

A moderately diverse genus (53 species) found throughout the Neotropics and in the Indo-Australian tropics. These ants inhabit forest leaf litter and soil (Longino, 2013). *Eurhopalothrix* are minute in size and rarely collected. Most collections consist of one or two individuals taken from litter samples. Few nests have been found.

Eurhopalothrix floridana Brown and Kempf, 1960

Figures 85, 86. MCZ-ENT00521398.

Caribbean and USA (Florida). DR—Bar, LA, Ped. Map 34.

Elevation. 30–1,190 m.

This species can be relatively common in hardwood hammocks in southern Florida (Deyrup et al., 1997). In Hispaniola, *Eurhopalothrix floridana* is known from four locations in the southern Dominican Republic. The ants were discovered in litter samples from scrubby roadside vegetation, a deciduous transitional forest, a dense thicket, and a semi-evergreen coastal forest.

Fulakora

This moderately diverse (25 species) genus has a disjunct distribution, occurring in the Neotropics, Nearctic (Arizona), Australia, and numerous islands adjacent to Australia. The genus was recently revived from synonymy (Ward and Fisher, 2016), having been previously subsumed under the generic names *Stigmatomma* and *Amblyopone*. Much of what was once known about the biology of the ants in earlier conceptions

Figure 85. *Eurhopalothrix floridana* worker (CASENT0003195), head view. No photographer listed.

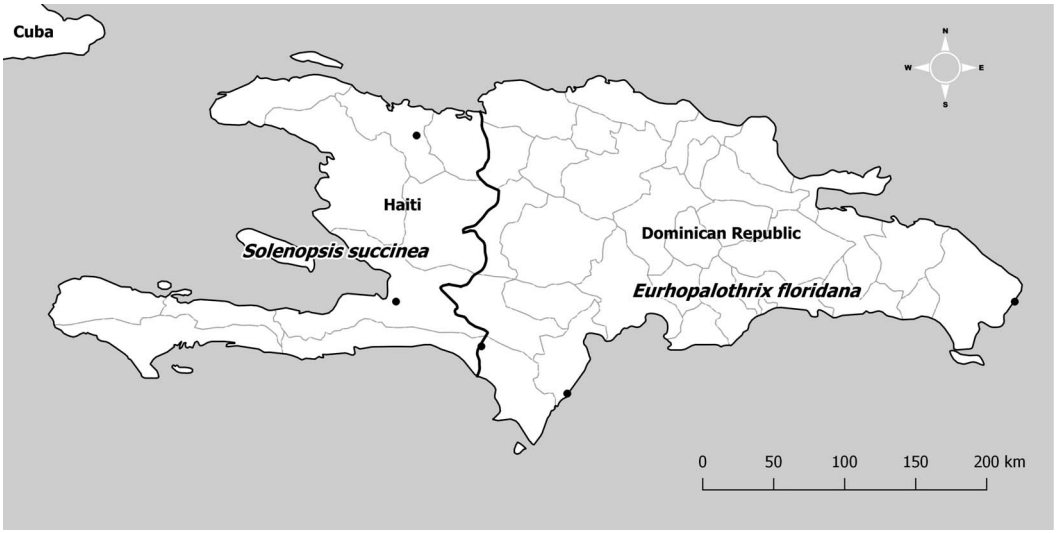
Figure 86. *Eurhopalothrix floridana* worker (CASENT0003195), profile view. No photographer listed.

of these other genera likely characterizes the biology of *Fulakora*: small colonies of fewer than 100 workers that nest in soil or downed wood. Workers forage singly, preying on other insects, with some species known to specialize on centipedes (see under *Amblyopone* in Brown, 1960; Lattke, 1991).

Fulakora falcata Lattke, 1991
Figures 87, 88. MCZ-ENT00510520.

Hispaniola and Puerto Rico. DR—Ped. Map 35.

Elevation. 92 m.



Map 34. Hispaniola locality records of *Eurhopalothrix floridana* (Dominican Republic) and *Solenopsis succinea* (Haiti). All locations are marked by black circles.

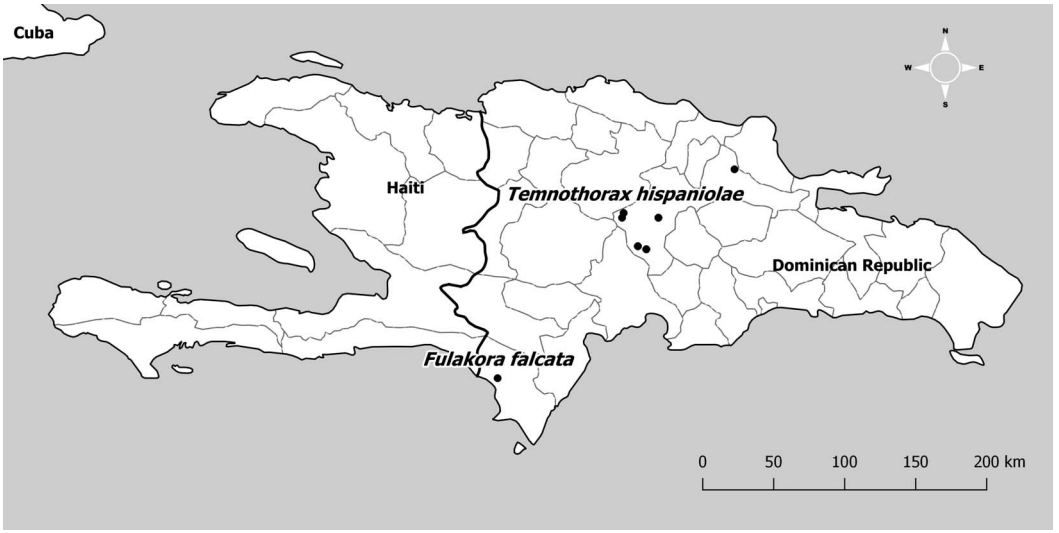
Figure 87. *Fulakora falcata* worker (CASENT0102200), head view. Photograph by April Nobile.

Figure 88. *Fulakora falcata* worker (CASENT0102200), profile view. Photograph by April Nobile.

Several collections of this ant were made from a transitional forest in Jaragua National Park (Lubertazzi and Alpert, 2014). The ants were found in leaf litter and duff accumulated between large rocks.

Gnamptogenys

A diverse genus (138 species), these tropical and subtropical ants occur in the New World, Southeast Asia, and the Indo-Australian region. *Gnamptogenys* form small colonies and typically nest in rotten wood or leaf litter (Lattke, 1995, 2002). A few species live arboreally. Most species are generalist predators of other arthropods, but some have become specialists on particular insect prey.



Map 35. Hispaniola locality records of *Fulakora falcata* (SW Dominican Republic) and the endemic *Temnothorax hispaniolae*. All locations are marked by black circles.

Figure 89. *Gnamptogenys falcaria* queen (MCZ-ENT00035688), head view. Photograph by David Lubertazzi.

Gnamptogenys falcaria Lattke, 2002
Figures 89, 90. MCZ-ENT00035688, Holotype.

Endemic (Types Only). DR—Ped. Map 18.

Elevation. 800 m.

Known from a holotype queen, the specimen was collected from a moist forest.

Gnamptogenys haytiana (Wheeler and Mann, 1914)
Figures 91, 92. MCZ-ENT00020425, Holotype.

Endemic. H—SE (type locality); DR—Bar. Map 36.

Elevation. 900–1,100 m.

Figure 90. *Gnamptogenys falcaria* queen (MCZ-ENT00035688), profile view. Photograph by David Lubertazzi.

Figure 91. *Gnamptogenys haytiana* worker (CASENT0281838), head view. Photograph by Shannon Hartman.

Gnamptogenys haytiana has been found in a forest and coffee plantation leaf litter.

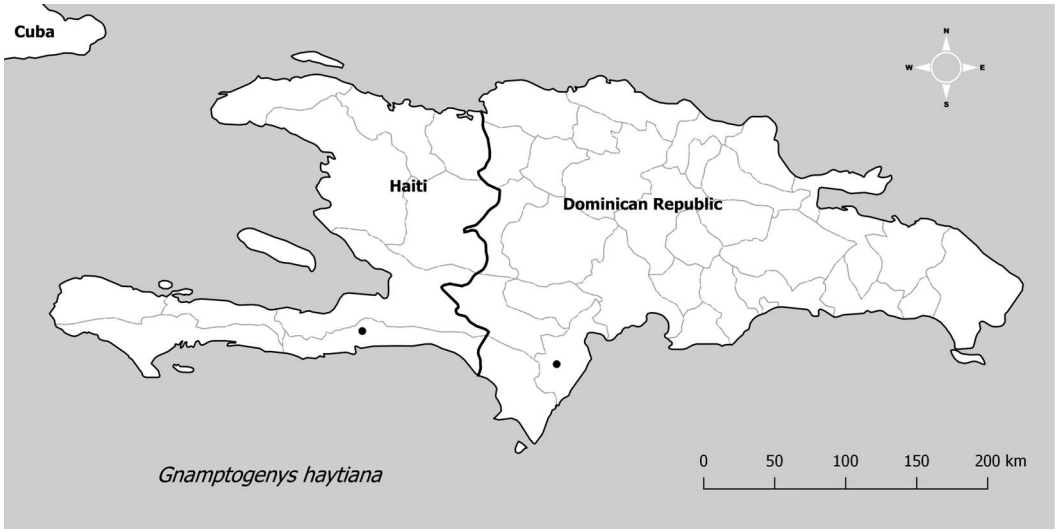
Gnamptogenys insularis Lattke, 2002
Figures 93, 94. MCZ-ENT00035687, Holotype.

Endemic (Types Only). DR—HaMa, Ped. Map 37.

Elevation. 800 m.

Known from the worker holotype and queen paratype from two locations, both moist forest habitat.

Figure 92. *Gnamptogenys haytiana* worker (CASENT0281838), profile view. Photograph by Shannon Hartman.



Map 36. Locality records of the endemic *Gnamptogenys haytiana*. The two locations are marked by black circles.

Gnamptogenys lineolata Brown, 1993
Figures 95, 96. MCZ-ENT00519696.

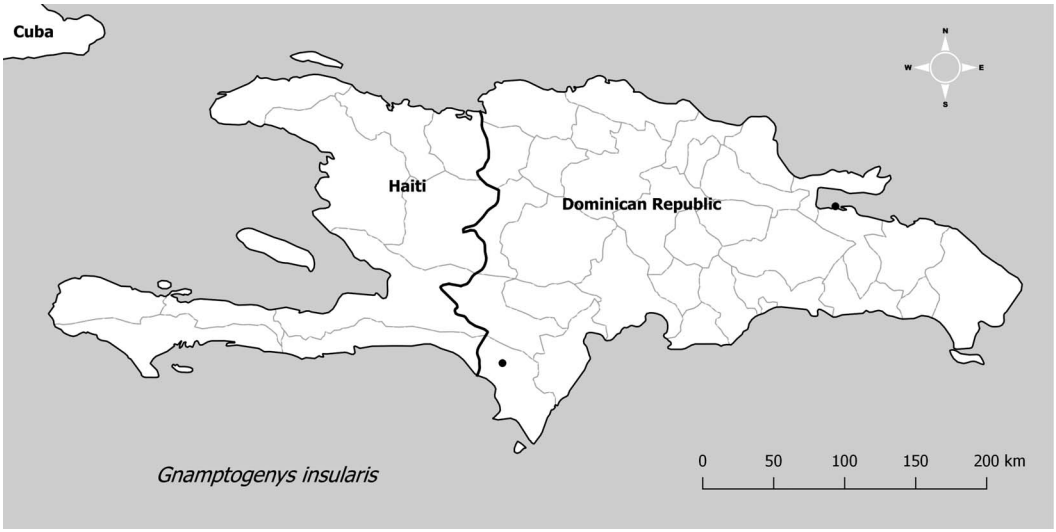
Endemic. DR—Du, LV (type locality). Map 38.

Elevation. 845–1,090 m.

Known from various forest habitats. Specimen collection details (located under rocks, in downed wood, under an epiphyte, and from forest litter) suggest *G. insularis* prefers mesophilic forest sites and opportunistically nests in and under ground objects.

Figure 93. *Gnamptogenys insularis* worker (MCZ-ENT00035687), head view. Photograph by David Lubertazzi.

Figure 94. *Gnamptogenys insularis* worker (MCZ-ENT00035687), profile view. Photograph by David Lubertazzi.



Map 37. The locality records, both in the Dominican Republic, of the endemic *Gnamptogenys insularis*. All locations are marked by black circles.

Gnamptogenys schmitti (Forel, 1901)
Figures 97, 98. MCZ-ENT00510641.

Endemic. H—unknown department (type locality), Ga, Ou. Map 39.

Elevation. 610–1,219 m.

Mann (Wheeler and Mann, 1914) reported finding this species along streams, including reporting on a colony he observed by tracking a laden forager returning to its nest. The forager was carrying a polydesmid diplopod. The circular nest opening in the ground led to a chamber under a stone and other chambers extending to ~15 cm underground. Remnants of other dead arthropods within the nest suggested this ant feeds exclusively upon myriopods. He also noted the workers were slow moving, timid, and appeared to be crepuscular foragers.

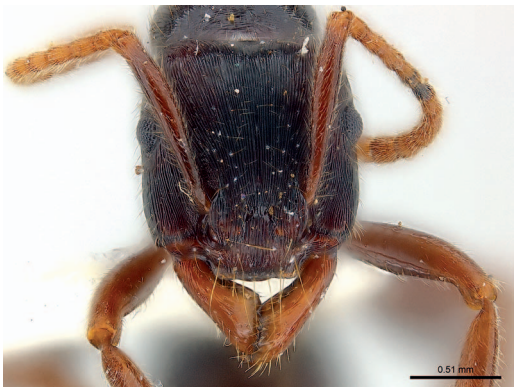


Figure 95. *Gnamptogenys lineolata* worker (CASENT0179965), head view. Photograph by Erin Prado.

Figure 96. *Gnamptogenys lineolata* worker (CASENT0179965), profile view. Photograph by Erin Prado.

Map 38. The locality records of the endemic *Gnamptogenys lineolata*, known only from the Dominican Republic, and the lone Hispaniola records of *Solenopsis terricola* (SW Dominican Republic) and *Zatania darlingtoni* (SE Haiti). The latter is also this species' type locality. All locations are marked by black circles.

Gnamptogenys semiferox Brown, 1958
Figures 99, 100. MCZ-ENT00029869, Holotype.

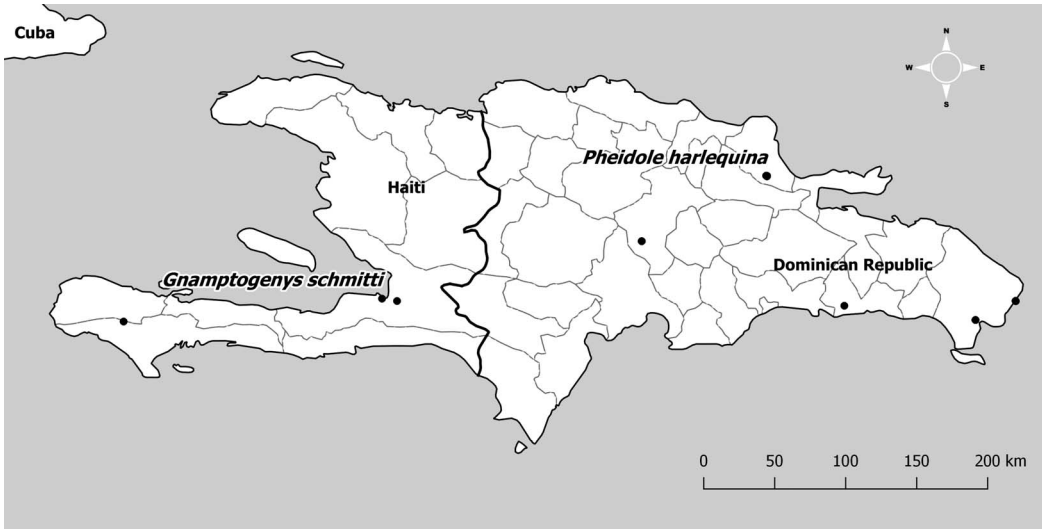
Endemic (Types Only). DR—unknown province.

Elevation. 914–1,219 m.

Known from three type workers collected by P. J. Darlington. The named Dominican Republic location, Mt. Diego de Ocampo, cannot be placed. Brown (1958: 325) reported habitat details for the collection: "Dr. Darlington tells me that the type locality was chiefly rain forest in which small palms were prominent, but that the land was being cleared for agriculture even at the time of his visit."

Figure 97. *Gnamptogenys schmitti* worker (CASENT0907193), head view. Photograph by Will Ericson.

Figure 98. *Gnamptogenys schmitti* worker (CASENT0907193), profile view. Photograph by Will Ericson.



Map 39. Locality records of the endemic *Gnamptogenys schmitti* (southern Haiti) and *Pheidole harlequina* (Dominican Republic). All locations are marked by black circles.

Gnamptogenys striatula Mayr, 1884
Figures 101, 102. MCZ-ENT00524003.

Caribbean, Central America, and South America. DR—HaMa. Map 18.

Elevation. 6–43 m.

The only non-endemic *Gnamptogenys* species known from the island. *Gnamptogenys striatula* is common in some parts of its range in Central and South America. Lattke (1990) reported this ant is a generalist ground forager, inhabiting moist forests. It prefers nesting in decomposed wood but may also nest under ground objects. Mature colonies contain from 150 to 200 workers.

Gnamptogenys Notes. The diversity of *Gnamptogenys* species present on the island is somewhat remarkable in light of the low number of specimens that have been collected for this genus.

Figure 99. *Gnamptogenys semiferox* worker (CASENT0900545), head view. Photograph by Ryan Perry.

Figure 100. *Gnamptogenys semiferox* worker (CASENT0900545), profile view. Photograph by Ryan Perry.

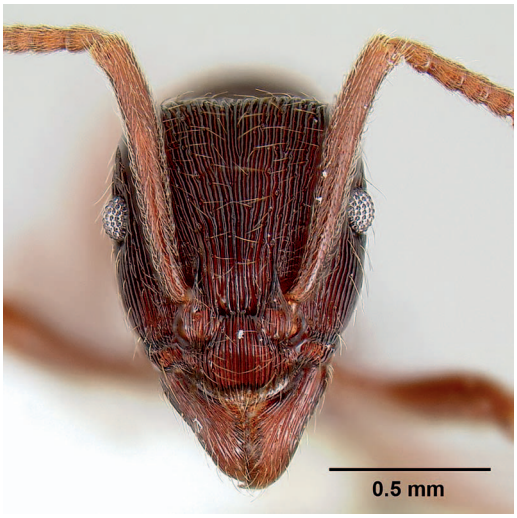


Figure 101. *Gnamptogenys striatula* worker (CASENT0915123), head view. Photograph by Michael Branstetter.

Hypoponera

A diverse (177 species) cosmopolitan genus of small-bodied ants that are commonly collected at or just under the ground surface. They form small colonies and nest in rotten wood, leaf litter, under objects on the ground, and in the soil (Schmidt and Shattuck, 2014). Foraging rarely occurs in the open; thus, individuals are not typically observed outside the nest. *Hypoponera* can be abundant in the litter and soil in some habitats; hence, they are not as rare in collections as many ants with similar natural histories. Morphological variation between species is typically confined to a few minor characters, which has led to taxonomic issues and problems with species determinations.

Figure 102. *Gnamptogenys striatula* worker (CASENT0915123), profile view. Photograph by Michael Branstetter.

Hypoponera are common on Hispaniola, as is evident from the more than 100 pins of material in the MCZ. The three names that have been applied to *Hypoponera* specimens from the island are listed below. Previously determined specimens have been left as is, and much newly collected material has not been determined to species. Overall, it is difficult to be confident that all previous determinations are correct, to determine which names should be applied to what forms, or to ascertain how many *Hypoponera* species are present. At least one morphospecies does not readily fit with any of the named *Hypoponera* stated to be present on the island (e.g., *Hypoponera* nr. *inexorata*: MCZ-ENT00531153). As is the case in much of the rest of the world, the *Hypoponera* of Hispaniola require further taxonomic study.

Hypoponera opaciceps (Mayr, 1887)
Figures 103, 104. MCZ-ENT00519732.

Caribbean, North, Central, and South America, and Other Various Introduced Areas. H—GA, No, Ou, SE, Su; DR—Esp. Map 40.

Elevation. 914 m.

Frequently encountered nesting in dead wood or in leaf litter sampling. *Hypoponera opaciceps* is known to prefer wetter habitats in Florida (Van Pelt, 1958; Deyrup 2016), with *H. opacior* being common in drier sites. Its occurrence on the island is supported by published occurrence data (Wheeler and Mann, 1914; Menozzi and Russo, 1930; Wheeler, 1936) and two specimens in the MCZ collection.

Figure 103. *Hypoponera opaciceps* worker (CASENT0005435), head view. Photograph by April Nobile.

Figure 104. *Hypoponera opaciceps* worker (CASENT0005435), profile view. Photograph by April Nobile.

Hypoponera opacior (Forel, 1893)
Figures 105, 106. MCZ-ENT00539369.

Caribbean, North, Central, and South America. H—Ou; DR—Bar, DN, Du, Esp, LA, LV, Ped, Sam, SPM. Map 40.

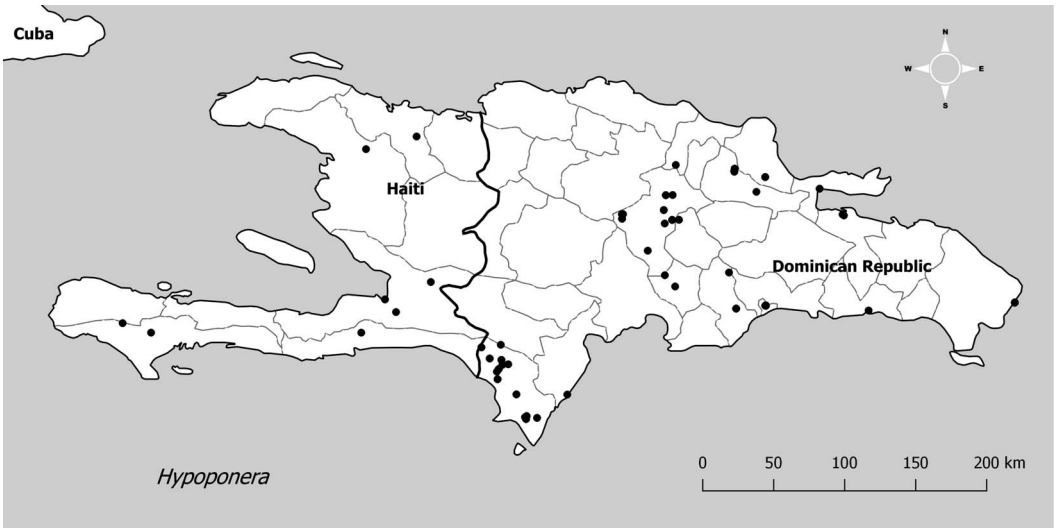
Elevation. 16–1,968 m.

Typically nests in soil, rotten logs, and leaf litter (Van Pelt, 1958; Deyrup 2016). This ant has been the subject of contemporary research examining its reproductive biology (e.g., Foitzik et al., 2002, 2010, 2011). In Hispaniola, samples have been taken from leaf litter and dead wood at ground level.

Hypoponera punctatissima (Roger, 1859)
Figures 107, 108. MCZ-ENT00513193.

Caribbean, North, Central, and South America. H—Ar, No, Ou; DR—DN, Esp, HaMa, LV. Map 40.

Elevation. 55–1,070 m.



Map 40. Hispaniola locality records of *Hypoponera*. These records represent specimens determined as *H. opaciceps*, *H. opacior*, *H. punctatissima* and those only determined to genus. All locations are marked by black circles.

Figure 105. *Hypoponera opacior* worker (CASENT0005436), head view. No photographer listed.

Figure 107. *Hypoponera punctatissima* worker (CASENT0005437), head view. No photographer listed.

This species is known from other locations to occur across a range of habitats. *Hypoponera punctatissima* nests in soil, under rocks, and in decaying wood in contact with the ground (Smith, 1937). This ant has been reported as *H. ergatandria* from Haiti (Wheeler and Mann, 1914; Wheeler, 1936) and the Dominican Republic (Menozzi and Russo, 1930). Other MCZ specimens representing contemporary collections were found in leaf litter.

Problematic Hypoponera Records.

1. *Hypoponera foeda* (Forel, 1893). Reported by Wheeler (1936) from Massif de Hotte and what appears to be a colony collection from Sanchez in the Dominican Republic. These specimens could not be located in the MCZ. Forel stated in his description that *H. foeda* resembles a smaller *Hypoponera punctatissima*, but its eyes only have five or six facets, and it is more densely punctate. It seems more likely these specimens were small *H. punctatissima* that were misidentified as *H. foeda*. The latter is not included in the species list.
2. *Hypoponera ergatandria* (Forel, 1893). Noted as occurring in Haiti by Wheeler and Mann (1914). This species had been considered a synonym of *H. punctatissima* (Bolton and Fisher, 2011) but was given full species status by Seifert (2013). The discriminate analysis function of morphological measurements that Seifert suggests differentiates these two species can alternatively be deemed to overly

Figure 106. *Hypoponera opacior* worker (CASENT0005436), profile view. No photographer listed.

Figure 108. *Hypoponera punctatissima* worker (CASENT0005437), profile view. No photographer listed.

Figure 109. *Leptogenys antillana* worker (CASENT0178832), head view. Photograph by April Nobile.

Figure 110. *Leptogenys antillana* worker (CASENT0178832), profile view. Photograph by April Nobile.

parse what is continuous variation in a single morphological-variable species. The latter hypothesis is favored here, and the specimens reported by Wheeler and Mann as *H. ergatandria* are treated as *H. punctatissima*.

Leptogenys

Leptogenys is a large genus (326 species) that occurs in many regions of the world. Small colony sizes and limited species ranges are typical, as far as is known for most Neotropical species. Evidence suggests each *Leptogenys* species preys upon a particular insect or insect group that they have evolved to specialize on hunting (Lattke, 2011). A few Australasian and Oriental species have developed an army ant–like lifestyle and larger colony sizes.

Leptogenys antillana Wheeler and Mann, 1914
Figures 109, 110. MCZ-ENT00510309.

Endemic. H—No (type locality), Ou (type locality), Su; DR—Bar. Map 41.

Elevation. 74–1,100 m.

Leptogenys antillana workers have been sampled from an area planted with coffee and from secondary scrub adjacent to a road.

Leptogenys pubiceps Emery, 1890
Figures 111, 112. MCZ-ENT00512802.

Caribbean, Central and South America. H—No, Ou; DR—PP. Map 42.

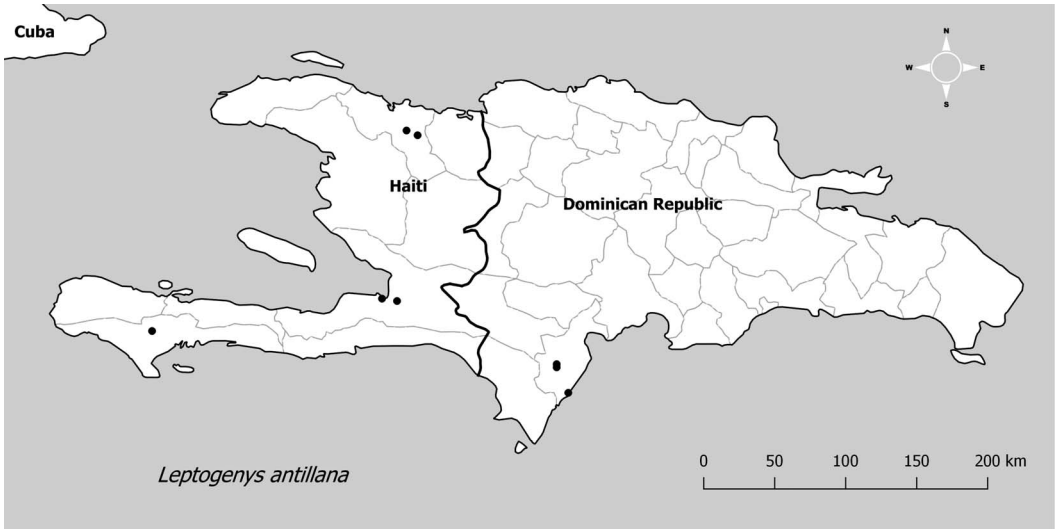
Elevation. No data.

Broadly distributed across the Neotropics, this name likely subsumes a number of closely related species (Lattke, 2011). There are few records and specimens of *Leptogenys pubiceps* from Hispaniola. Wheeler and Mann (1914: 14) reported a Diquini, Haiti, collection (as *Leptogenys puncticeps* Emery, 1890) from a nest "in the ground, beneath debris, in an unused tobacco shed."

Problematic Leptogenys Record. Leptogenys punctaticeps. Lattke (2011) determined Mann's *L. punctaticeps* specimens (as reported in Wheeler and Mann [1914] and Perez-Gelabert [2008]) were *L. pubiceps*, as is reflected in the treatment of *L. pubiceps* given above.

Linepithema

A New World genus that has been spread by human commerce throughout the world's tropical and subtropical regions (Wild, 2007). With 21 species, *Linepithema*



Map 41. Locality records of the endemic *Leptogenys antillana*. All locations are marked by black circles.

is not diverse but is notable for the invasive pest *Linepithema humile* (Mayr, 1868). Colonies of *Linepithema* tend to be large and contain more than a thousand workers. Their diet is unspecialized, and their foragers are general scavengers that will also feed from plant nectaries and tend honeydew-producing insects. In habitats where *Linepithema* occur, they are often quite abundant.

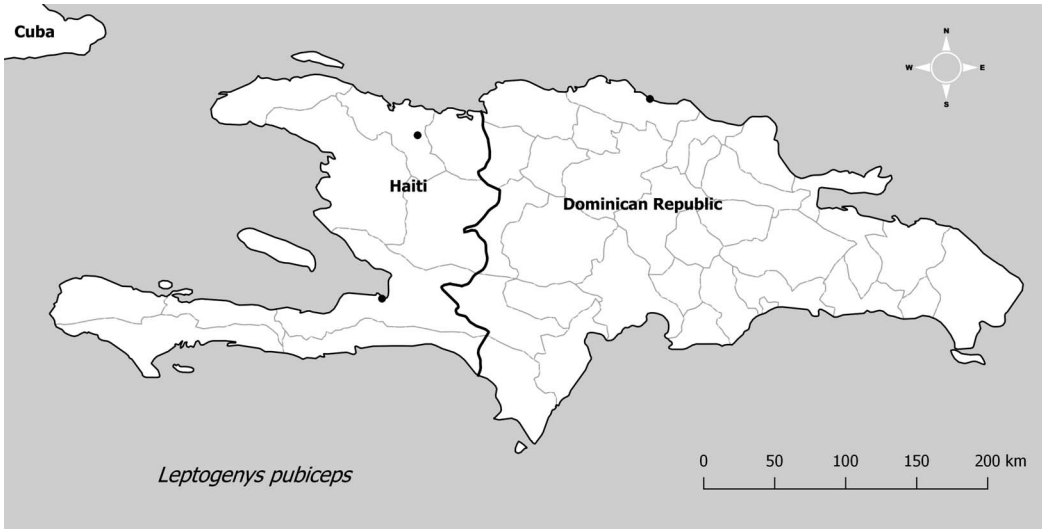
Linepithema dispertitum (Forel, 1885)
Figures 113, 114. MCZ-ENT00510784.

Caribbean, Central and South America. DR—LV, San, SJ. Map 43.

Elevation. 2,460–3,094 m.

Figure 111. *Leptogenys pubiceps* worker (CASENT0903969), head view. Photograph by Alexandra Westrich.

Figure 112. *Leptogenys pubiceps* worker (CASENT0903969), profile view. Photograph by Alexandra Westrich.



Map 42. Hispaniola locality records of *Leptogenys pubiceps*. All locations are marked by black circles.

Linepithema dispertitum possesses clear habitat preferences yet, across its range, shows it can be quite adaptable. It is most often found in montane forest, nesting in the ground or in rotten wood. On Hispaniola it occurs in pine forests above 2,400 m on and around Pico Duarte in the Cordillera Central. In these areas it is an abundant species and co-occurs with only a few other ants (Wild, 2007).

Figure 113. *Linepithema dispertitum* worker (CASENT0106980), head view. Photograph by Alex Wild.

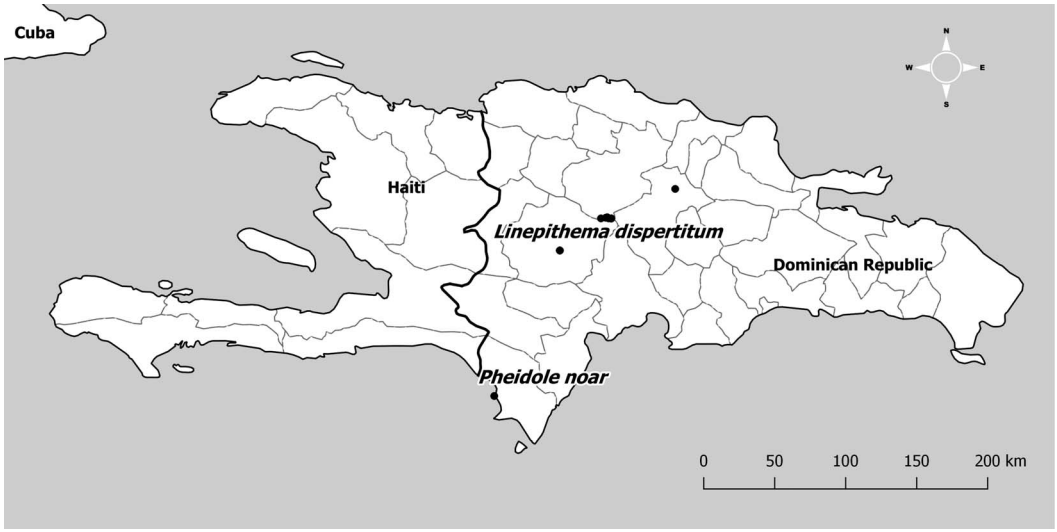
Linepithema flavescens (Wheeler and Mann, 1914)
Figures 115, 116. MCZ-ENT00021286, Lectotype.

Endemic. H—GA, No (type locality). Map 44.

Elevation. 610–1,219 m.

Known from two widely separated locations. The pale yellow color of *Linepithema flavescens* suggests this species lives a more subterranean existence than many of its congeners.

Figure 114. *Linepithema dispertitum* worker (CASENT0106980), profile view. Photograph by Alex Wild.



Map 43. Hispaniola locality records of *Linepithema dispertitum* (central Dominican Republic) and *Pheidole noar* (SW Dominican Republic). The latter is only known from its type locality. All locations are marked by black circles.

Linepithema keiteli (Forel, 1907)
Figures 117, 118. MCZ-ENT00512799.

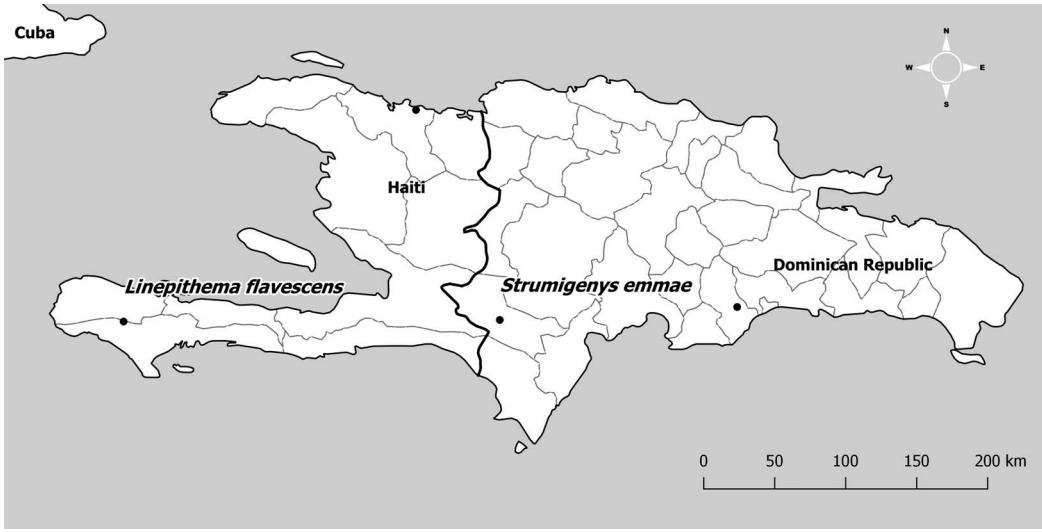
Endemic. H—Ou (type locality), SE; DR—Du, LV, MC, MN, MTS, Ped, SJO. Map 45.

Elevation. 5–1,820 m.

In areas where *Linepithema keiteli* occurs it is a common, abundant ant. Wild (2007: 80) noted: "This species is among the most abundant ants in the mountains of Hispaniola … records are from montane pine forest down through mesic tropical moist forests, and several collections were made on deforested slopes, forest edges, and roadsides …. Colonies are populous and form extensive foraging trails during both day and night. Nests often have several

Figure 115. *Linepithema flavescens* worker (CASENT0106977), head view. Photograph by Alex Wild.

Figure 116. *Linepithema flavescens* worker (CASENT0106977), profile view. Photograph by Alex Wild.



Map 44. The two Haitian type localities representing the only known collections of the endemic *Linepithema flavescens*, and the Hispaniola localities of the introduced *Strumigenys emmae*, presently known from the Dominican Republic. All locations are marked by black circles.

entrances and may extend under series of stones." *Linepithema keiteli* is monogynous and polydomous. Alates were found to be present in nests in November.

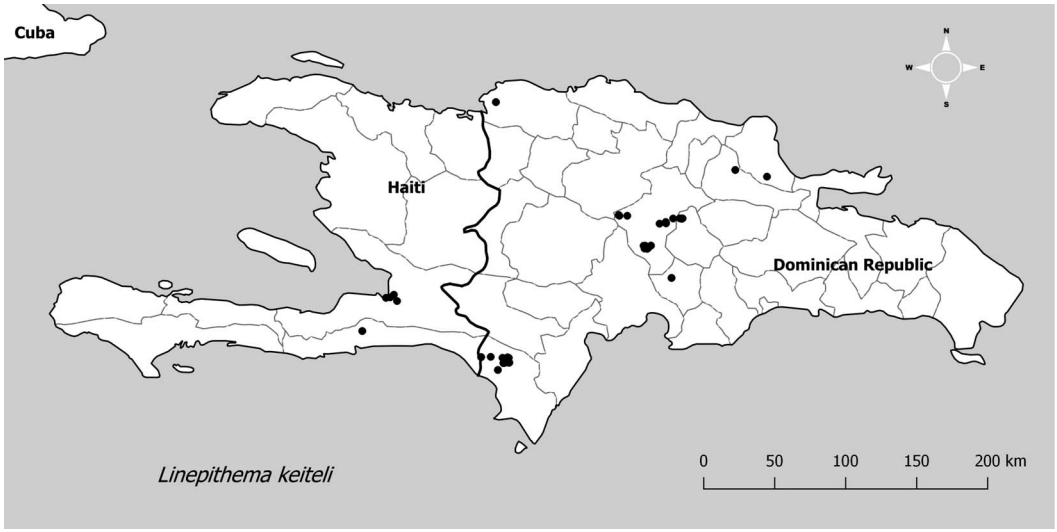
Linepithema Notes. A biogeographical analysis using molecular genetic evidence suggested there were at least four Caribbean colonization events by *Linepithema*, three from South America and one from Central America (Wild, 2009).

Monomorium

A highly diverse genus (385 species) comprising species with small workers (DuBois, 1986; Bolton, 1987). Numerous *Monomorium* tramp species have become pantropically distributed. Three of the four

Figure 117. *Linepithema keiteli* worker (CASENT0106975), head view. Photograph by Alex Wild.

Figure 118. *Linepithema keiteli* worker (CASENT0106975), profile view. Photograph by Alex Wild.



Map 45. Locality records of the endemic *Linepithema keiteli*. All locations are marked by black circles.

species known from the island are not native.

Monomorium bicolor Emery, 1877
Figures 119, 120. MCZ-ENT00513161.

Caribbean, Afrotropical, and Beyond. DR—DN, San. Map 11.

Elevation. 142 m.

A widely ranging African species that is known to be an exotic species in one area—the Dominican Republic. *Monomorium bicolor* inhabits open savannahs, semi-arid areas, and open forest sites in sub-Sarahan Africa (Bolton 1987). They nest in the soil and have foragers that are general scavengers. *Monomorium bicolor* is known from two collections: one from the Botanical Garden in Santo Domingo (2003, Deyrup) and the other from Navarrete, Santiago Province (2003, Davis).

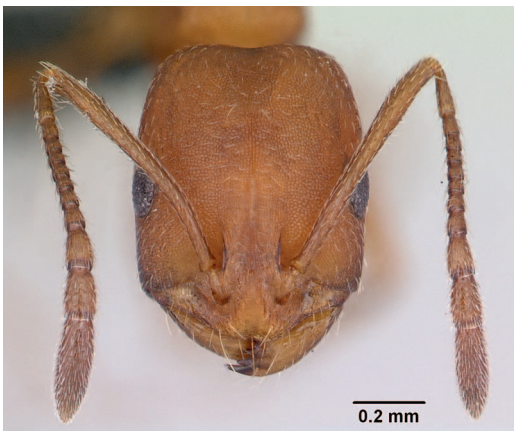


Figure 119. *Monomorium bicolor* worker (CASENT0073615), head view. Photograph by April Nobile.

Figure 120. *Monomorium bicolor* worker (CASENT0073615), profile view. Photograph by April Nobile.

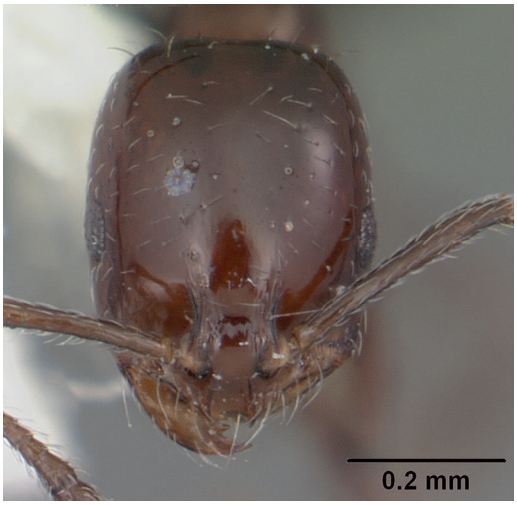


Figure 121. *Monomorium ebeninum* worker (CASENT0104083), head view. Photograph by April Nobile.

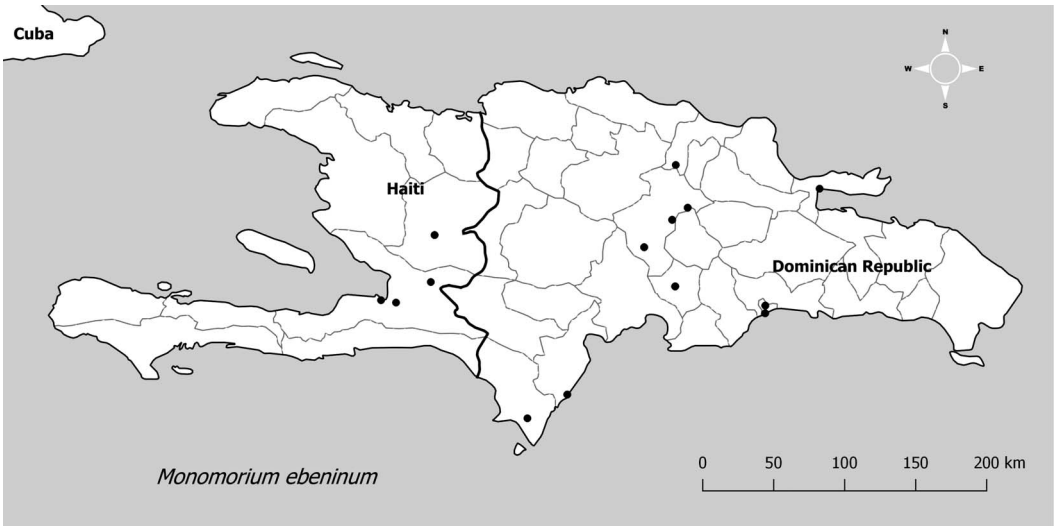
Figure 122. *Monomorium ebeninum* worker (CASENT0104083), profile view. Photograph by April Nobile.

Monomorium ebeninum Forel, 1891
Figures 121, 122. MCZ-ENT00510319.

Caribbean, Central America, North America (Florida Keys). H—Ce, Ou; DR—Bar, DN, Esp, LV, MN, Ped, Sam, SJO. Map 46.

Elevation. 50–1,500 m.

A common species in the Caribbean region, *Monomorium ebeninum* is broadly distributed across Hispaniola. This ant can be abundant in areas close to the coast but is an adaptable species that can be found in a variety of habitats. Nesting occurs in the soil, under stones, in wood, or in ready-made cavities or chambers (e.g., in twigs or under banana leaves). They are consummate generalists and their colonies can have many queens. (Forel, 1899; Wheeler, 1905;



Map 46. Hispaniola locality records of *Monomorium ebeninum*. All locations are marked by black circles.

Figure 123. *Monomorium floricola* worker (CASENT0104090), head view. Photograph by April Nobile.

Figure 124. *Monomorium floricola* worker (CASENT0104090), profile view. Photograph by April Nobile.

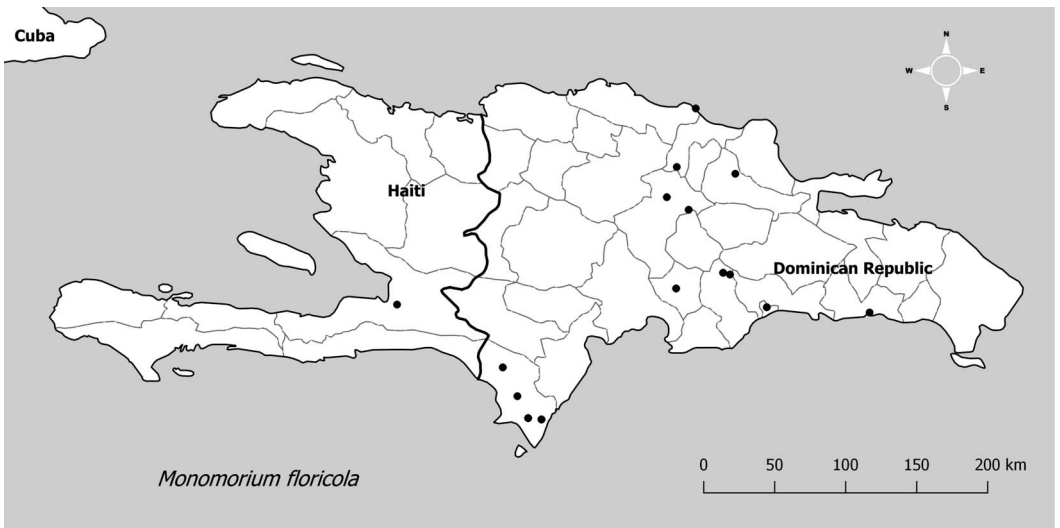
Smith, 1937; Wolcott and Martorell, 1937; Lavigne, 1977; DuBois, 1986).

Monomorium floricola (Jerdon, 1851)
Figures 123, 124. MCZ-ENT00510321.

Caribbean, Americas, and Beyond. H—Ou; DR—DN, Du, Esp, LV, MN, Ped, PP, SC, SPM, SJO. Map 47.

Elevation. 1–925 m.

Monomorium floricola is one of the world's most ubiquitous ant species (Wetterer, 2010a). Likely native to tropical Asia, it occurs throughout the world's tropics and can even be found in some high-latitude temperate locations, infesting greenhouses and heated buildings. Colonies have multiple queens and reproduce by budding. *Monomorium floricola* have small, slow-moving workers and are primarily arboreal inhabitants. In its introduced range, this ant can be a pest, infesting houses and causing agricultural problems.



Map 47. Hispaniola locality records of the introduced *Monomorium floricola*. All locations are marked by black circles.

Figure 125. *Monomorium pharaonis* worker (CASENT0178381), head view. Photograph by Erin Prado.

Figure 126. *Monomorium pharaonis* worker (CASENT0178381), profile view. Photograph by Erin Prado.

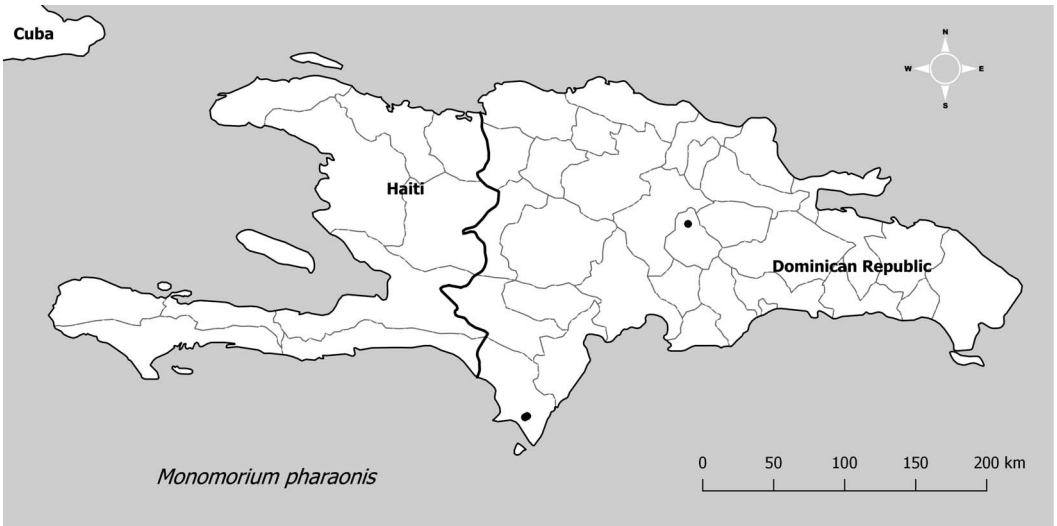
Monomorium floricola has been present on the island for some time (Wheeler and Mann, 1914; Menozzi and Russo, 1930). Pinned specimens in the MCZ include collections made from small hollow twigs, vegetation, under a rock, and at baits.

Monomorium pharaonis (Linnaeus, 1758)
Figures 125, 126. MCZ-ENT00513348.

Widespread Throughout the World. DR—MN, Ped. Map 48.

Elevation. 165–404 m.

Putatively native to the Asian tropics (Wetterer, 2010b), this ant is a pest in many places where it has been introduced. Wetterer (2010b: 115) noted: "*Monomorium pharaonis* is particularly notorious as a pest in hospitals, where it is known as a vector for disease. In tropical areas, *M. pharaonis* occurs both indoors and out, but in temperate areas, it is found almost



Map 48. Hispaniola locality records of the introduced *Monomorium pharaonis*. All locations are marked by black circles.

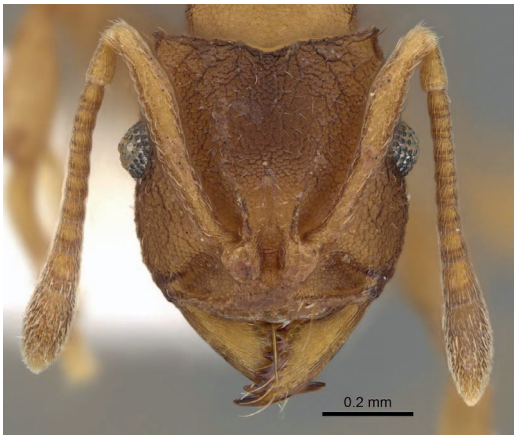


Figure 127. *Mycocepurus smithii* worker (CASENT0922153), head view. Photograph by Michele Esposito.

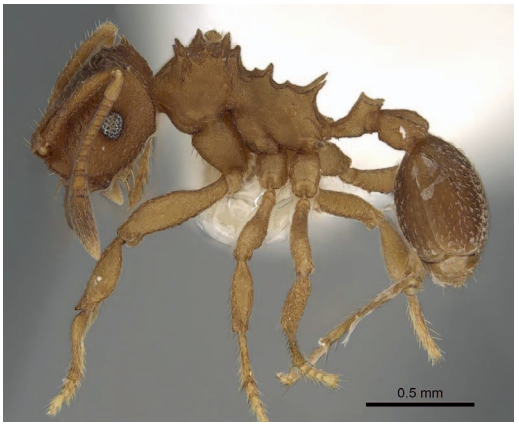


Figure 128. *Mycocepurus smithii* worker (CASENT0922153), profile view. Photograph by Michele Esposito.

exclusively indoors. It is by far the most common tropical ant found in heated buildings of Europe and North America." Known to be polygynous and polydomous, colonies are also seemingly always ready to move to a new location. These traits allow human dwellings to provide good conditions for populations of *M. pharaonis* to thrive. These ants are also well suited to becoming castaways in human cargo. Details of this ant's biology are summarized in Berndt and Eichler (1987).

Hispaniola specimens, all from the Dominican Republic, were collected from a litter sample in a forest, a twig on a large tree, and a ground nest in a forested area. Like many other non-native ants that occur on the island, little information is available concerning their presence in and around urban and highly disturbed natural areas.

Problematic Monomorium Records.

1. *Monomorium salomonis* (Linnaeus, 1758). Reported from the island by Wheeler and Mann (1914) and Menozzi and Russo (1930). Curiously there are no *Monomorium* specimens of Mann's from Hispaniola in the MCZ. It is plausible these early records were misidentifications of the common and abundant *M. ebeninum* (but they are not recorded here as such records). *Monomorium salomonis* is not included in the Hispaniola species list.
2. *Trichomyrmex destructor* (Jerdon, 1851). A well-known tramp species that is present on Hispaniola. This ant was until recently classified as a *Monomorium* species. All past records of *Monomorium destructor* are here treated as records of *T. destructor*.

Mycocepurus

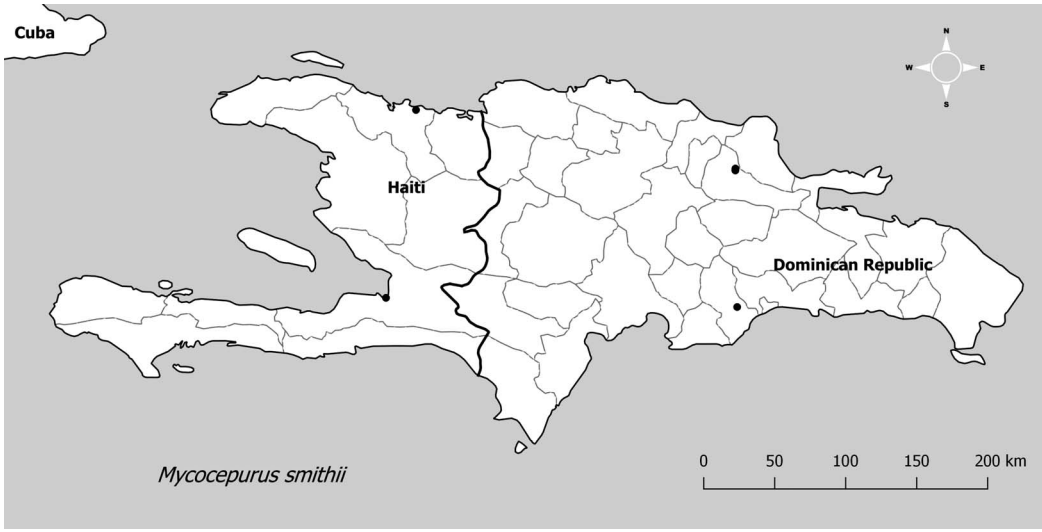
A small (six species) Neotropical genus of fungus-growing ants. *Mycocepurus* use a variety of materials as a substrate for their fungal gardens. Two species in the genus are broadly distributed and rather common (Mackay et al., 2004).

Mycocepurus smithii (Forel, 1893)
Figures 127, 128. MCZ-ENT00513284.

Caribbean, Central and South America. H—No, Ou; DR—Du, SC. Map 49.

Elevation. 200–675 m.

A broadly ranging Neotropical species that is relatively well studied. *Mycocepurus smithii* is a soil-nesting species, with their



Map 49. Hispaniola locality records of *Mycocepurus smithii*. All locations are marked by black circles.

colony typically marked with a soil turret around the entrance or, less often, found nesting under a stone. The nest chamber is only a few centimeters in diameter but can be up to a meter below ground. Colonies are polygynous, and numerous populations have been found to have independently evolved asexual reproduction. The slow-moving workers of *M. smithii* gather dry leaves, caterpillar frass, and guano to use as a substrate for their fungus (Kempf, 1963; Levins et al., 1973; Torres, 1989; Majer et al., 1997; Mackay et al. 2004; Rabeling et al., 2007b, 2011).

Figure 129. *Myrmelachista gagates* worker (MCZ-ENT00521449), head view. Photograph by Patrick McCormack.

Mann reported finding a set of colonies in a small area, with each having a small crater around its clay soil nest, and a single colony in a mountain road (Wheeler and Mann, 1914).

Myrmelachista

Species in this diverse (69 species) Neotropical genus are twig and stem nesters. Most live an arboreal existence but a few species nest in downed twigs in the leaf litter. There is some evidence that a few species have developed associations with particular plant lineages and are not merely nesting opportunistically in any suitable plant cavity (Longino, 2006; Nakano et al., 2013).

Myrmelachista gagates Wheeler, 1936
Figures 129, 130. MCZ-ENT00510634.

Endemic. H—Ou (type locality); DR—LV, Ped. Map 50.

Elevation. 1,190–2,134 m.

Figure 130. *Myrmelachista gagates* worker (MCZ-ENT00521449), profile view. Photograph by Patrick McCormack.

Beyond the lone worker from the Haitian type collection, *Myrmelachista gagates* has been found in two locations in the Dominican Republic. Of the latter, one was a single worker collected from a litter sample in a deciduous transitional forest along a riverbank. This site is adjacent to the Haitian border and is ~60 km from the type locality. The second collection, from a pine forest in Valle Nueva National Park, was from a nest found in chambers under the bark of a live pine tree.

Myrmelachista ramulorum Wheeler, 1908
Figures 131, 132. MCZ-ENT00521449.

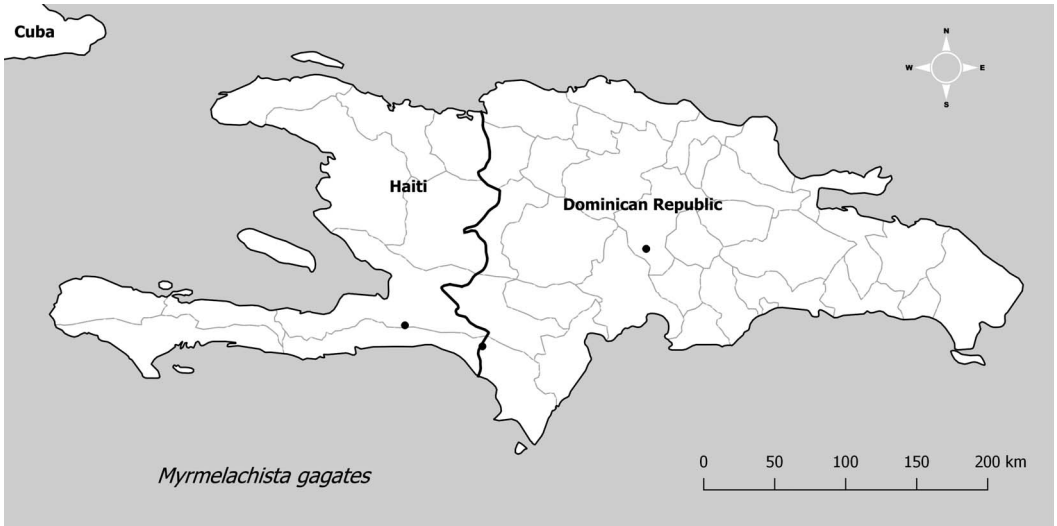
Caribbean, North America (Florida). DR—Du, Esp, PP, SPM. Map 51.

Elevation. 960 m.

Prebus (unpublished field notes, MCZ-ENT00539393) found a nest of this ant at Loma Quita scientific reserve and noted it was found in a dead branch of a live tree, a piece of wood with numerous tunnels in the wood. This ant also occurs in Puerto Rico (Smith, 1937; Wolcott, 1948; Lavigne, 1977).

Nylanderia

A diverse (135 species) wide-ranging genus. *Nylanderia* has been the subject of numerous regional taxonomic revisions in areas beyond the Caribbean (e.g., LaPolla et al., 2011a; Kallal and LaPolla, 2012). The bulk of known species were previously placed in the genus *Paratrechina* (La Polla et al., 2010). *Nylanderia* occur in a variety of habitats and can be among the most



Map 50. Locality records of the endemic *Myrmelachista gagates*. All locations are marked by black circles.

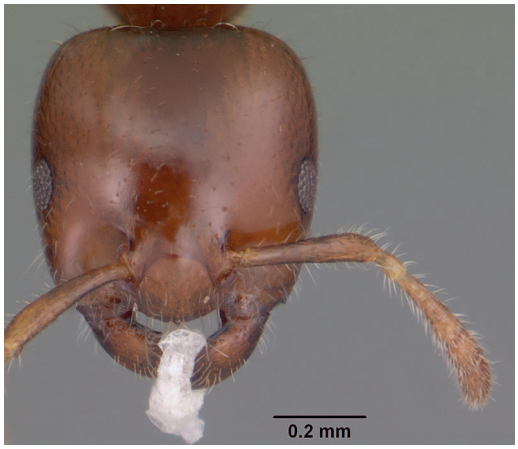


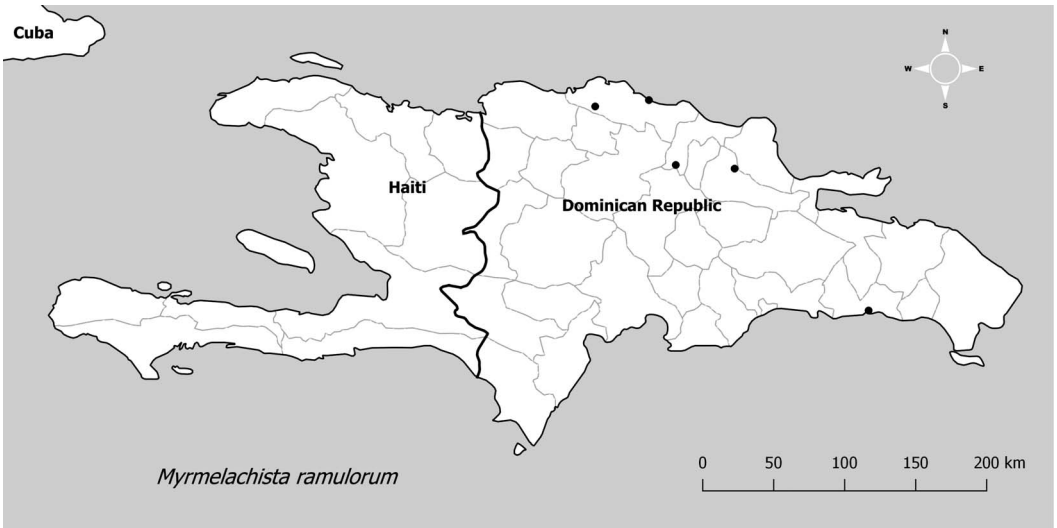
Figure 131. *Myrmelachista ramulorum* worker (CASENT0104126), head view. Photograph by April Nobile.

Figure 132. *Myrmelachista ramulorum* worker (CASENT0104126), profile view. Photograph by April Nobile.

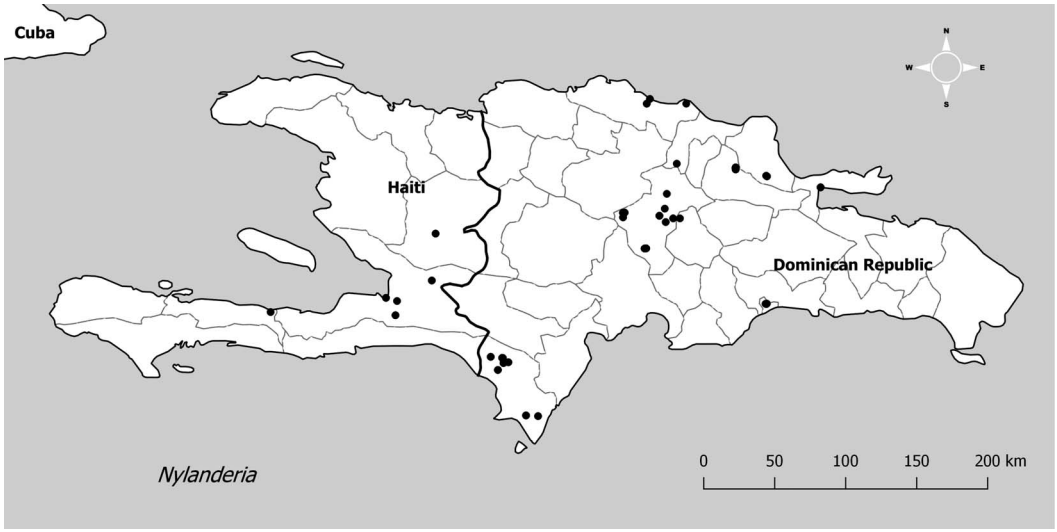
abundant ants in areas where they are found (LaPolla et al., 2011a). Their foragers move rapidly and are adept at finding and quickly recruiting to food. They typically form large polydomous colonies and, for a number of species, can have opportunistically placed nests that readily move to new locations.

In Hispaniola (Map 52), these small ants (Figs. 133, 134) are active and abundant in higher elevation pine forests and in various habitats found interspersed with and just below these pine forests. Species determinations of pinned specimens and published occurrence records include the following six names:

Nylanderia fulva (Mayr, 1862).
Nylanderia guatemalensis (Forel, 1885).
Nylanderia guatemalensis itinerans (Forel, 1901).
Nylanderia pubens (Forel, 1893).
Nylanderia steinheili (Forel, 1893).
Nylanderia vividula (Nylander, 1846).



Map 51. Hispaniola locality records of *Myrmelachista gagates*. All locations are marked by black circles.



Map 52. The locality records of all *Nylanderia* collections from Hispaniola, irrespective of species identity. All locations are marked by black circles.

With a revision of the Hispaniola species in progress (La Polla, personal communication) and a long history of taxonomic problems in this group, the *Nylanderia* are not treated further beyond the list of names given above. All existing material with determinations should be treated as provisional.

Odontomachus

A diverse genus (72 species) of trap-jaw ants (Brown, 1976) that are found in most of the warmer areas of the world. Workers are large and, in most species, forage alone as they actively hunt for insect prey. *Odontomachus* species may be found nesting in soil, rotting wood, and arboreally.

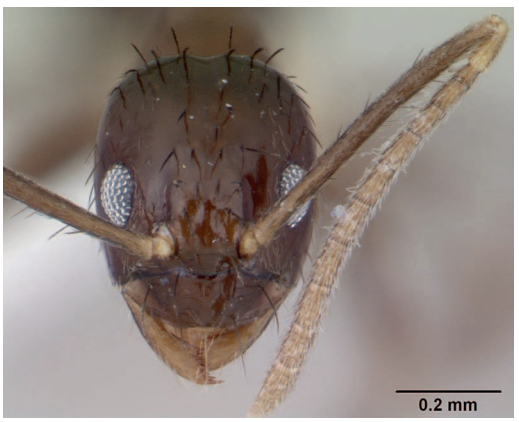


Figure 133. *Nylanderia steinheili* worker (CASENT0178613), head view. Photograph by April Nobile.

Figure 134. *Nylanderia steinheili* worker (CASENT0178613), profile view. Photograph by April Nobile.

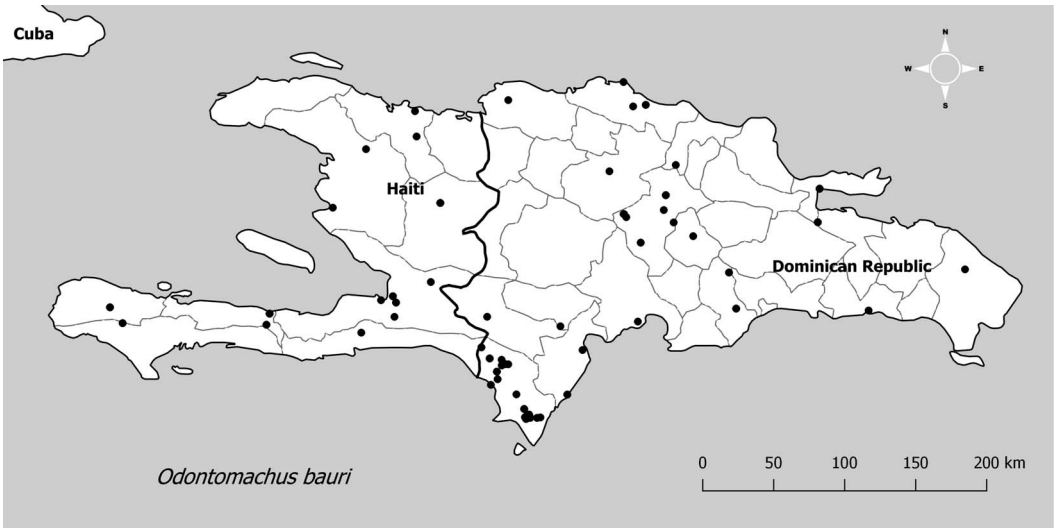
Figure 135. *Odontomachus bauri* worker (CASENT0172629), head view. Photograph by April Nobile.

Figure 136. *Odontomachus bauri* worker (CASENT0172629), profile view. Photograph by April Nobile.

A much-needed contemporary revision clarified the status of the named North American *Odontomachus* species (MacGown et al., 2014). The problematic nature of the taxonomy of the North American *Odontomachus* was similar to what is known about the Caribbean species, with the latter remaining with numerous long-standing taxonomic issues. There remains some confusion as to what names apply to the forms that occur in Hispaniola and, more generally, to a number of Caribbean *Odontomachus*. The following species treatments provide some details about these taxonomic issues and how they are being addressed here in applying names to particular morphologically distinctive species.

Odontomachus bauri Emery, 1892
Figures 135, 136. MCZ-ENT00510355.

Caribbean, Central and South America. H—Ar, Ce, GA, Ni, No, Ou, SE; DR—Az, Bar, Esp, In, LA, LV, MC, MN, Ped, PP, Sam, San, SC, SPM. Map 53.



Map 53. Hispaniola locality records of *Odontomachus bauri*. All locations are marked by black circles.

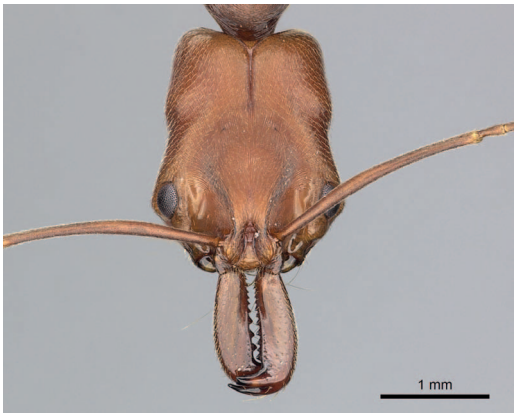


Figure 137. *Odontomachus insularis* worker (CASENT0270607), head view. Photograph by Ryan Perry.

Figure 138. *Odontomachus insularis* worker (CASENT0270607), profile view. Photograph by Ryan Perry.

Elevation. 5–2,328 m.

The name *O. bauri* is assigned to the most common species (after Brown, 1976). Earlier records list this ant as *Odontomachus haematoda paucidens* Emery, 1893, a name assigned in a footnote (Emery 1893b) for what was then considered the Haitian form of *O. haematodus*. *Odontomachus bauri* does well in many habitats and across a wide range of elevations. Workers are readily noticeable because they are large, active foragers that will venture into exposed areas. Their abundance, ability to do well in many habitats, and being readily noticeable have all led to this ant having one of the better documented distributions (i.e., from the perspective of the total number of occurrence records and the overall range of locations from the island). Nests can contain hundreds of workers and have been found in the soil, in downed wood, and under objects on the ground. From studies and observations of this ant beyond Hispaniola (Brown, 1976; Traniello, 1981; Oliveira and Hölldobler, 1989; Ehmer and Hölldobler, 1995; Gronenberg, 1995a,b), we know that foragers are scavengers and hunters. Typical prey are small, soft-bodied insects. Foragers are active at all times of the day, and they maintain and stay within colony-specific territories. Colonies can be polydomous and are likely monogynous.

Brown's *Odontomachus* revision (1976) details the variation he observed in the Hispaniolan *O. bauri*. He noted one widespread form, nearly all black-brown but with the coxae and some of the femora brownish orange, was widely distributed in the mountainous pine forests, the southwestern and central parts of the Dominican Republic, and Haiti. Another form was found in the Samana Peninsula and in drier areas, with the ants lighter in color, more brownish than black, and with all-yellow legs. A third form he collected in 1975 was black with iridescent blue reflections on the mesopleura and orange bases of the legs.

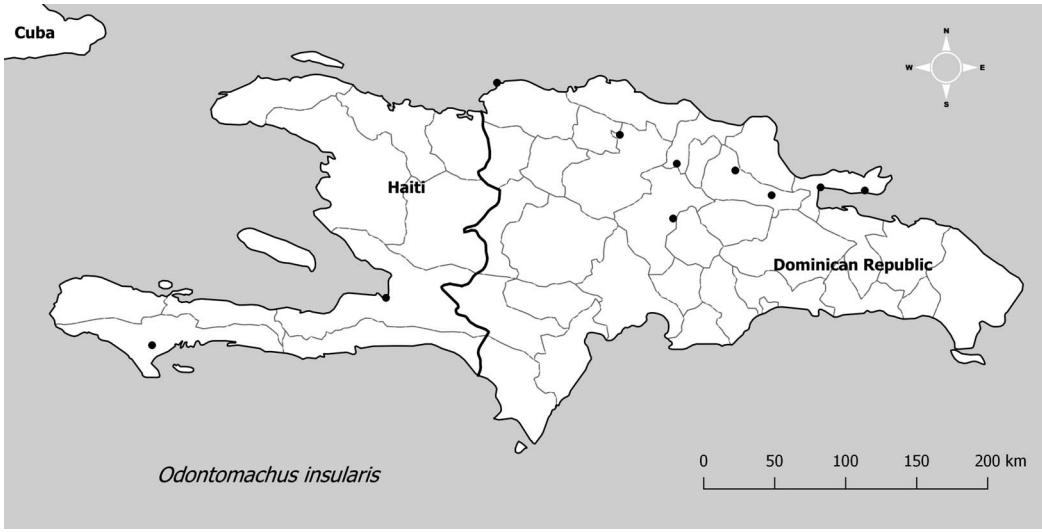
Odontomachus insularis Guérin-Méneville, 1844

Figures 137, 138. MCZ-ENT00513345.

Caribbean, Possibly Central America. H—Ou, Su; DR—Du, Esp, LV, MC, Sam, San. Map 54.

Elevation. 63–1,071 m.

The MCZ specimen records provide details (rotten log in shade, under rocks, a forager from leaf litter) that suggest this ant's biology is similar to many other ground-dwelling *Odontomachus* species:



Map 54. Hispaniola locality records of *Odontomachus insularis*. All locations are marked by black circles.

they nest in downed wood and the ground and forage in the leaf litter.

Odontomachus ruginodis Smith, 1937
Figures 139, 140. MCZ-ENT00512879.

Caribbean, North America, Central America, and South America. H—Su; DR—Daj, DN, Du, HM, LV, MTS, Sam, San, SaRo, SJO. Map 55.

Elevation. 10–1,755 m.

Deyrup and Cover (2004) provide details about this ant's nesting biology and behavior. It is found in disturbed areas in Florida, whereas in Puerto Rico it is typically found in more open sites that have more sun than is typically found in mature forests. Carlin

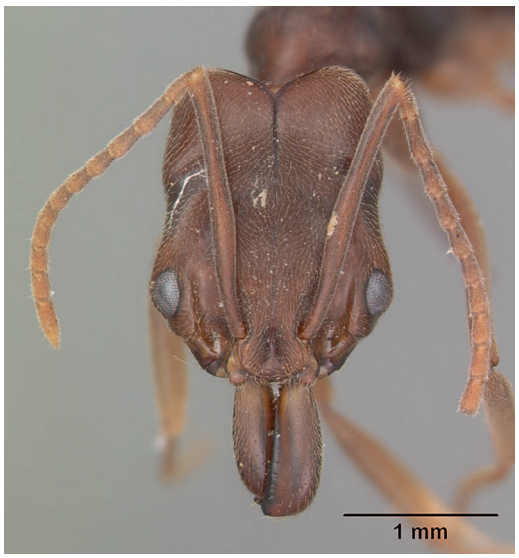


Figure 139. *Odontomachus ruginodis* worker (CASENT0104183), head view. Photograph by April Nobile.

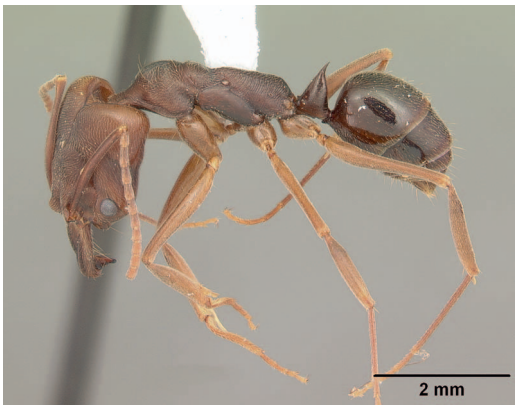
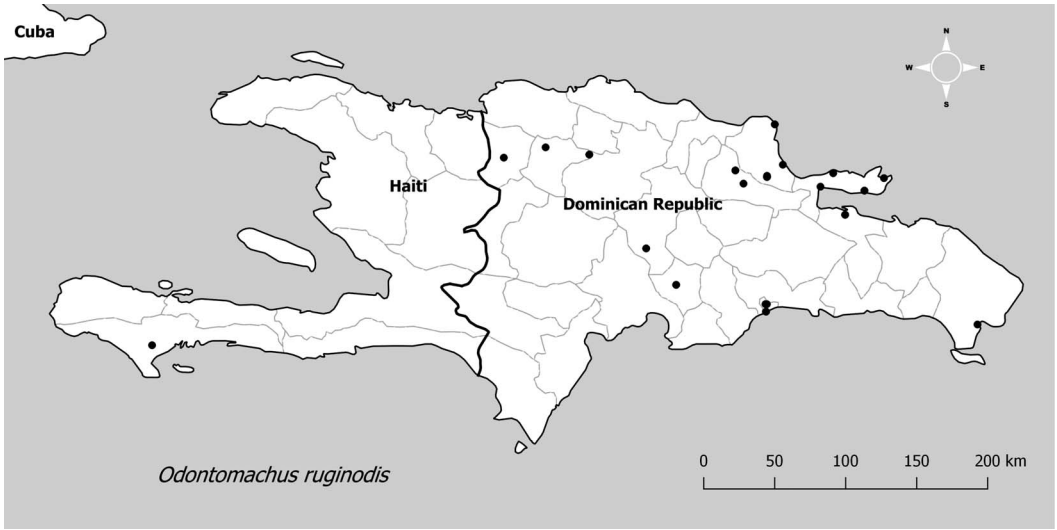


Figure 140. *Odontomachus ruginodis* worker (CASENT0104183), profile view. Photograph by April Nobile.



Map 55. Hispaniola locality records of *Odontomachus ruginodis*. All locations are marked by black circles.

and Gladstein (1989) studied this species' use of their jaws to fling themselves several centimeters through the air, a behavior employed by numerous *Odontamachus* species. In Hispaniola this species has been found in a range of habitats, and when found, most but not all nests are under or around rocks.

Odontomachus Notes. The bulk of *Odonotmachus* specimens collected for this study have been determined to be *O. bauri*. These determinations were based on the morphology and coloration of individuals falling within the bounds of that described by Brown (1976). Some newly collected materials that do not fit these characteristics remain as undetermined *Odonotmachus*. The *O. insularis* and *O. ruginodis* records and summaries stated above are based on existing specimens. A comprehensive taxonomic revision, focused on Caribbean species rather than those from a single island, is needed to assess the validity of existing species determinations, determine the names that appropriately apply to the existing material, and identify reliable diagnostic characters.

Problematic Odontomachus Records.

1. *Odontomachus bradleyi* Brown, 1976. Noted in the species list of Perez-Gelabert (2008), citing Brown (1960). Under details given for *bradleyi* in the Brown revision, a specimen of *insularis* from Haiti is discussed that appears to have been incorrectly recorded as an occurrence record of *O. bradleyi*. This species occurs in South American and does not occur on the island.
2. *Odontomachus haematodus* (Linnaeus, 1758). Although reported from Hispaniola (Forel, 1907; Wheeler and Mann, 1914), this species does not appear to occur on the island. The name *Odontomachus haematodus* has, especially in the older literature, been applied to what we now know to be a number of different species, including the *Odontomachus* species names currently listed for Hispaniola. *Odontomachus haematodus* and related forms have also been the subject of significant taxonomic discussion (Brown, 1960, 1977; Deyrup et al., 1985; MacGown et al., 2014). Brown

Figure 141. *Paratrechina longicornis* worker (CASENT0134863), head view. Photograph by Erin Prado.

Figure 142. *Paratrechina longicornis* worker (CASENT0134863), profile view. Photograph by Erin Prado.

(1976: 148) notes the species group that *O. bauri* belongs to is "represented by a number of species so closely related, and at the same time so variable, that they have defied analysis for more than a century." Mann's putative *Odontomachus haematodus* material from Haiti that is housed in the MCZ was subsequently determined to be *O. bauri* and *O. insularis*. The newest wrinkle in this taxonomic conundrum is the documented spread of the actual *Odontomachus haematodus* into North America (MacGown et al., 2014).

Paratrechina

A small genus (six species) notable for the invasive species *Paratrechina longicornis* (LaPolla and Fisher, 2014).

Paratrechina longicornis (Latreille, 1802)
Figures 141, 142. MCZ- ENT00512902.

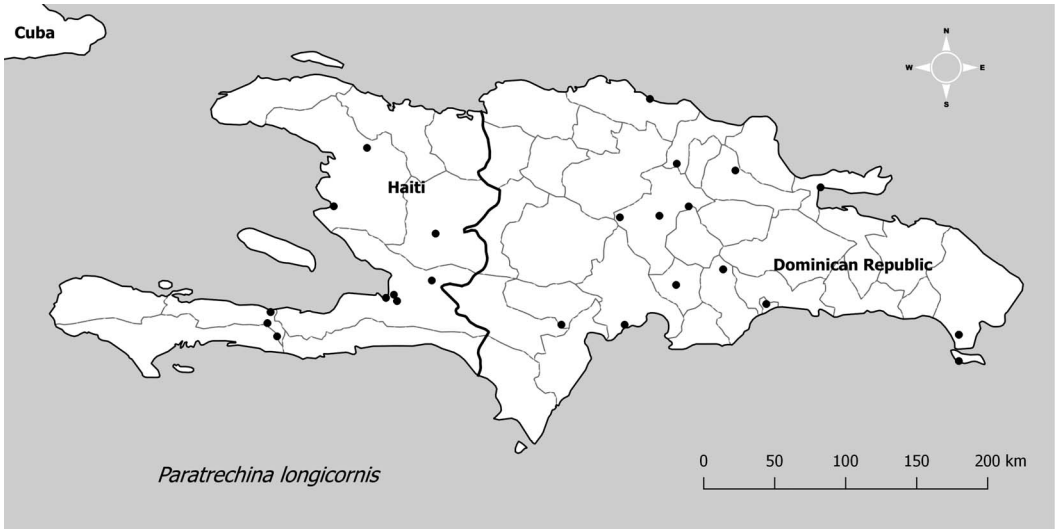
Worldwide. H—Ar, Ce, Ni, Ou, Su; DR—Az, DN, DU, Esp, In, LA, LV, MN, PP, Sam, SC, SJO. Map 56.

Elevation. 50–2,000 m.

A ubiquitous agricultural and household pest throughout the tropics and subtropics. This ant can also occur as an indoor pest in temperate areas (Wetterer, 2008). *Paratrechina longicornis* occurs in heavily disturbed areas, within natural habitats that have some element of natural disturbance, and in some natural habitats as well. The preponderance of evidence suggests *P. longicornis* is native to Southeast Asia and Melanesia (Wilson and Taylor, 1967; Wetterer, 2008).

The small workers of *P. longicornis* run quickly, often making frantic looping motions, and can rapidly recruit to food finds occurring within their foraging range. Nesting is adventitious. Colonies and colony fragments can seemingly be haphazardly located under cover objects or in whatever suitable cavities are available near food resources. Workers are sometimes observed traveling along what appear to be foraging trails but, upon closer inspection, can be observed carrying brood, which is indicative of their being in the midst of moving their nest.

There are more specimens of *Paratrechina longicornis* in the MCZ from Haiti than the Dominican Republic. The bulk of the former are from before 1936. The specimens from the latter are augmented



Map 56. Hispaniola locality records of *Paratrechina longicornis*. All locations are marked by black circles.

by a number of provincial records from Menozzi and Russo (1930). The dated nature of most of these collections is a reflection of contemporary collecting on the island, having been concentrated in natural and semi-natural habitats. Disturbed habitats, including urban habitats, where *Paratrechina longicornis* thrive are poorly sampled. This ant likely occurs across much of the island.

The few MCZ specimens that include more than locality information state specimens were collected from an agricultural field, a shady ravine, acacia vegetation with cactus, and shrub litter. This species has also been found on Isla Saona.

Problematic Paratrechina Records. See *Nylanderia* for a discussion of non–*P. longicornis* occurrence records from Hispaniola. *Paratrechina longicornis* is the only species of this genus that occurs on the island.

Pheidole

A hyperdiverse genus (1,139 species) with a cosmopolitan distribution (Wilson, 2003). *Pheidole* are dimorphic, typically with a worker contingent dominated by small minors and a smaller proportion of large-headed majors. Their heads contain enlarged muscles that power their strong mandibles. The majors fill a number of roles, depending on the species, that can include colony defense, defending food finds, and milling seeds. The taxonomy of *Pheidole* in the New World has received contemporary attention (Wilson, 2003; Longino, 2009).

The 14 *Pheidole* species present on Hispaniola are a fair mix of endemic, Caribbean, New World, and tramp species. A few are known only from their type collections.

Pheidole darlingtoni Wheeler, 1936
Figures 143, 144. MCZ-ENT00020762, Syntype.

Endemic (Types Only). H—GA. Map 5.
Elevation. 61–122 m.

Known from minors collected from the Massif de la Hotte in Haiti by P. J. Darlington.

Figure 143. *Pheidole darlingtoni* minor (MCZ-ENT00020762), head view. Photograph by David Lubertazzi.

Figure 145. *Pheidole drepanon* major (MCZ-ENT00510382), head view. Photograph by David Lubertazzi.

Pheidole drepanon Wilson, 2003
Figures 145, 146. MCZ-ENT00034198, Holotype.

Endemic. DR—MC, Ped (type locality). Map 57.

Elevation. 7–1,600 m.

An adaptable species that occurs in a range of habitats. In Pedernales Province, it has been found in low-elevation dry forest, transitional forest, and high-elevation pine forest. *Pheidole drepanon* is a ground-nesting species. Colonies have been observed in soil, in leaf litter, under rocks, and under downed wood.

Pheidole flavens Roger, 1863
Figures 147, 148. MCZ-ENT00521259.

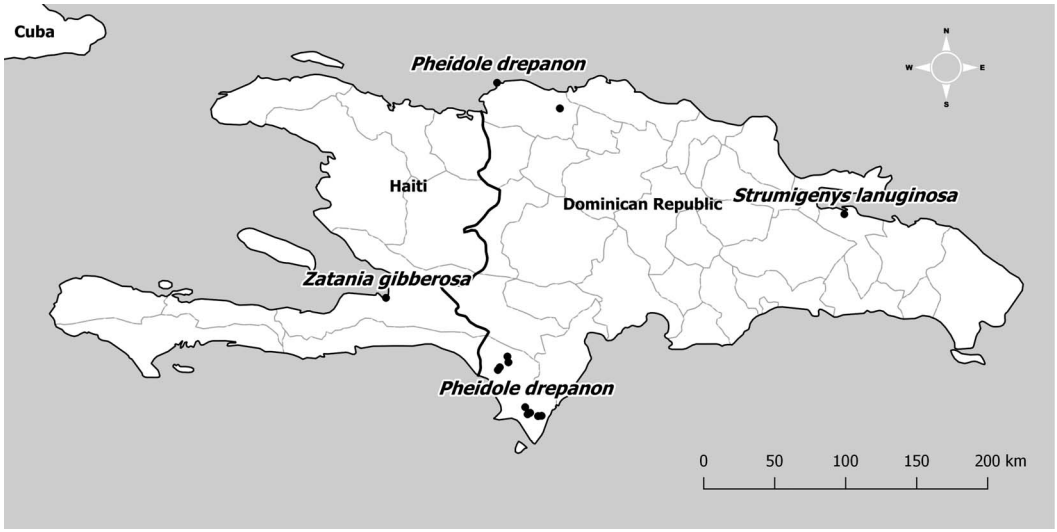
Caribbean, North, Central, and South America. H—Ar, No, Ou; DR—DN, Esp, MTS, Ped. Map 58.

Elevation. 54–400 m.

A wide-ranging Neotropical species, Wilson (2003: 420) noted: "*P. flavens* prefers rotting pieces of wood, but also utilizes spaces beneath the bark of trees, dead knots on tree trunks, sod on rocks, the soil beneath stones, and epiphyte masses. On St. Vincent it occurred (in the early 1890s at least) in forests and thickets from sea level to 900 m, and in Costa Rica it is found today

Figure 144. *Pheidole darlingtoni* minor (MCZ-ENT00020762), profile view. Photograph by David Lubertazzi.

Figure 146. *Pheidole drepanon* major (MCZ-ENT00510382), profile view. Photograph by David Lubertazzi.



Map 57. The disjunct localities of the endemic *Pheidole drepanon*, all in the Dominican Republic, and the lone Hispaniola localities of *Strumigenys lanuginosa* and *Zatania gibberosa*. All locations are marked by black circles.

in both wet and dry forests. The nest galleries are diffuse and irregular, the queens hard to find, and mature colonies large, containing up to thousands of workers. Workers collect small arthropods: a captive colony from Trinidad I maintained for over a year eagerly harvested live oribatid mites, and the workers had no difficulty abrading through their hard, smooth exoskeletons. Workers also recruit to sugar baits."

Pheidole flavens is known from two southern and two northern collections from the Dominican Republic. This species has also been found in Haiti.

Pheidole harlequina Wilson, 2003
Figures 149, 150. MCZ-ENT00034232, Holotype.

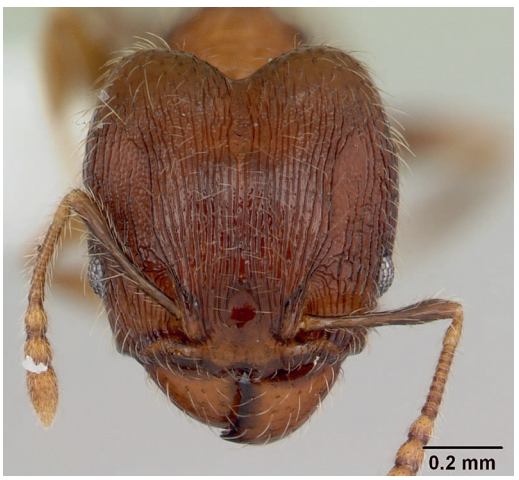
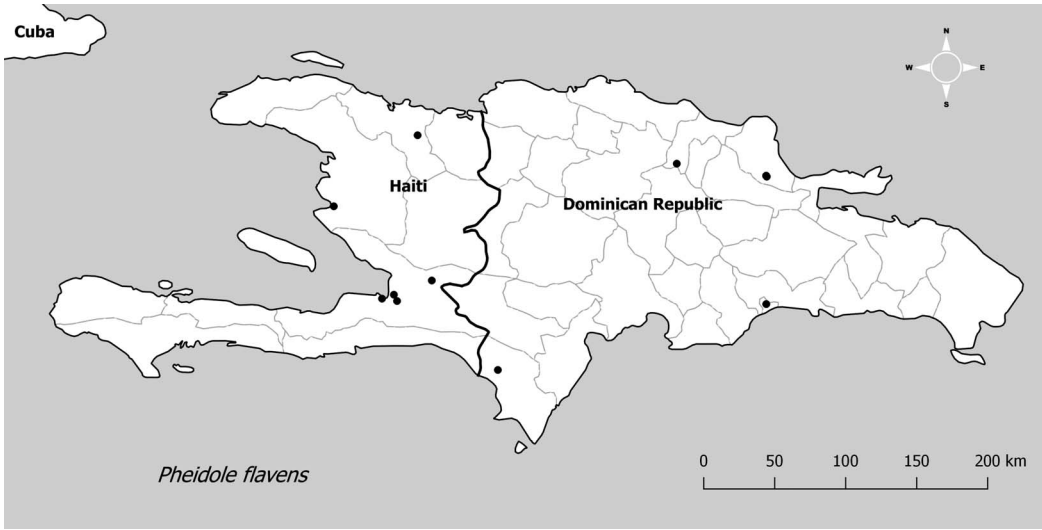


Figure 147. *Pheidole flavens* major (CASENT0178020), head view. Photograph by April Nobile.

Figure 148. *Pheidole flavens* major (CASENT0178020), profile view. Photograph by April Nobile.



Map 58. Hispaniola locality records of *Pheidole flavens*. All locations are marked by black circles.

Endemic. DR—LA, LV (type locality), MTS, SPM. Map 39.

Elevation. 40–1,300 m.

An endemic that has been collected in central and eastern Dominican Republic. *Pheidole harlequina* has been found nesting under a rock and in coralline rock; foragers were collected at a bait. Habitats have varied from evergreen and mixed pine to dry forests.

Pheidole hispaniolae Wilson, 2003
Figures 151, 152. MCZ-ENT00034234, Holotype.

Endemic. DR—LV, MN (type locality). Map 59.

Elevation. 1,100–1,735 m.

Known from five collections, all the localities are confined to a small area in the interior of the Dominican Republic. Nests were found in a rotting log in second

Figure 149. *Pheidole harlequina* major (MCZ-ENT00531152), head view. Photograph by David Lubertazzi.

Figure 150. *Pheidole harlequina* major (MCZ-ENT00531152), profile view. Photograph by David Lubertazzi.

Figure 151. *Pheidole hispaniolae* major (MCZ-ENT00300850), head view. Photograph by David Lubertazzi.

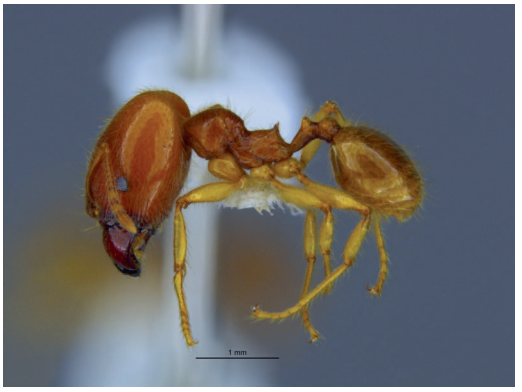


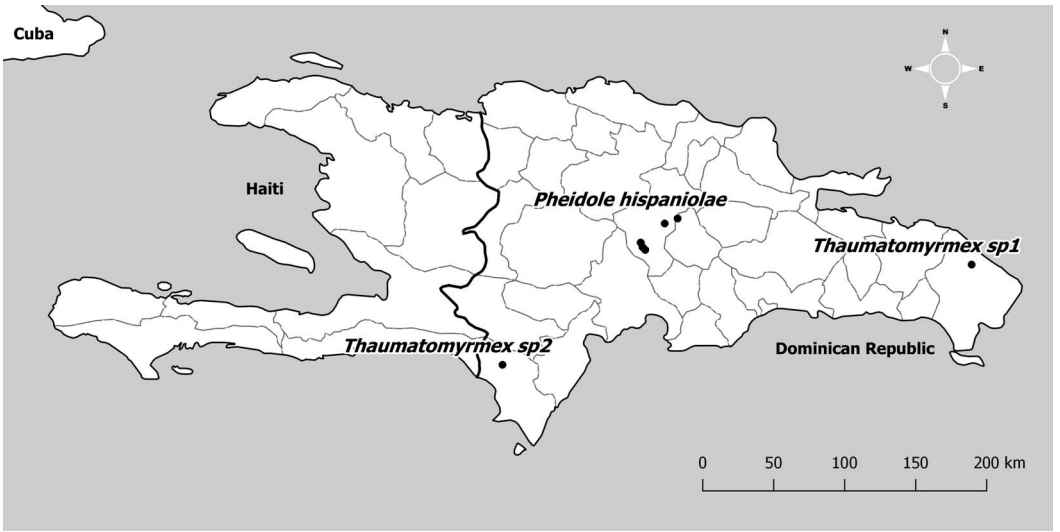
Figure 152. *Pheidole hispaniolae* major (MCZ-ENT00300850), profile view. Photograph by David Lubertazzi.

growth mountain forest and under a rock in both a mixed-pine and pine forest.

Pheidole indica Mayr, 1879
Figures 153, 154. MCZ-ENT00531322.

Pantropical. DR—San. Map 15.
Elevation. 20 m.

An exotic species native to the Old World that now occurs in many tropical areas. This ant is most common in dry habitats, especially thriving along the coast and in urban areas. *Pheidole indica* can be aggressive toward co-occurring ant species (Collingwood, 1985; Collingwood et al., 1997; Gómez and Espadaler, 2006; Wetterer, 2011a; Fischer and Fisher, 2013). The single Hispaniola collection of *P. indica* is from an urban area in Santiago Province. Foragers were found recruiting to "crumbs at a streetside bakery."



Map 59. The localities of the endemic *Pheidole hispaniolae* and the collection localities of two undescribed *Thaumatomyrmex* species. All locations are marked by black circles.

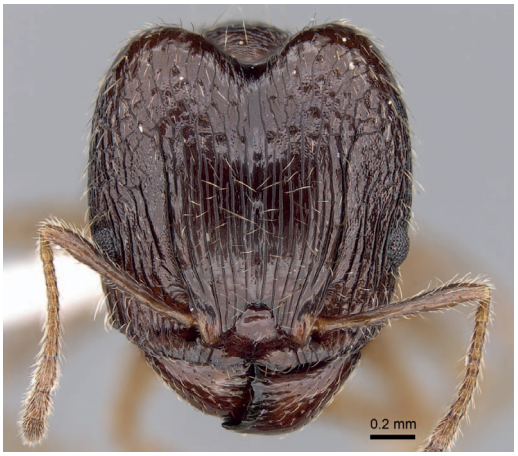


Figure 153. *Pheidole indica* major (CASENT0189743), head view. Photograph by Estalla Ortega.

Pheidole jamaicensis Wheeler, 1908
Figures 155, 156. MCZ-ENT00510368.

Caribbean. H—GA, Ou; DR—Bar, Du, LV, MTS, Ped, PP, SJO. Map 60.

Elevation. 125–1,330 m.

A member of a small taxonomic tangle of *Pheidole* species that were recently revised (Longino and Cox, 2009). Before this revision, specimens of this species were determined to be *Pheidole bilimeki* Mayr, 1870. All records of that ant from the island are now considered *P. jamaicensis*.

Figure 155. *Pheidole jamaicensis* major (MCZ-ENT00521191), head view. Photograph by David Lubertazzi.

Pheidole jamaicensis is a small, adaptable ant that can be found in a variety of nesting situations and habitats. Longino and Cox (2009) noted in Jamaica that it was found in lowland second growth, wet forest on karst, and cloud forest. Nests were found beneath epiphytes, in rotten wood on the ground, and under stones. Dominican Republic habitats include evergreen forest, coffee plantation, limestone, a ravine, mixed hardwood-pine forest, and dry forest (Longino and Cox, 2009; Lubertazzi and Alpert, 2014).

Pheidole jelskii Mayr, 1884
Figures 157, 158. MCZ-ENT00510388.

Figure 154. *Pheidole indica* major (CASENT0189743), profile view. Photograph by Estalla Ortega.

Figure 156. *Pheidole jamaicensis* major (MCZ-ENT00521191), profile view. Photograph by David Lubertazzi.

Map 60. Hispaniola locality records of *Pheidole jamaicensis*. All locations are marked by black circles.

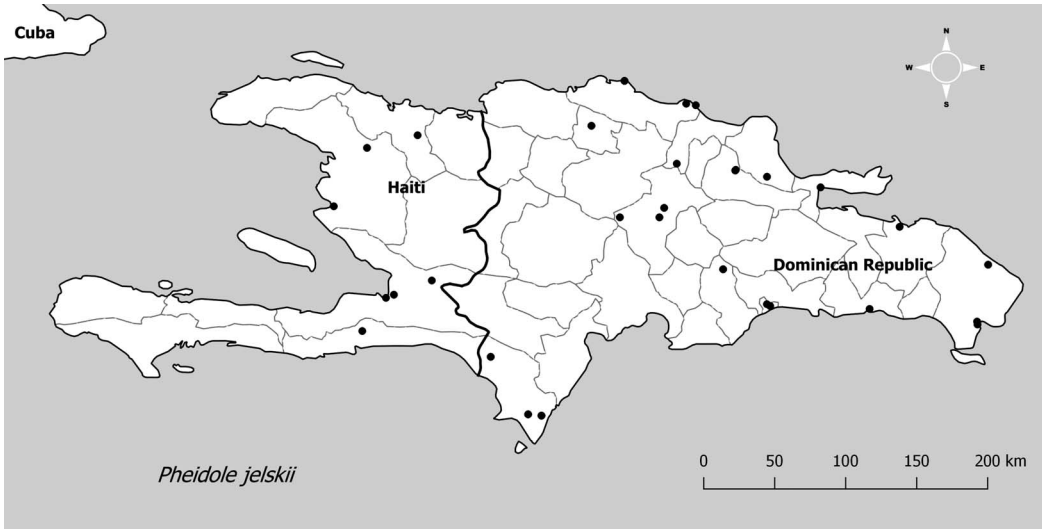
Caribbean, South America. H—Ar, No, Ou, SE; DR—DN, Du, ES, Esp, LA, LV, MTS, Ped, PP, Sam, SC, SPM, Va. Map 61.

Elevation. 1–2,000 m.

Specimen records show the biology of this ant on the island is consistent with accounts of this species from other parts of its range. Wilson (2003: 307) reported: "nests in bare soil and open spaces. As such it is well adapted to disturbed habitats of all kinds, from cultivated fields to pastures to roadsides, as well as marginal natural environments such as beaches and river banks. In many places it is extremely abundant, although colony densities vary locally. In the early 1890s H. H. Smith (Forel, 1893) encountered it only twice on St. Vincent, which given the intensity of his collecting, suggests relative rarity, whereas in the 1990s Stefan Cover and I found it ubiquitous and in dense populations in the nearby islands of Grenada and Barbados. Mature colonies are large, with worker

Figure 157. *Pheidole jelskii* major (CASENT0908138), head view. Photograph by Zach Lieberman.

Figure 158. *Pheidole jelskii* major (CASENT0908138), profile view. Photograph by Zach Lieberman.



Map 61. Hispaniola locality records of *Pheidole jelskii*. All locations are marked by black circles.

populations numbering into the many hundreds or even thousands. They typically construct conspicuous crater nests with slit-shaped entrances in open soil, but also less regular nests with irregular entrances in vertical banks of soil in heavily disturbed locations. The minors forage singly over distances of up to ten meters or more, and are extremely swift and efficient at laying odor trails over even very loose soil to recruit other minors as well as majors to dead insects and sugar baits. The majors release a strong fetid odor, possibly from skatole, when the colonies are disturbed."

Pheidole jelskii is well represented by collections across the island, a distribution likely explained by *P. jelskii* being well adapted to disturbed areas. The foragers are also fairly noticeable, because they are active upon and forage across highly disturbed and artificial ground surfaces (e.g., compacted dirt, paved roads, and concrete sidewalks). The highest elevation recorded for this species (2,000 m; MCZ-ENT00593939 and MCZ-ENT00593940) may be a reporting error. Other elevation records are all from below 1,000 m.

Pheidole megacephala (Fabricius, 1793)
Figures 159, 160. MCZ-ENT00512930.

Pantropical. H—GA, No, Ou; DR—DN, Esp, Sam, SJO, SPM. Map 62.

Elevation. 38–1,000 m.

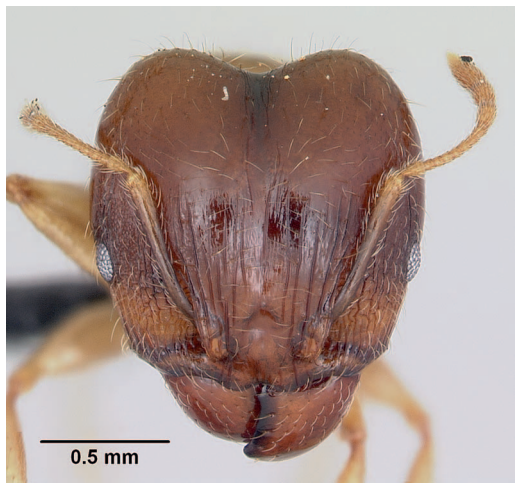


Figure 159. *Pheidole megacephala* major (CASENT0063124), head view. Photograph by April Nobile.

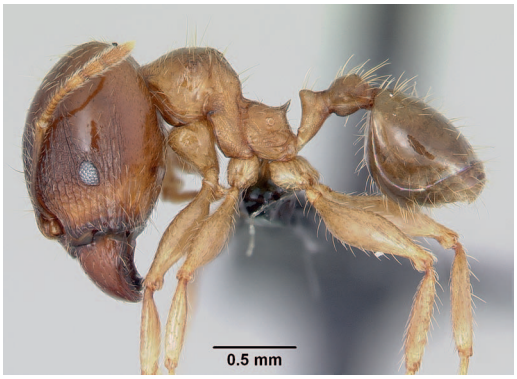


Figure 160. *Pheidole megacephala* major (CASENT0063124), profile view. Photograph by April Nobile.

A well-known invasive pest species (Hoffmann et al., 1999; Wetterer, 2007, 2012b) that has become pantropically distributed. *Pheidole megacephala* is aggressive, forms large colonies, and can negatively affect native insect faunas. Current records suggest this ant is not abundant on Hispaniola, but this may only reflect a lack of sampling in disturbed areas.

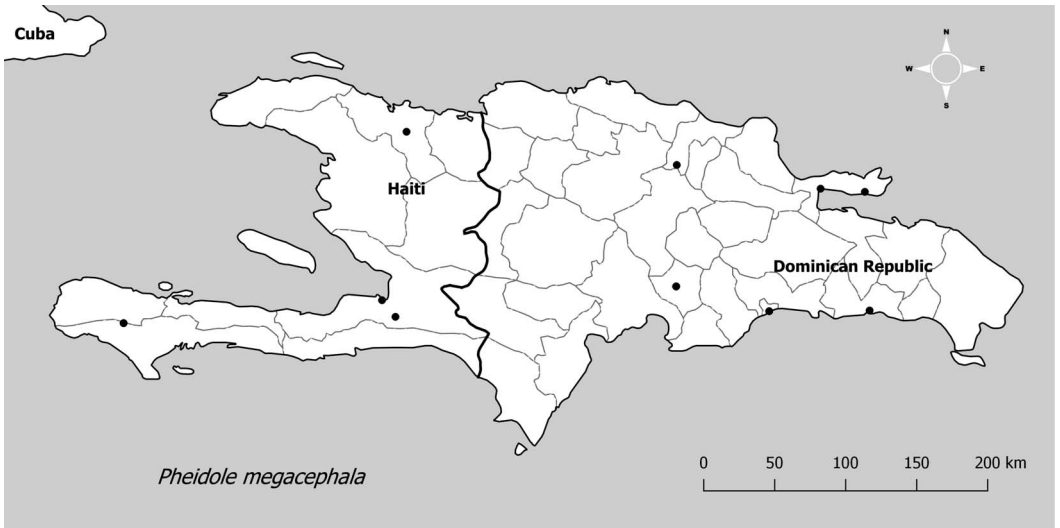
Pheidole moerens Wheeler, 1908
Figures 161, 162. MCZ-ENT00510417.

Caribbean, North America. H—GA, No, Ou, SE; DR—Bar, DN, Du, ES, HM, In, LA, LV, MN, MTS, Ped, PP, SC, SJO. Map 63.

Elevation. 14–1,300 m.

A well-sampled species in Hispaniola, and elsewhere, this ant nests opportunistically and is found in a variety of habitats. On Puerto Rico, for example, *P. moerens* occurs in rainforest, coffee plantations, and some dryer habitats. In the British Virgin Islands, *P. moerens* is common in dry forest. Nests are situated in decaying wood, under stones, and in soil. Colony size is moderate, probably from 500 to 1,000 workers. Seeds and insects, captured through predation and scavenging, form the bulk of their diet. Major workers will help to defend food, but this behavior is possible conditionally motivated by food quality and the presence of direct threats from other ants (Smith, 1937; Lavigne 1977; Naves, 1985; Wilson, 2003).

Pheidole noar Wilson, 2003
Figures 163, 164. MCZ-ENT00034296, Holotype.



Map 62. Hispaniola locality records of the introduced *Pheidole megacephala*. All locations are marked by black circles.

Figure 161. *Pheidole moerens* major (MCZ-ENT00539451), head view. Photograph by Patrick McCormack.

Figure 162. *Pheidole moerens* major (MCZ-ENT00539451), profile view. Photograph by Patrick McCormack.

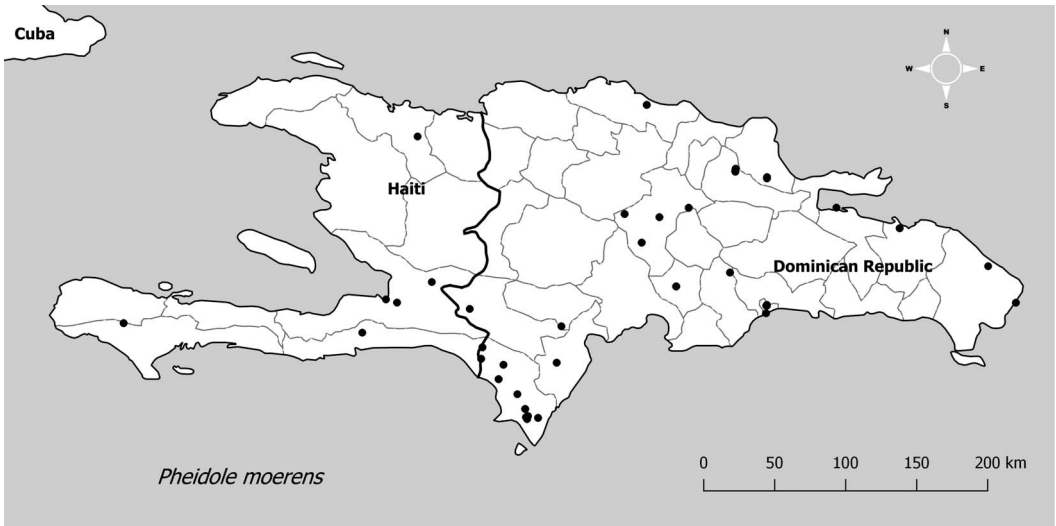
Endemic (Types Only). DR—Ped. Map 43.

Elevation. 5 m.

Known from the type collection from Cabo Rojo, southwestern Dominican Republic. The labels state the collection was of ground foragers in desert. The nearshore areas of coastal Cabo Rojo vary from sparsely vegetated, desert-like habitat to scrub that forms a habitat mosaic that varies from open sand to vegetated areas with shaded ground. With *Pheidole noar* known from a single collection, it is unclear where this species nests or what its foraging habits are across the variable conditions at Cabo Rojo. Its pale yellow color and large eyes suggest this ant is a nocturnal forager.

Pheidole subarmata Mayr, 1884
Figures 165, 166. MCZ-ENT00521573.

Caribbean, Central America, and South America. H—Ce; DR—Bar, DN, DU, HM, LA, MTS, Ped, San, SC. Map 64.



Map 63. Hispaniola locality records of *Pheidole moerens*. All locations are marked by black circles.

Figure 163. *Pheidole noar* major (MCZ-ENT00301443), head view. Photograph by Patrick McCormack.

Elevation. 5–870 m.

This species can be a common ant in disturbed areas, including the edges of natural habitats wherever openings occur. Wilson (2003: 760) reported: "*Pheidole subarmata* favors moist soil in open places, including habitats seriously disturbed by human activity—such as the edges of dirt roads, agricultural fields, coconut groves, secondary rainforest, city parks, and seashores. . . . The nests are usually constructed in open soil or soil beneath rocks or sod, but also occasionally in pieces of rotting wood. When in the open they are marked by irregular accumulations of excavated soil.

Figure 164. *Pheidole noar* major (MCZ-ENT00301443), profile view. Photograph by Patrick McCormack.

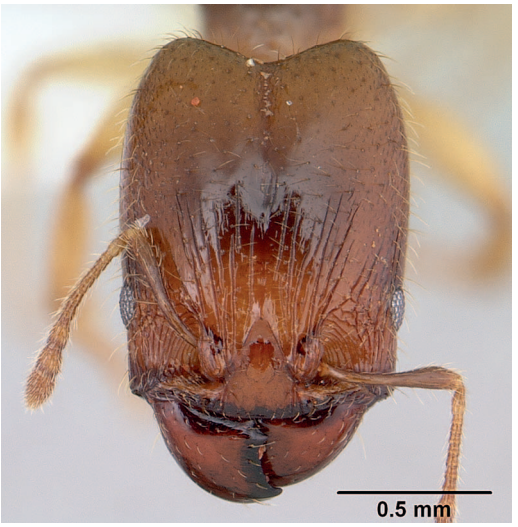
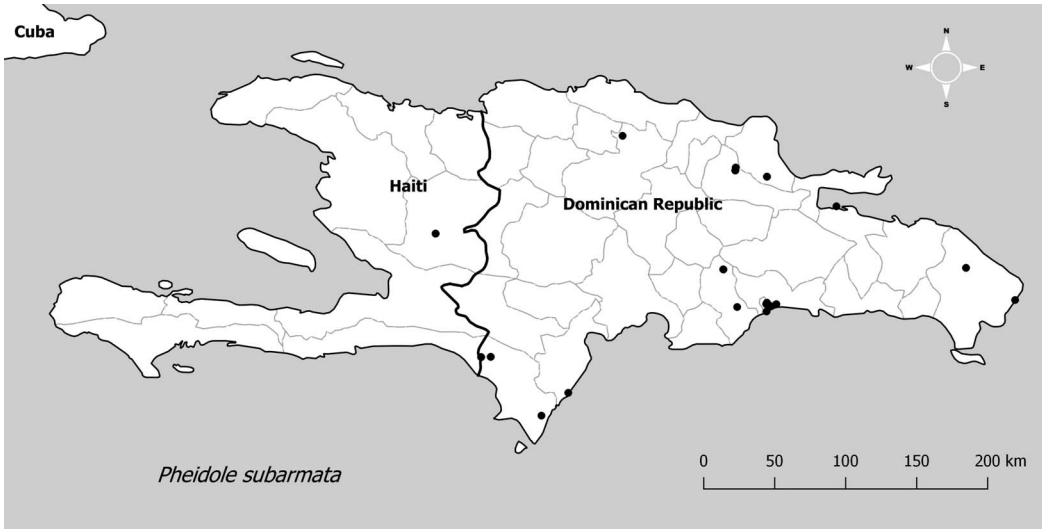


Figure 165. *Pheidole subarmata* major (CASENT0178060), head view. Photograph by April Nobile.

The galleries are irregular and difficult to follow by excavation. . . . The colonies are relatively small, with workers numbering probably only in the hundreds. On St. Vincent, H. H. Smith observed workers foraging on the ground and bushes. He found colony-founding queens in November." The scattered collections from the Dominican Republic and a single Haitian record include biological details that agree with Wilson's species summary.

Figure 166. *Pheidole subarmata* major (CASENT0178060), profile view. Photograph by April Nobile.



Map 64. Hispaniola locality records of *Pheidole subarmata*. All locations are marked by black circles.

Pheidole susannae Forel, 1886
Figures 167, 168. MCZ-ENT00595230.

Neotropics, Southern Mexico to Southern Brazil. DR—DN, SC, SJO. Map 65.

Elevation. 40–965 m.

Longino (2009) found this species to be common in disturbed areas, including natural areas with disturbance (e.g., seasonally dry forest) to highly modified urban areas (e.g., city parks). Nesting, too, can be quite variable, from ground nesting to inhabiting dead wood in live trees, and the species is seemingly opportunistic in utilizing available small cavities. Workers are adept at recruiting both majors and minors to baits.

Pheidole susannae was first found on the island in 2015. It has now been collected in various forest habitats and from a number of provinces in the Dominican Republic. Nests have been found in a downed stick, in a

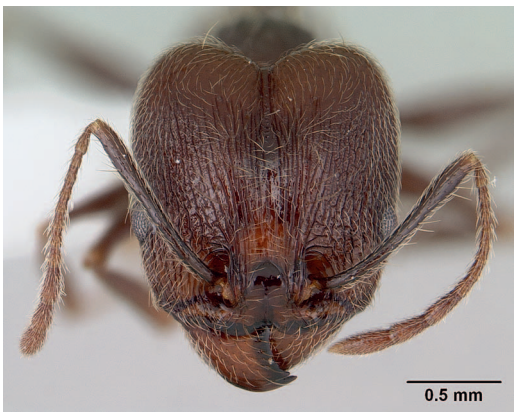
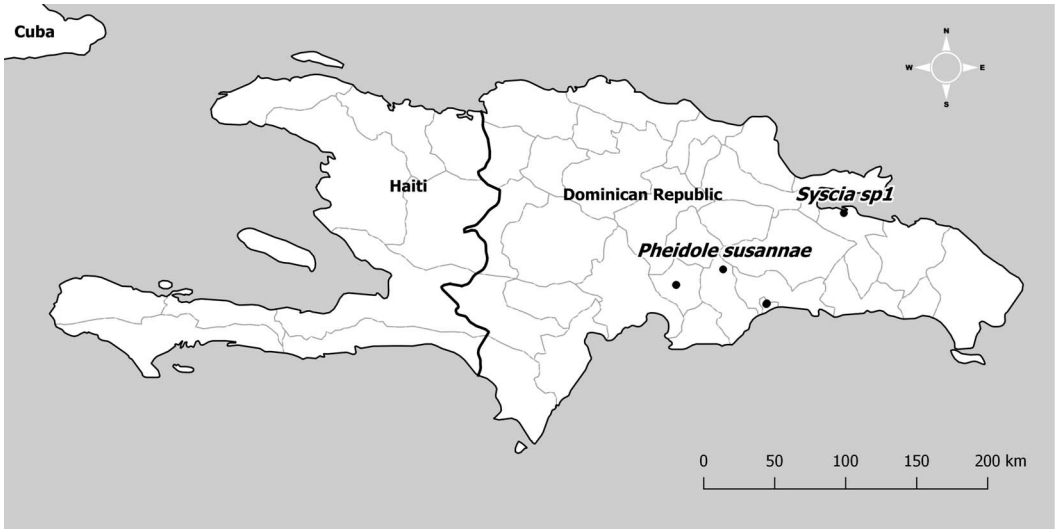


Figure 167. *Pheidole susannae* major (CASENT0178039), head view. Photograph by April Nobile.

Figure 168. *Pheidole susannae* major (CASENT0178039), profile view. Photograph by April Nobile.



Map 65. Hispaniola locality records of the introduced *Pheidole susannae* and the lone locality of an undescribed *Syscia* species. All locations are marked by black circles.

limestone wall, in a dead portion of a live tree, and in the soil at the base of a stump.

Pheidole terresi Wheeler and Mann, 1914
Figures 169, 170. MCZ-ENT00510435.

Endemic. H—No, Ou (type locality), SE; DR—Bar, In, LV, Ped. Map 66.

Elevation. 92–2,090 m.

Mann found *Pheidole terresi* nesting in the soil. The Dominican Republic records state this species was collected from soil under ground cover objects, such as downed wood and rocks. Overall, it has been found across a remarkable range of habitats and elevations.

Pheidole Notes. There is a single undescribed species from La Altagracia Province (MCZ-ENT00531346, MCZ-ENT00531347). The specimens, two majors and two minors, were found under a rock in moist evergreen forest.

Problematic Pheidole Record. *Pheidole punctatissima jamaicensis praetermissa*

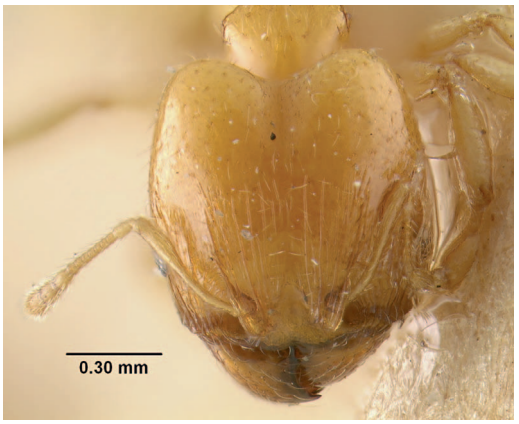


Figure 169. *Pheidole terresi* major (MCZ-ENT0002076), head view. Photograph by Charles Whittemore Farnum.

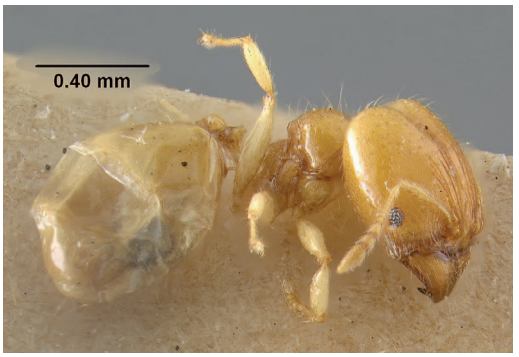
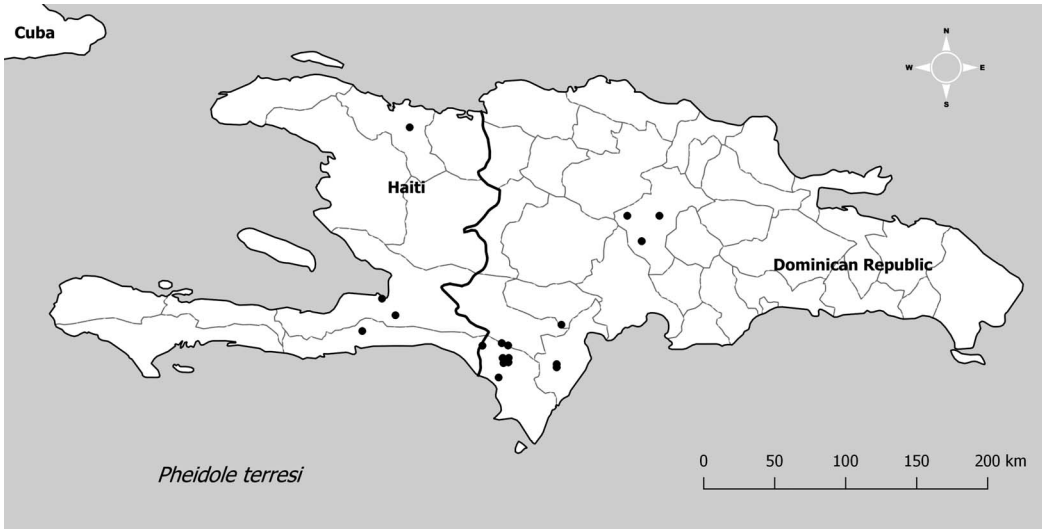


Figure 170. *Pheidole terresi* major (MCZ-ENT0002076), profile view. Photograph by Charles Whittemore Farnum.



Map 66. Locality records of the endemic *Pheidole terresi*. All locations are marked by black circles.

Wheeler, 1937. Wheeler (1937) stated this form occurs in Haiti. This is an unavailable name.

Platythyrea

A moderately diverse genus (38 species) found in tropical and subtropical regions of the Old and New World (Brown, 1975; Schmidt and Shattuck, 2014). Colonies typically nest in soil or dead, downed wood. A majority of *Platythyrea* species inhabit forests, but a few species are known from savannah habitats. Foraging is carried out by solitary workers that prey on arthropods.

Platythyrea punctata (Smith, 1858)
Figures 171, 172. MCZ-ENT00653174.

Caribbean, North and Central America. H—No; DR—DN, Du, Esp, HM, LA, LV, MN, Ped, PP, Sam, SD, SPM. Map 67.

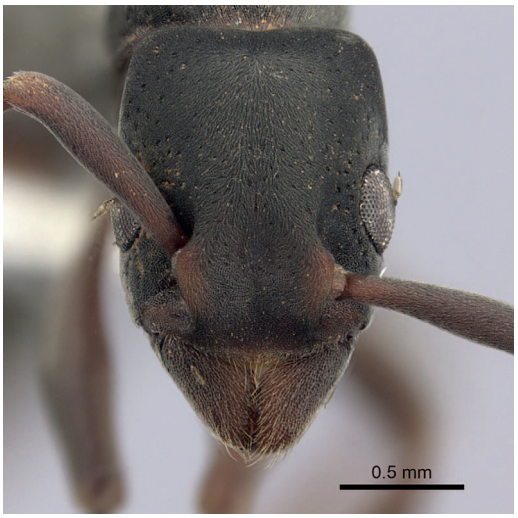
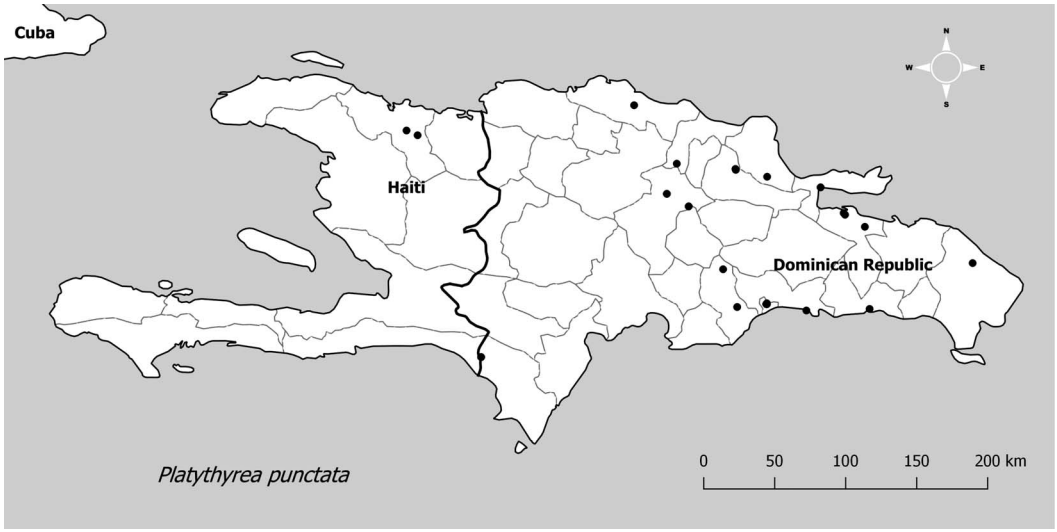


Figure 171. *Platythyrea punctata* worker (CASENT0260482), head view. Photograph by Will Ericson.

Figure 172. *Platythyrea punctata* worker (CASENT0260482), profile view. Photograph by Will Ericson.



Map 67. Hispaniola locality records of *Platythyrea punctata*. All locations are marked by black circles.

Elevation. 10–550 m.

Platythyrea punctata inhabits wooded areas. In a few locations in the Dominican Republic solitary foragers were frequently encountered on open ground within forests (e.g., along forest trails; Lubertazzi, personal observation). The rate and range of encounters along long stretches of some trails suggest colonies of this ant can be quite abundant. *Platythyrea punctata* nests have been found in dead wood that varied from a small stick to a stump to a large downed tree. A phylogeographic study of *P. punctata* (Seal et al., 2011) showed the Caribbean populations of this ant likely originated from source populations in Central America. The molecular genetic analyses further suggested the Hispaniolan endemic *P. strenua* is a sister species of *P. punctata*.

Platythyrea strenua Wheeler and Mann, 1914

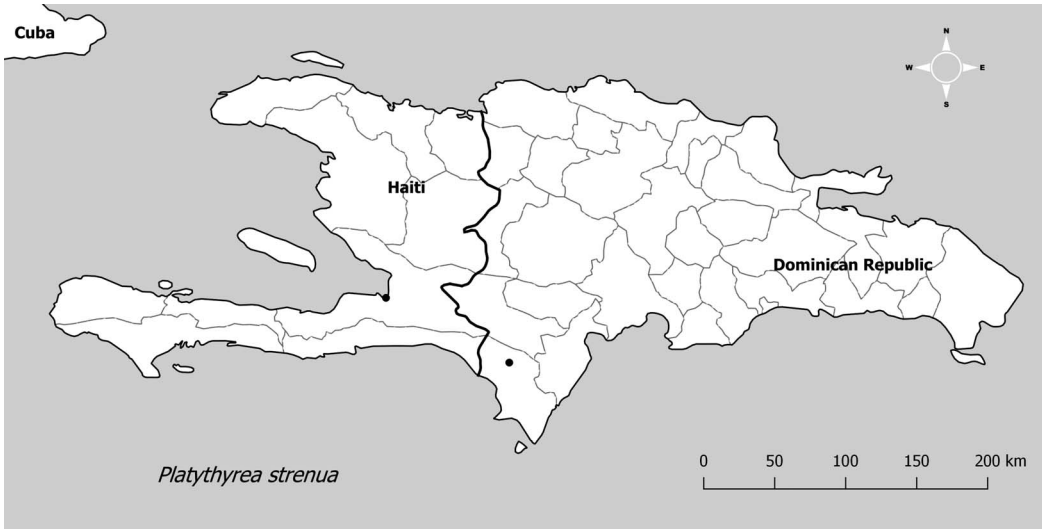
Figures 173, 174. MCZ-ENT00512995.

Endemic. H—Ou (type locality); DR—Ped. Map 68.

Elevation. 1,200–1,500 m.

Figure 173. *Platythyrea strenua* worker (CASENT0907128), head view. Photograph by Will Ericson.

Figure 174. *Platythyrea strenua* worker (CASENT0907128), profile view. Photograph by Will Ericson.



Map 68. Locality records of the endemic *Platythyrea strenua*. All locations are marked by black circles.

The type collection of *P. strenua* was made from a rotten log adjacent to a termite colony. Kugler (1976) noted the only other collections of this species were taken by Brown from colonies found under limestone slabs in pine forest.

Pogonomyrmex

A diverse (74 species) New World genus associated with arid habitats (Cole, 1968; Johnson, 2000, 2001). A few species have large, long-lived colonies that build noticeable prominent cones or disks that mark their ground nest entrances. A majority of *Pogonomyrmex* species have large workers that harvest seeds and scavenge other food such as dead insects. The species in Hispaniola more closely resemble a small clade of *Pogonomyrmex* species, the *Ephebomyrmex,* that were once considered a separate genus. Colony sizes for species in this clade are relatively modest, and worker and queens are also smaller than non-*Ephebomyrmex Pogonomyrmex* species.

The *Pogonomyrmex* of Hispaniola were the subject of a recent taxonomic revision (Johnson and Cover, 2015). They noted the island's *Pogonomyrmex* have only been found to produce alate queens and no ergatoids. Continental *Ephebomyrmex* species have two queen forms, a wingless ergatoid form and winged alates, or only ergatoids. Further collecting is needed to clarify whether the lack of ergatoids in Hispaniola is not merely a sampling deficiency. To date, only a small number of queens have been collected.

Pogonomyrmex aterrimus Wheeler, 1936
Figures 175, 176. MCZ-ENT00521367.

Endemic. H—GA, Ou (type locality); DR—LV, Ped. Map 69.

Elevation. 800–2,134 m.

Relative to other Hispaniola *Pogonomyrmex*, this species is known from a relatively small number of collections. *Pogonomyrmex aterrimus* has been found in mid and high elevation sites from habitats that include the edge of a montane forest, a moist forest, and a grassy field. The latter specimens are further noted as having been collected from nest chambers found under stones.

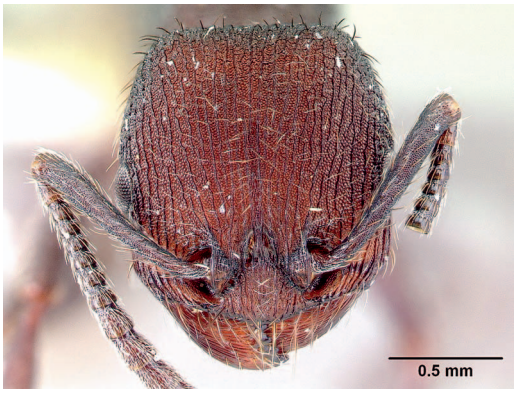


Figure 175. *Pogonomyrmex aterrimus* worker (CASENT0217241), head view. Photograph by Erin Prado.

Figure 176. *Pogonomyrmex aterrimus* worker (CASENT0217241), profile view. Photograph by Erin Prado.

Pogonomyrmex saucius Wheeler and Mann, 1914
Figures 177, 178. MCZ-ENT00510440.

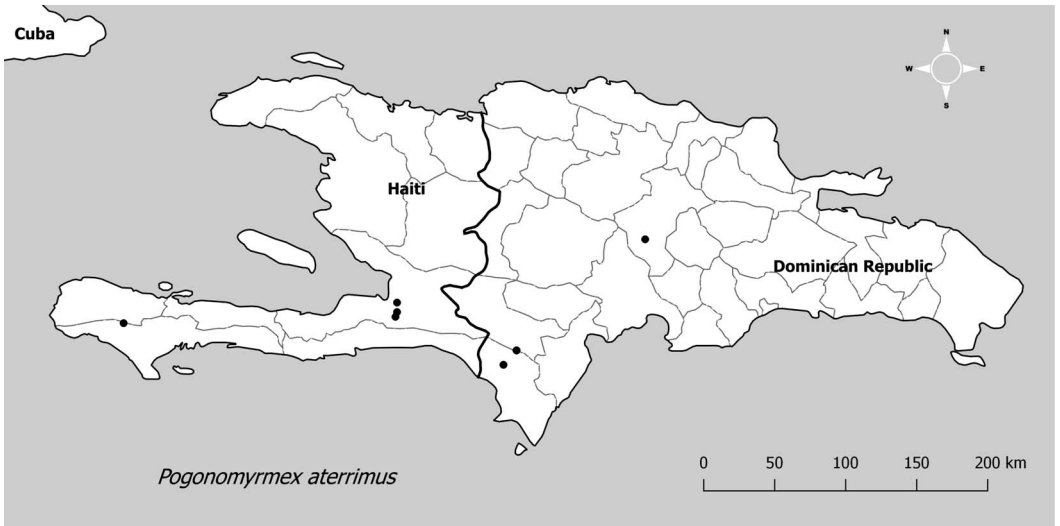
Endemic. H—No, Ou (type locality); DR—DN, Ped. Map 70.

Elevation. 5–128 m.

All occurrence records of this species are from southern locations, with most collections made from low-elevation xeric habitats. The one exception is a single ground forager found in an open woodland in a Santo Domingo city park. A few nests have been found under rocks. Wheeler and Mann (1914) reported finding a small number of seeds in *Pogonomyrmex saucius* nests.

Pogonomyrmex schmitti Forel, 1901
Figures 179, 180. MCZ-ENT00510441.

Endemic. H—unknown department (type locality), Ar, No, Ou, SE; DR—DN, LA, LV, MC, Ped, San. Map 71.



Map 69. Locality records of the endemic *Pogonomyrmex aterrimus*. All locations are marked by black circles.

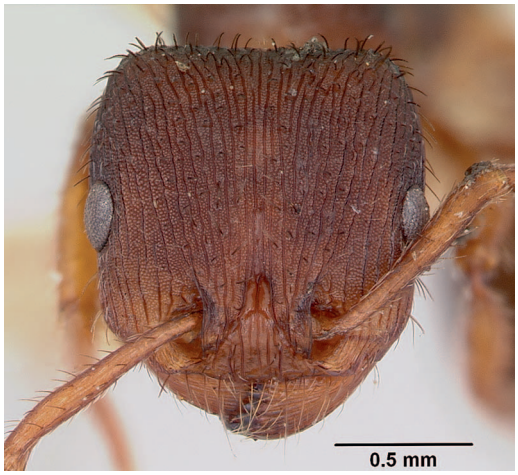


Figure 177. *Pogonomyrmex saucius* worker (CASENT0103399), head view. Photograph by April Nobile.

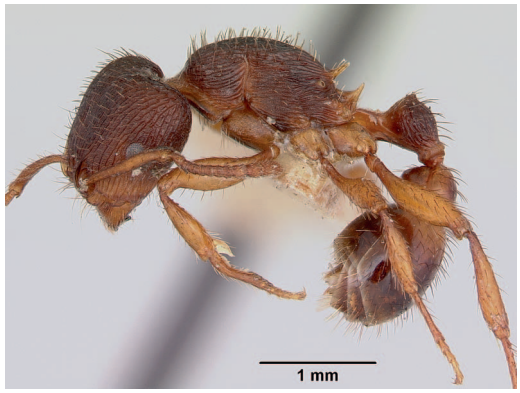
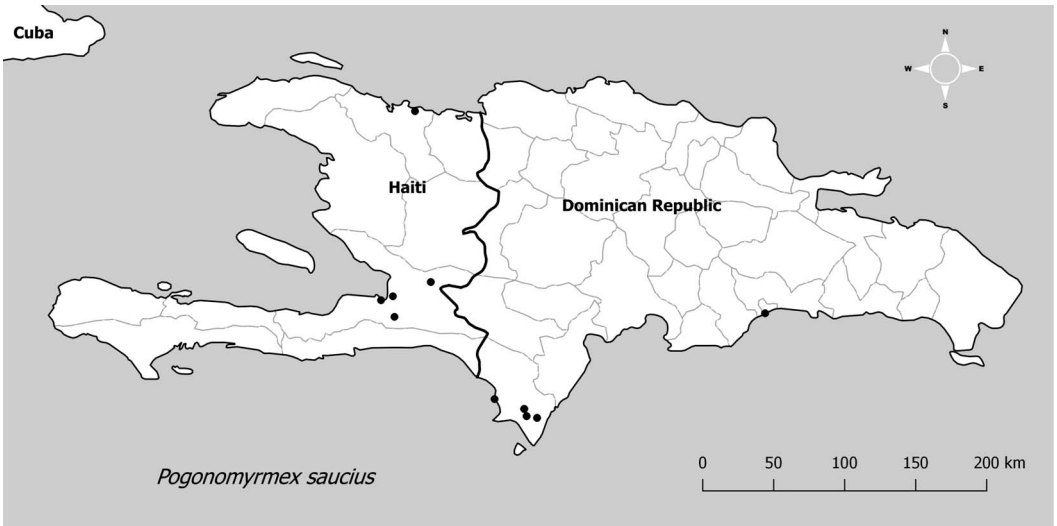


Figure 178. *Pogonomyrmex saucius* worker (CASENT0103399), profile view. Photograph by April Nobile.

Elevation. 20–1,219 m.

This ant is the most well collected and widely distributed Hispaniola *Pogonomyrmex* species. The majority of collections are from low elevations and near the coast, but a few higher elevation records come from the interior of the island. The highest elevations recorded are a 1938 Darlington record with a label stating 3,000–4,000 ft and a 1934 Darlington record reported to be from 2,000 ft. All the remaining records are from 20–404 m. *Pogonomyrmex schmitti* occurs in habitats that vary from open areas to fully shaded forest and from both natural and disturbed sites. Soil nests have been found with or without small craters around their entrances. Nesting chambers have also been found under rocks. Wheeler and Mann (1914) reported that *Pogonomyrmex schmitti* harvest seeds and collect insects.



Map 70. Locality records of the endemic *Pogonomyrmex saucius*. All locations are marked by black circles.

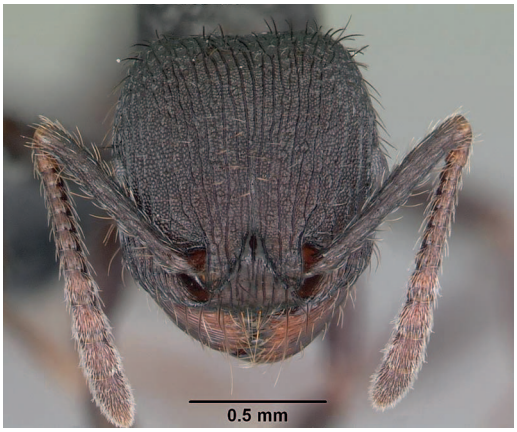


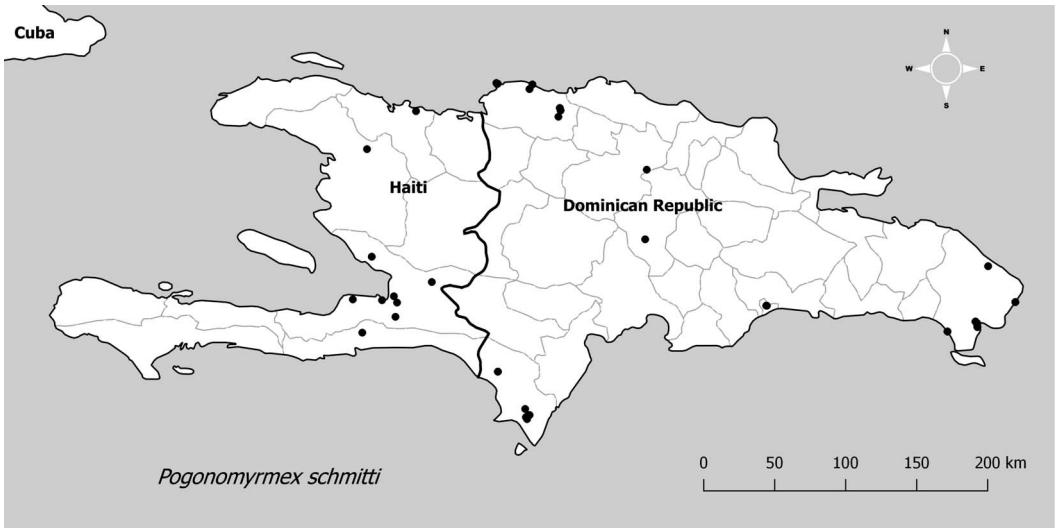
Figure 179. *Pogonomyrmex schmitti* worker (antweb0103066), head view. Photograph by April Nobile.

Figure 180. *Pogonomyrmex schmitti* worker (antweb0103066), profile view. Photograph by April Nobile.

Pogonomyrmex Notes. Johnson and Cover (2015) revised the taxonomy of these species such that *Pogonomyrmex schmitti darlingtoni* Wheeler, 1936, has been synonymized under *P. aterrimus* and *P. schmitti subleavigatus* Wheeler and Mann, 1914, is synonymized under *P. schmitti*. Earlier records of these subspecies are reported here under their respective species names.

Problematic Pogonomyrmex Records.

1. *Pogonomyrmex naegelii* Forel, 1878. Reported as occurring in Haiti (Fernández and Palacio, 1995), the two publications cited to support this occurrence record do not list this species as being found on the island. *Pogonomyrmex naegelii* is not known to occur on Hispaniola.
2. *Pogonomyrmex schmitti*. Reported occurrence records (Johnson and Cover,



Map 71. Locality records of the endemic *Pogonomyrmex schmitti*. All locations are marked by black circles.

Figure 181. *Proceratium longiscapus* queen (MCZ-ENT0035686), head view. Photograph by Patrick McCormack.

Figure 182. *Proceratium longiscapus* queen (MCZ-ENT0035686), profile view. Photograph by Patrick McCormack.

2015) of *P. schmitti* for Centre Department (a Darlington specimen collected from "Port Terre Rouge"), a Santo Domingo Province (Botanical Garden specimens collected by Deyrup and Davis) and Valverde Province (Parque Nacional Monte Cristi) are not included in this current study. For the Centre Province record, as per the discussion of specimens Darlington collected from "Port Terre Rouge" under *Cephalotes hamulus*, this place name is not assigned to a department. For Santo Domingo Province, the Botanical Garden is located in the Distrito Nacional and not Santo Domingo Province. For Valverde Province the geolocations of the specimens place them in Monte Cristo Province.

3. The distribution records given by Olsen (1934) for *Pogonomyrmex saucius* are all incorrect and the records for *P. schmitti* var. *sublaevigatus* (= *P. schmitti*) incorrectly include Diquini and Port-au-Prince.

Proceratium

A diverse (83 species) genus that occurs in most regions of the world. *Proceratium* are putatively uncommon, but this may only be a reflection of their small colony size and their peculiar foraging habitats. It is assumed, on the basis of data from a relatively small number of species, that most *Proceratium* have small colonies of less than or slightly more than 100 workers. Nests are typically found in soil, downed wood, and under stones. A few species have been found to prey on spider eggs (Brown, 1958, 1980).

Proceratium longiscapus de Andrade, 2003
Figures 181, 182. MCZ-ENT00035686, Holotype.

Endemic (Types Only). DR—MN. Map 15.

Elevation. No data.

Known from a single queen collected at a black light trap in Bonao, Dominican Republic.

Proceratium taino de Andrade, 2003
Figures 183, 184. MCZ-ENT00035685, Holotype.

Endemic. DR—LV (type locality). Map 72.

Elevation. 1,100–1,585 m.

A small number of collections have been made of this species, including three that consist of a single specimen. One of these singletons is a queen that was provisionally determined to be *P. taino*. A fourth collection was made from a soil nest. A

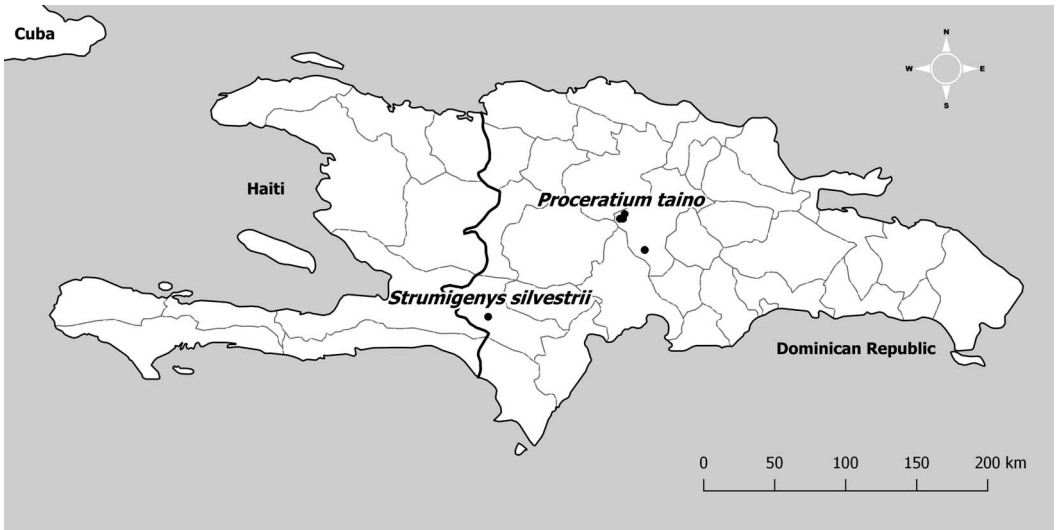
Figure 183. *Proceratium taino* worker (MCZ-ENT00513064), head view. Photograph by Patrick McCormack.

Figure 184. *Proceratium taino* worker (MCZ-ENT00513064), profile view. Photograph by Patrick McCormack.

small chamber was found a few centimeters underground in the litter-covered soil of a shaded secondary moist forest. The colony contained fewer than 20 workers and brood. No queen was found. The nest was only discovered because of the white larvae, which contrasted sharply with the dark soil. Like most *Proceratium*, individuals remain still when disturbed and were difficult to see in the rich, dark soil (Lubertazzi, unpublished field notes). All of the collections of this species are from La Vega Province, Dominican Republic.

Pseudomyrmex

A diverse (146 species) New World genus. *Pseudomyrmex* typically nest in dead hollow twigs or other cavities found in living plants. Some species have developed obligate relationships with the plants they use for their nests (Ward, 1990).



Map 72. Locality records of the endemic *Proceratium taino*, known only from central Dominican Republic, and the single Hispaniola locality of *Strumigenys silvestrii*. All locations are marked by black circles.

Figure 185. *Pseudomyrmex cubaensis* worker (fmnhins0000088650), head view. Photograph by Gracen Brilmyer.

Figure 186. *Pseudomyrmex cubaensis* worker (fmnhins0000088650), profile view. Photograph by Gracen Brilmyer.

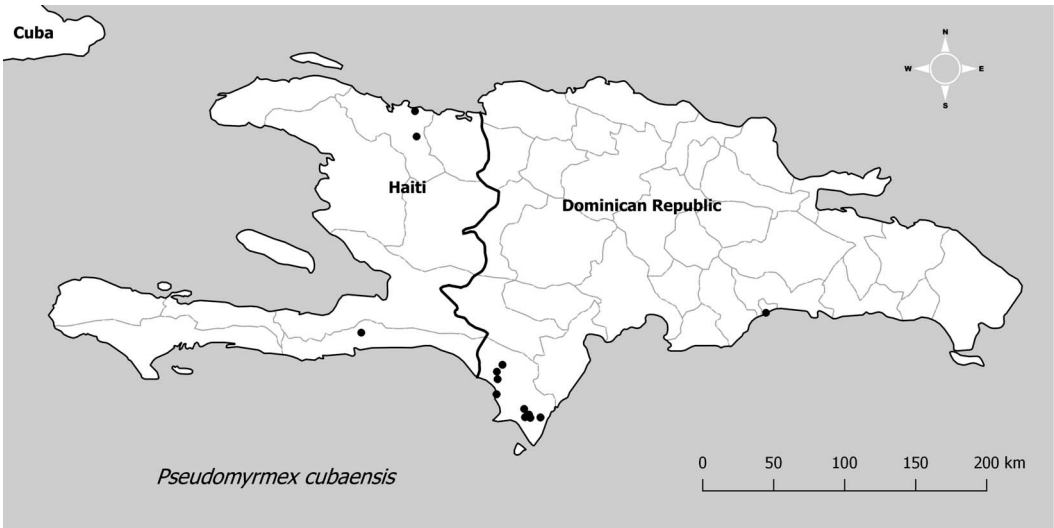
Pseudomyrmex cubaensis (Forel, 1901)
Figures 185, 186. MCZ-ENT00510447.

Caribbean, North, Central, and South America. H—No, SE; DR—DN, Ped. Map 73.

Elevation. 1–800 m.

This species is known to nest in dead stems of plants in littoral habitats (Ward, 1989). Workers have been found on stems and branches of various types of vegetation in Jaragua National Park (Dominican Republic), where this ant is relatively common. Habitat details range from back-beach scrub to dry and transitional forest.

Pseudomyrmex haytianus (Forel, 1901)
Figures 187, 188. MCZ-ENT00023140, Syntype.



Map 73. Hispaniola locality records of *Pseudomyrmex cubaensis*. All locations are marked by black circles.

Figure 187. *Pseudomyrmex haytianus* worker (MCZ-ENT00531345), head view. Photograph by Patrick McCormack.

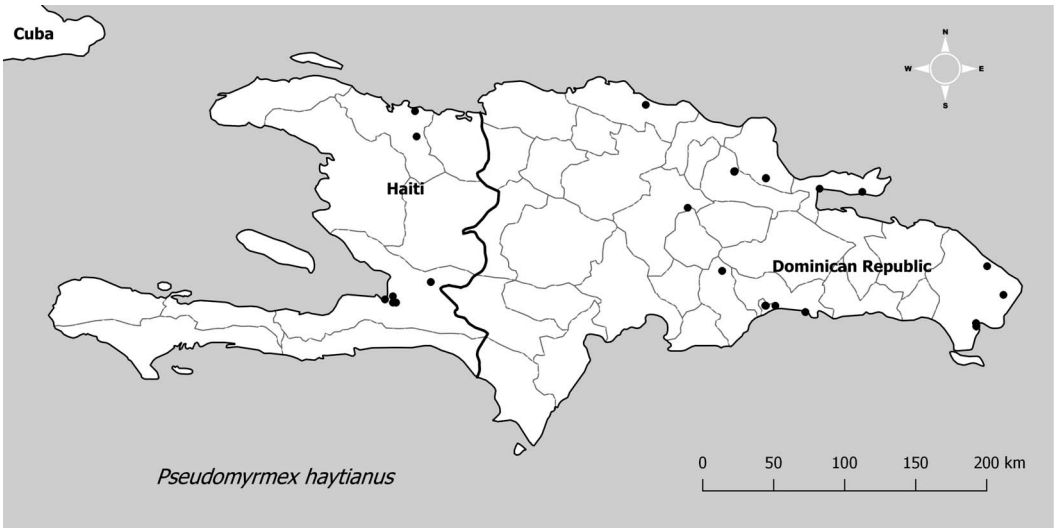
Figure 188. *Pseudomyrmex haytianus* worker (MCZ-ENT00531345), profile view. Photograph by Patrick McCormack.

Endemic. H—unknown department (type locality), No, Ou; DR—DN, Du, LA, MTS, MN, Sam, SC, SD, PP. Map 74.

Elevation. 10–700 m.

A widespread endemic species. Habitats listed with specimen records include tropical moist forest, dry forest, and disturbed areas (i.e., a coffee plantation and the Botanical Garden in Santo Domingo). The ants were noted as being taken from the side of a tree and in a dead twig. *Pseudomyrmex haytianus* has been found by many collectors across many eras, from Rev. Schmitt in the 1800s (Forel, 1901b) through to the present by Lubertazzi and Prebus in 2015. These records show *P. haytianus* is a common, abundant species that can live in a wide range of habitats.

Pseudomyrmex simplex (Smith, 1877)
Figures 189, 190. MCZ-ENT00512086.



Map 74. Locality records of the endemic *Pseudomyrmex haytianus*. All locations are marked by black circles.

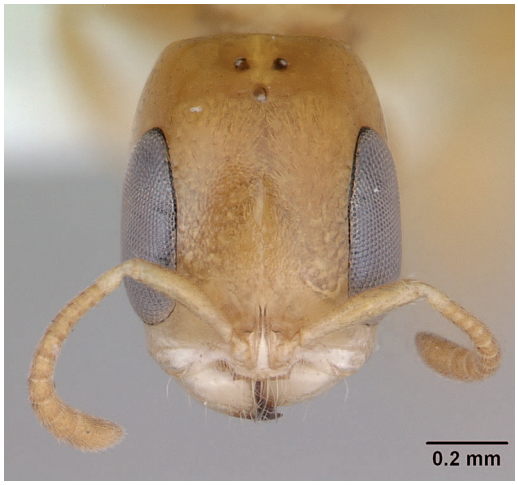


Figure 189. *Pseudomyrmex simplex* worker (CASENT0173776), head view. Photograph by April Nobile.

Figure 190. *Pseudomyrmex simplex* worker (CASENT0173776), profile view. Photograph by April Nobile.

Caribbean, North, Central, and South America. H—No, Ou; DR—DN, Esp, LV, MC, Ped. Map 75.

Elevation. 50–1,020 m.

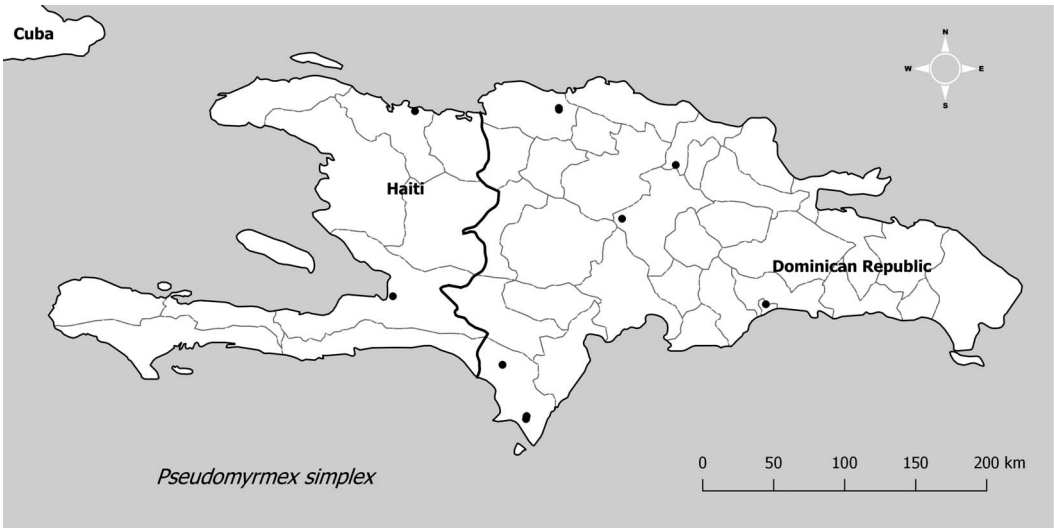
Ward (1985) found that this species prefers nesting in dead twigs of shrubs and trees and that colonies can be polydomous. The majority of Hispaniola *P. simplex* records are on or adjacent to the coast. Specimen labels note habitats from scrub to forest, with the ants being collected from vegetation and in dead twigs.

Pseudomyrmex subater (Wheeler and Mann, 1914)

Figures 191, 192. MCZ-ENT00521517.

Caribbean, Central America. H—Ou (type locality); DR—MTS, Ped. Map 76.

Elevation. 190–404 m.



Map 75. Hispaniola locality records of *Pseudomyrmex simplex*. All locations are marked by black circles.

Figure 191. *Pseudomyrmex subater* worker (CASENT0173777), head view. Photograph by April Nobile.

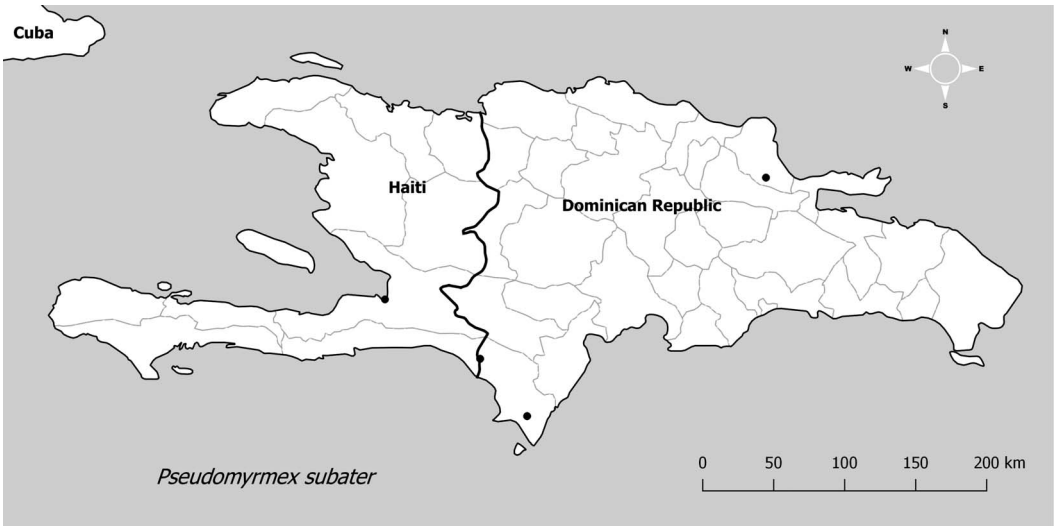
Figure 192. *Pseudomyrmex subater* worker (CASENT0173777), profile view. Photograph by April Nobile.

Wheeler and Mann (1914) described this species from workers collected from bamboo stems in Haiti. Subsequent collections have all been from forested sites in the Dominican Republic.

Pseudomyrmex Notes. One *Pseudomyrmex* species (e.g., MCZ-ENT00510451) from Pedernales Province in the Dominican Republic cannot be placed to a named species. There are six collections of this ant. Some were found nesting in dead twigs on living vegetation. Ward collected a second undetermined species in Pedernales Province (MCZ-ENT00594059, MCZ-ENT00594060).

Problematic Pseudomyrmex Records.

1. *Pseudomyrmex acanthobius delicatulus* Forel, 1899. Kempf (1972) lists this species as occurring on the island. This name is a synonym of *P. simplex*.



Map 76. Hispaniola locality records of *Pseudomyrmex subater*. All locations are marked by black circles.

Figure 193. *Pseudoponera stigma* worker (CASENT0249159), head view. Photograph by Ryan Perry.

Figure 194. *Pseudoponera stigma* worker (CASENT0249159), profile view. Photograph by Ryan Perry.

2. *Pseudomrymex flavidulus* (Smith, F., 1858). Perez-Gelabert (2008) listed this species based on a record of *Pseudomyrma flavidula* F. Smith var. *delicatula* Forel 1899 from Wheeler and Mann (1914). This variety is a synonym of *P. simplex*.
3. *Pseudomyrmex prioris* Ward, 1992. Perez-Gelabert (2008) listed this ant as an extant species. *Pseudomyrmex prioris* is a fossil species.
4. *Pseudomyrmex gracilis* (Fabricius, 1804). Ward (1992) included this ant in a table of *Pseudomyrmex* species distributions. No information is given as to the source of a record substantiating the listing of this species as being present on Hispaniola. *Pseudomyrmex gracilis* is not known to occur on the island and it is not included in the species list.

Pseudoponera

A small genus (six species) distributed in tropical regions of the Americas and from China south to Australia (Schmidt and Shattuck, 2014). All the species have small workers and cryptobiotic habitats and are believed to be generalist predators and scavengers.

Pseudoponera stigma (Fabricius, 1804) Figures 193, 194. MCZ-ENT00531182.

Caribbean, North, Central, and South America, Southeast Asia to Australia. H—Ar, GA, No, Ou; DR—Du, Esp, LA, LV, MTS, San. Map 77.

Elevation. 275–1,813 m.

The most widely distributed and best known species in the genus. *Pseudoponera stigma* has putatively been spread from the New World to the Old World (Wetterer, 2012c). It occurs in various forest types and other habitats that vary from disturbed to naturally occurring areas (Mackay and Mackay, 2010), typically nesting in shady conditions. *Pseudoponera stigma* has been found in a number of habitats in Hispaniola and has been collected from dead wood and litter.

Pseudoponera succedanea (Roger, 1863) Figures 195, 196. MCZ-ENT00521268.

Caribbean and South America. H—GA, Ou; DR—Bar, Du, LV, MN, Ped, SC. Map 78.

Elevation. 400–2,134 m.

Similar in appearance to *P. stigma*, *P. succedanea* is often misidentified as the latter species. Hispaniola specimens suggest this ant is quite flexible in its ecological

Map 77. Hispaniola locality records of *Pseudoponera stigma*. All locations are marked by black circles.

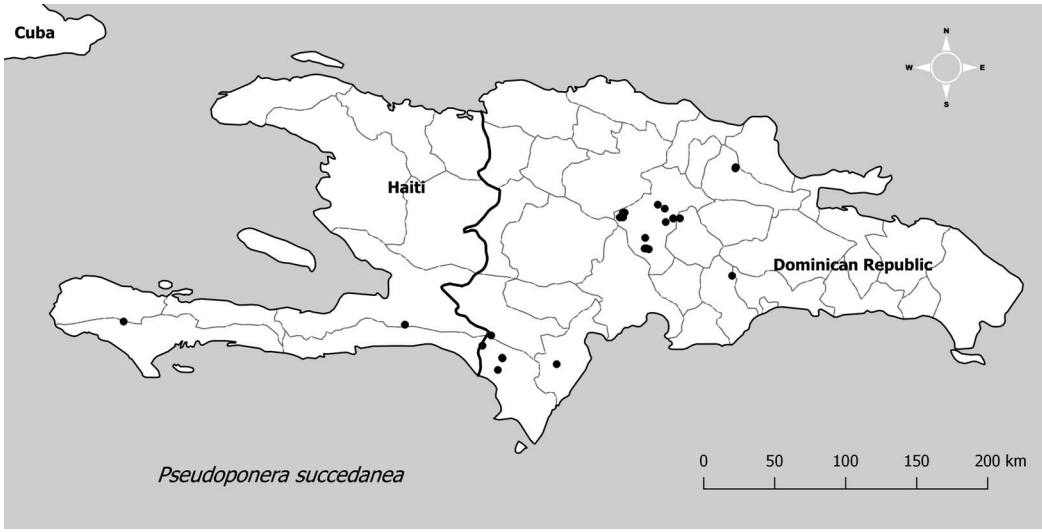
requirements. This ant has been collected from litter samples and in and under dead wood at ground level. In Pedernales Province it has been found in low-elevation dry forest, mid-elevation moist forest, and higher elevation pine forest.

Problematic Pseudoponera Records.

1. *Pseudoponera gilberti* (Kempf, 1960). Mackay and Mackay (2010) determined a single *Pseudoponera* specimen from the island was *P. gilberti* (MCZ-ENT00521578). Darlington collected this ant from the "NE foothills La Hotte" (SW Haiti) in 1934. Another pin with two workers also shares this same collection information. It is identified as *P. succendanea* with a determination label "Det. W. Mackay." Many more specimens of Hispaniola *Pseudoponera* are now in the MCZ than were available to Mackay and Mackay for their revision.

Figure 195. *Pseudoponera succedanea* worker (CASENT0249134), head view. Photograph by Ryan Perry.

Figure 196. *Pseudoponera succedanea* worker (CASENT0249134), profile view. Photograph by Ryan Perry.



Map 78. Hispaniola locality records of *Pseudoponera succedanea*. All locations are marked by black circles.

The *P. gilberti* specimen falls within the range of variability for observed *P. succendanea* specimens from the island (>100 specimens in the MCZ). This specimen is thus determined to be *P. succendanea*.

2. *Pseudoponera stigma*. Wheeler (1936) reports a Darlington specimen of *Euponera stigma* from La Viste in Haiti occurring at 5,000–7,000 ft. This same record appears to have been carried forward into this species' distribution records in Mackay and Mackay (2010). No *P. stigma* specimens in the MCZ match this locality, but there are Darlington specimens of *P. succedanea* from "La Visite & vic La Selle Range." This record is not included with the records for *P. stigma*. Also, numerous occurrence records (2 km N of Polo, Casibito Forest, Constanza, Villa Altagracia) are listed by Mackay and Mackay (2010) for this species with the same details as *P. succedanea* records. No *Psuedoponera* specimens are in the MCZ from 2 km N of Polo. *P. succedanea* has been collected from west of Polo in the southwestern Dominican Republic but not *P. stigma*. For the other three localities, there are *P. succedanea* specimens in the MCZ but no specimens of *P. stigma*. All four of these Mackay and Mackay locality records are not included with the *P. stigma* distribution summarized above.

Rogeria

Little is known about most species in this moderately diverse genus (40 species). The small-bodied, cryptic *Rogeria* (Figs. 197, 198) are primarily New World ants of the Neotropics. A few species also occur in Southeast Asia and the southern Pacific. *Rogeria* specimens are most often sampled as one or two workers found in leaf litter or rotten wood. Nest collections are rare. A generic revision by Kugler (1994) included the evaluation of what was a small number of known *Rogeria* specimens from Hispaniola. All were determined to be named species known from other places. Despite this, Kugler commented about the morphological variance of most *Rogeria* specimens from Hispaniola and how they differed from the typical form of their respective species. *Rogeria brunnea*, for example, is said to be

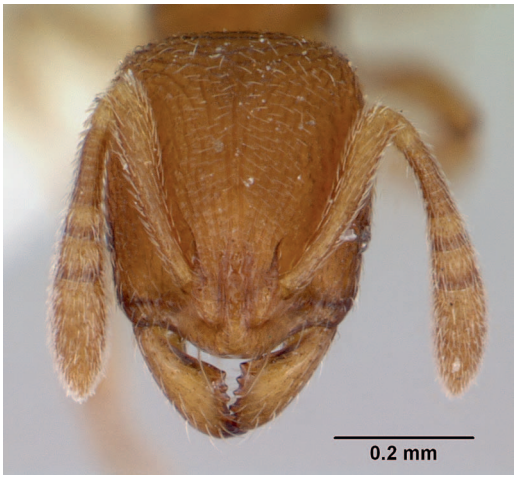


Figure 197. *Rogeria curvipubens* worker (CASENT0173282), head view. Photograph by April Nobile.

Figure 198. *Rogeria curvipubens* worker (CASENT0173282), profile view. Photograph by April Nobile.

(Kugler 1994: 49) "more distinct in Dominican Republic ... specimens from Dominican Republic differ from the rest," and for *R. alzatei* (p. 53), "specimens from Dominican Republic strongly resemble *creightoni*." Kugler appears to have made the best of a bad situation with the Hispaniola material he examined (i.e., few specimens and some relatively unusual forms). The ants were assigned to the named species they could most reasonably be associated with, and their distinctiveness was duly noted in the specific species treatments.

There are currently more than 40 pins of *Rogeria* from Hispaniola in the MCZ. The sum of the collecting details shows that most specimens have been found in ground litter or from under/in objects on the ground. Kugler's published comments about differences between the described forms and identified material in the MCZ, and an inability to unambiguously identify newly collected material to species using Kugler's key and revision shows this is a taxonomically problematic genus in Hispaniola. The currently identified material has been left as is and no additional determinations have been made. New material is being accumulated to inform any future taxonomic study of the island's *Rogeria*.

Based on data in Kugler (1994) and determined material present in the MCZ, four species are provisionally listed in this study as occurring on the island. The species names listed below are given with their known ranges, both beyond the island and within administrative divisions where they have been reported in Hispaniola (Map 79).

Rogeria alzatei Kugler, 1994. Caribbean, Panama to northern South America. DR—Ped.

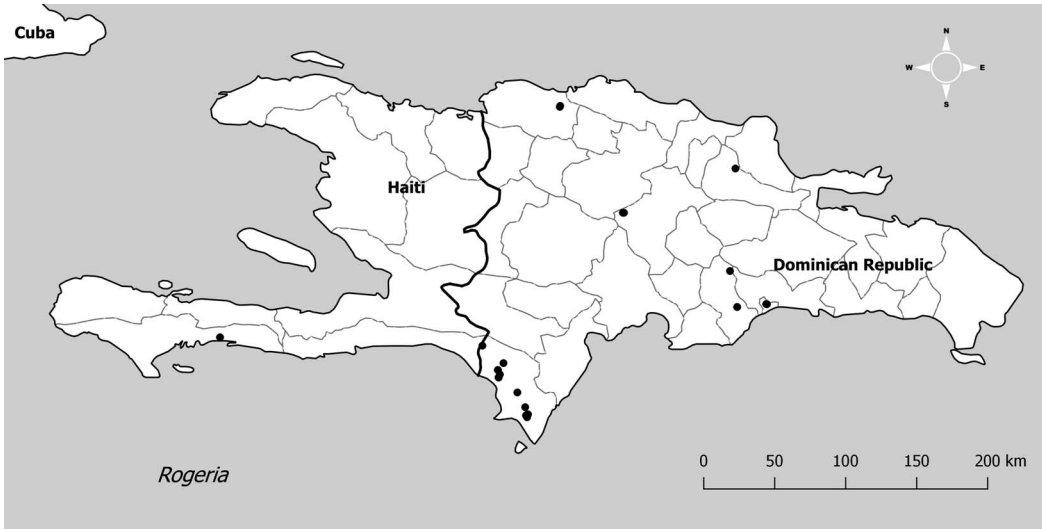
Rogeria brunnea Santschi, 1930. Caribbean. DR—DN, Ped.

Rogeria curvipubens Emery, 1894. Caribbean, Central and South America. H—Su; DR—MC, Ped.

Rogeria leptonana Kugler, 1994. Caribbean, Central America to Columbia. DR—Ped, SC.

Solenopsis

Solenopsis is a diverse genus (216 species) found throughout the world. All species can be assigned to one of two groups based on their size, i.e., polymorphic species with a range of small to medium-sized workers versus species that are mostly monomorphic and have diminutive workers (Trager, 1991). The former are commonly



Map 79. Locality records of *Rogeria*. These records represent specimens determined as *R. alzatei*, *R. brunnea*, *R. curvipubens*, *R. leptonana*, and those not determined to species. All locations are marked by black circles.

referred to as fire ants. Species in this group have aggressive workers, form large colonies, recruit to and defend food finds, and have a workforce that exhibits continuous polymorphism (Trager, 1991). The latter are predominately subterranean species with very small workers. Informally known as thief ants (Pacheco and Mackay, 2013), these *Solenopsis* mostly nest in the soil, but nest chambers may also be found under objects on the ground or extending from the ground into downed wood. Some species exhibit worker polymorphism, but the size differences between large and small workers is much reduced relative to that exhibited by fire ants. Thief ants often live in close association with other ant species, presumably benefiting from their proximity either through stealing food from or foraging on discarded waste materials of their associates. Both groups of *Solenopsis* species have a long history of taxonomic problems.

One fire ant, *Solenopsis geminata*, and numerous thief ant species are present on Hispaniola. Most small *Solenopsis* from the island cannot be reliably identified to species. A recently published revision of the New World thief ants (Pacheco and Mackay 2013) was impeded by the small number of *Solenopsis* specimens from the island. Numerous questions remain regarding the taxonomy of thief ants of Hispaniola. Newly collected specimens, including nest series with sexual castes, are accumulating in the MCZ and can inform future taxonomic research.

The list of names given below and their distributions include published occurrence data, Pacheco and Mackay (2013) records, and determined specimens present in the MCZ. Except for the distinctive *S. geminata* and *S. globularia*, the remainder of the names assigned to existing species should be treated tentatively. These include literature records that cannot be verified and the bulk of the previously existing pinned material in the MCZ. Older specimens of the latter largely consist of tiny ants that are badly mounted or damaged, which in turn has obscured characters needed for species determinations.

Figure 199. *Solenopsis geminata* major (CASENT0102966), head view. Photograph by April Nobile.

Figure 200. *Solenopsis geminata* major (CASENT0102966), profile view. Photograph by April Nobile.

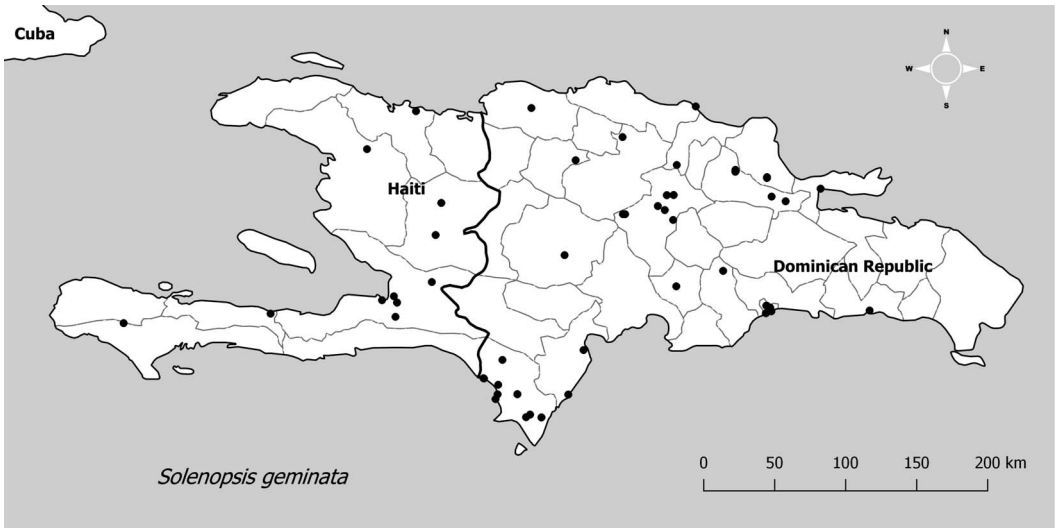
Solenopsis geminata (Fabricius, 1804)
Figures 199, 200. MCZ-ENT00510493.

Widespread Throughout the World. H—Ar, Ce, GA, Ni, NO, Ou; DR—Bar, Esp, DN, Du, LV, MC, MTS, Ped, PP, Sam, SaRo, SC, SJ, SJO, SPM. Map 80.

Elevation. 1–1,320 m.

A Neotropical species that has been spread to other tropical and subtropical regions (Wetterer, 2011b). There is some disagreement regarding the native status of *S. geminata* in the Caribbean region (Wetterer, 2011b). In this study, this ant is treated as a native species in Hispaniola, but no new evidence is presented to support this contention.

Solenopsis geminata is one of two *Solenopsis* species from Hispaniola that can be readily identified. It is the only Hispaniola species in the genus with large polymorphic



Map 80. Hispaniola locality records of *Solenopsis geminata*. All locations are marked by black circles.

Figure 201. *Solenopsis globularia* worker (FMNHINS0000078524), head view. Photograph by Gracen Brilmyer.

workers and large nests. *Solenopsis geminata* occurs in a variety of habitats but generally does not occur in densely forested or other heavily shaded areas. These ants nest in the soil and are noticeable because of a conspicuous mound or diffuse piles of soil found around their nest entrances. Nest chambers are made in the ground but can also extend into downed wood or be in and under other objects at ground level.

Solenopsis geminata have been found in many locations in Haiti and the Dominican Republic, as is to be expected from a species that is well known for both its invasive ways and ability to thrive in anthropogenic habitats.

Solenopsis globularia (Smith, 1858)
Figures 201, 202. MCZ-ENT00510510.

Caribbean, North, Central, and South America. H—Ou; DR—Esp, LA, MC, Ped. Map 81.

Figure 202. *Solenopsis globularia* worker (FMNHINS0000078524), profile view. Photograph by Gracen Brilmyer.

Elevation. 30–195 m.

Relatively common throughout the Caribbean, most collection records of this species are from areas on or near the coast. *Solenopsis globularia* can be found in both natural and disturbed areas (Pacheco and Mackay, 2013). Their foragers have a greater tendency to be collected than other small *Solenopsis* species because of two traits: the ants are active above ground and readily recruit to baits. *Solenopsis globularia* has an enlarged bulbous postpetiole, a unique feature for small *Solenopsis* on the island, and this allows this ant to be the only readily identifiable Hispaniola thief ant.

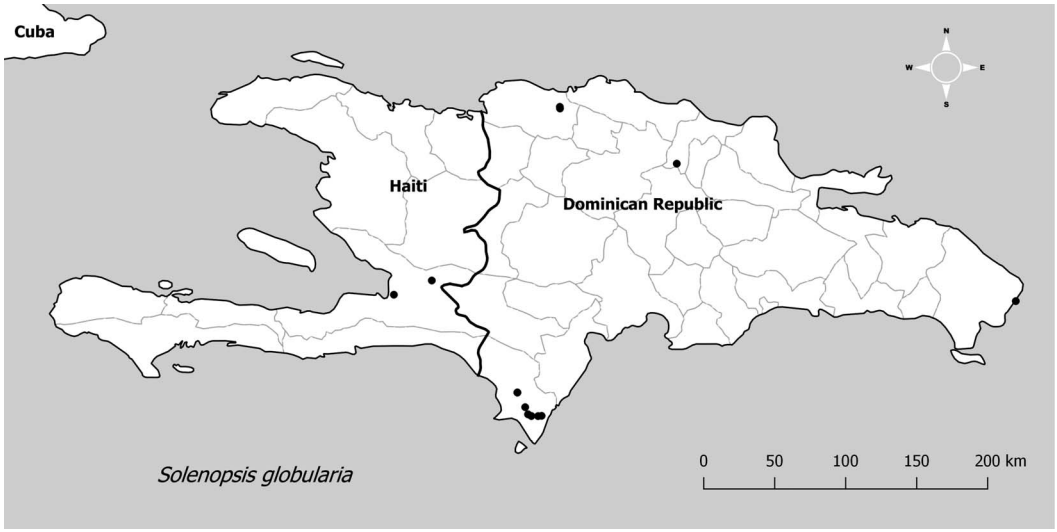
Solenopsis globularia is known from a few Hispaniola collections, most from near the coast. In other parts of its range this species has been found under rocks, in driftwood, and in rotten logs. In the Dominican Republic it has been found nesting in soil, with a cryptic nest entrance, and has been collected via litter sampling.

Solenopsis pollux Forel, 1893
MCZ-ENT00510478.

Caribbean, Central and South America. H—No, Ou; DR—Bar, MC, Ped. Map 82.

Elevation. 74–700 m.

A forest species that has been found in leaf litter and under stones. MCZ specimens



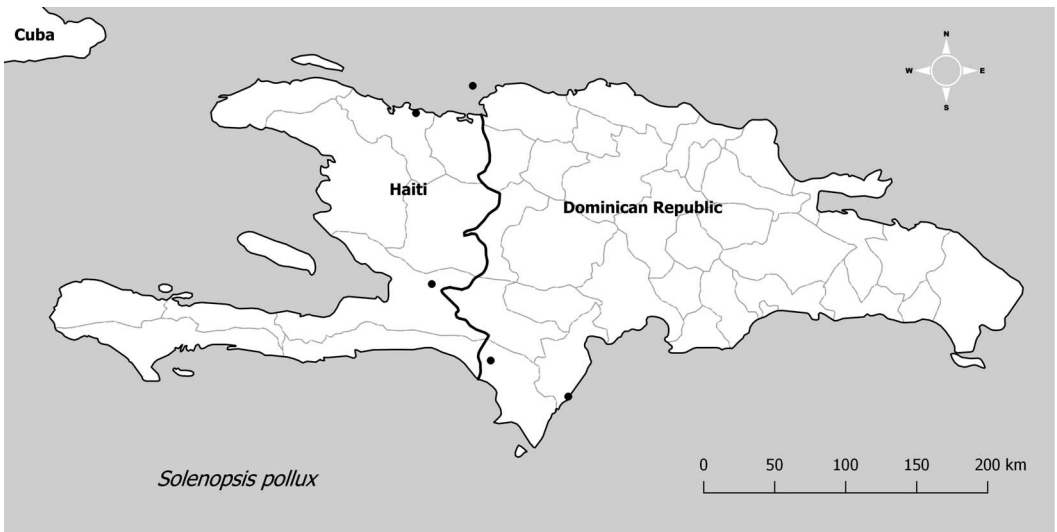
Map 81. Hispaniola locality records of *Solenopsis globularia*. All locations are marked by black circles.

collected from Pedernales Province were found in soil adjacent to a stump and under a piece of downed wood. Menozzi and Russo (1930) list an occurrence record for this species that cannot be placed to a province.

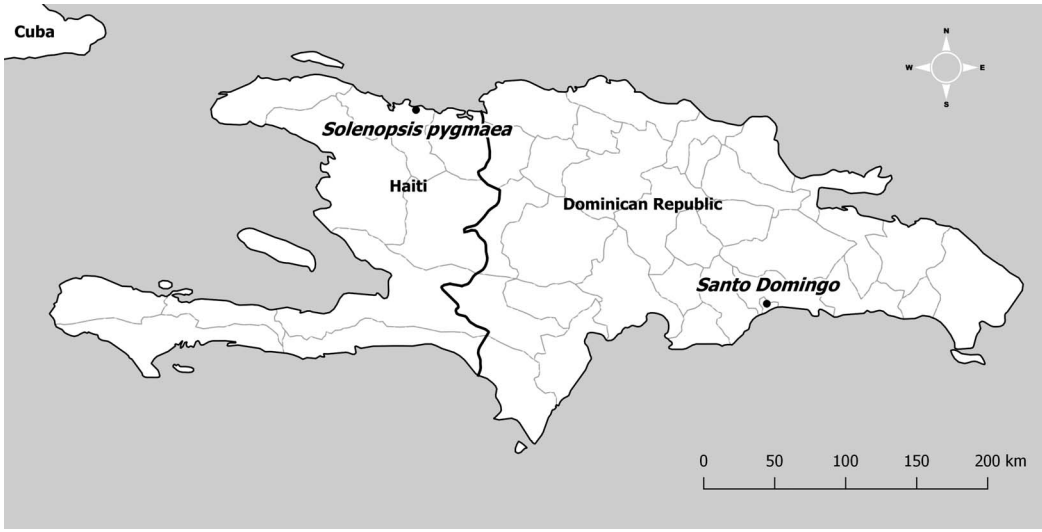
Solenopsis pygmaea Forel, 1901
MCZ-ENT00519757.

Caribbean, Americas—Texas to Columbia. H—No. Map 83.

Elevation. No data.



Map 82. Hispaniola locality records of *Solenopsis pollux*. All locations are marked by black circles. The northern point located beyond the coastline represents a record from a small Dominican Republic island that is not rendered on the map. All locations are marked by black circles.



Map 83. The Ione Hispaniola locality of *Solenopsis pygmaea* (Haiti). The Santo Domingo locality represents the only Hispaniola record of the introduced species *Strumigenys membranifera*, *Tetramorium lanuginosa*, and *Tetramorium lucayanum*.

Wheeler and Mann (1914) listed a *Solenopsis pollux* collection from Cape Haitien, a specimen of which was later determined to be *S. pygmaea* by Pacheco and Mackay (2013). This is the island's sole occurrence record for *S. pygmaea*.

Solenopsis succinea Emery, 1890
MCZ-ENT00020932.

Caribbean, Central and South America. H—No, Ou. Map 34.

Elevation. No data.

Creighton (1930: 142) reported this species "nests in rotting logs in upland forests and the workers have been taken on decaying fruit." The only Hispaniola records are from Mann's Haiti sampling (reported under the synonymized name *S. inermiceps*).

Solenopsis terricola Forel, 1901
MCZ-ENT00510488.

Caribbean and Central America. DR—Ped. Map 38.

Elevation. 126 m.

In Central America this species occurs from dry to wet forest habitats at higher elevations (600–4,000 m). The single Hispaniola collection is from Jaragua National Park (Dominican Republic).

Strumigenys

A large genus (837 species) that ranges from tropical to temperate areas (Bolton, 2000; Baroni Urbani and De Andrade, 2007). These diminutive ants are specialized predators of small arthropods. Their strangely shaped heads, odd mandibles, unusually arranged setae, and the presence of spongiform tissue around their petiole and postpetiole all contribute to their fascinating appearance. Nests are typically found in the litter or associated with some covering object (e.g., under bark or downed wood). Individual foragers stalk prey using trap-jaw mandibles in a manner similar to *Odontomachus* and *Anochetus*. Colony size can be small (<100) to moderate (>1,000).

Figure 203. *Strumigenys eggersi* worker (FMNHINS0000078511), head view. Photograph by Gracen Brilmyer.

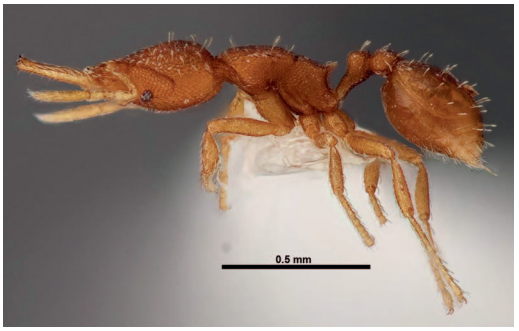


Figure 204. *Strumigenys eggersi* worker (FMNHINS0000078511), profile view. Photograph by Gracen Brilmyer.

Strumigenys eggersi Emery, 1890
Figures 203, 204. MCZ-ENT00531360.

Caribbean, North, Central, and South America. H—Ou; DR—Du, SC, LA, MTS, Sam. Map 84.

Elevation. 200 m.

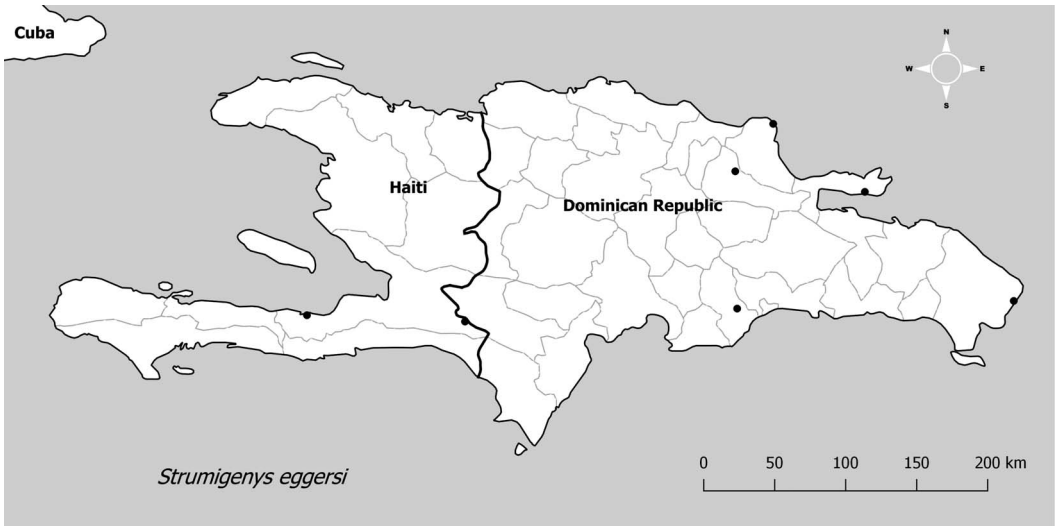
Relatively tolerant of dry conditions, *Strumigenys eggersi* has a penchant for disturbed areas. There are only a few Hispaniola collections. The only associated collection data states the ants were taken from litter samples in semi-evergreen forest.

Strumigenys emmae (Emery, 1890)
Figures 205, 206. MCZ-ENT00653147.

Pantropical. DR—In, SC. Map 44.

Elevation. 200 m.

A widespread tramp that is native to the Australian region (Wetterer, 2012d). *Strumigenys emmae* is typically found in dry forests, mesic forests, and planted areas



Map 84. Hispaniola locality records of *Strumigenys eggersi*. All locations are marked by black circles.

Figure 205. *Strumigenys emmae* worker (FMNHINS0000078526), head view. Photograph by Gracen Brilmyer.

around buildings. Deyrup (1997) notes this species can be found in dry litter and this may enhance its ability to live in disturbed areas. Two colonies found in Florida were small (14 and 42 workers) and found in acorns (Deyrup and Deyrup, 1999). The two Hispaniola records are from forest habitats.

Strumigenys gundlachi (Roger, 1862)
Figures 207, 208. MCZ-ENT00510523.

Caribbean, North, Central, and South America. DR—LV, MTS, Ped. Map 85.

Elevation. 85–1,190 m.

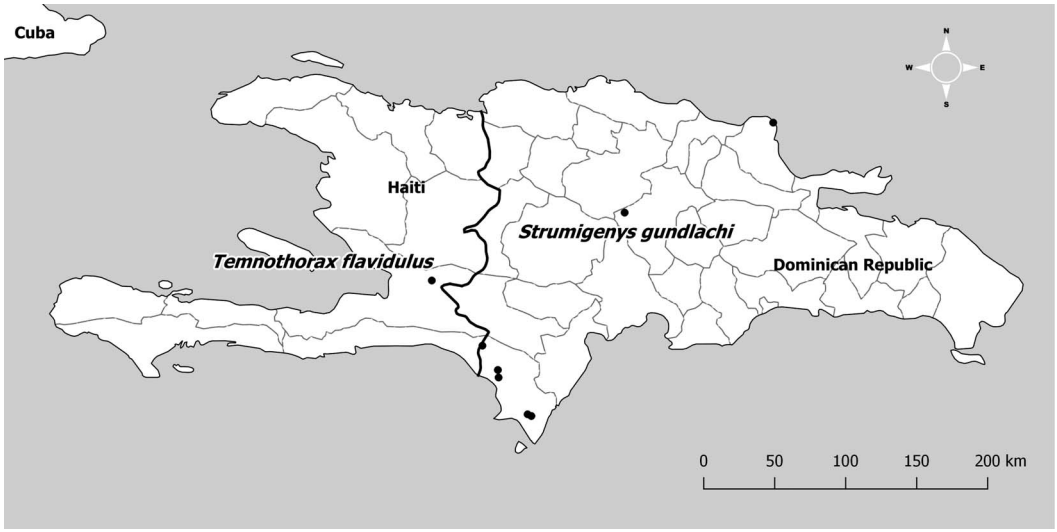
Figure 206. *Strumigenys emmae* worker (FMNHINS0000078526), profile view. Photograph by Gracen Brilmyer.

Figure 207. *Strumigenys gundlachi* worker (CASENT0103867), head view. Photograph by April Nobile.

Known to be abundant in some parts of its range (Brown, 1959), this ant occurs in forest habitats and cacao plantations. *Strumigenys gundlachi* collections in Hispaniola are from a number of different forest types and were found in litter and sifted-wood/soil gathered at the base of a tree stump.

Strumigenys lanuginosa Wheeler, 1905
Figures 209, 210. CASENT0220447.

Figure 208. *Strumigenys gundlachi* worker (CASENT0103867), profile view. Photograph by April Nobile.



Map 85. Hispaniola locality records of *Strumigenys gundlachi*, all from the Dominican Republic, and the type locality and only collection of the endemic *Temnothorax flavidulus*. All locations are marked by black circles.

Caribbean, North, Central, and South America. DR—HM. Map 57.

Elevation. No data.

This ant is known to occur in wet and dry forest habitats, nesting in dead wood on the ground. The collection of the sole Hispaniola specimen of this species was from a moist forest.

Strumigenys louisianae Roger, 1863
Figures 211, 212. MCZ- ENT00513091.

Figure 209. *Strumigenys lanuginosa* worker (CASENT0104517), head view. Photograph by April Nobile.

Figure 210. *Strumigenys lanuginosa* worker (CASENT0104517), profile view. Photograph by April Nobile.

Figure 211. *Strumigenys louisianae* worker (ANTWEB1038234), head view. Photograph by Will Ericson.

Figure 212. *Strumigenys louisianae* worker (ANTWEB1038234), profile view. Photograph by Will Ericson.

Caribbean, North, Central, and South America. H—No, Ou; DR—DN. Map 86.

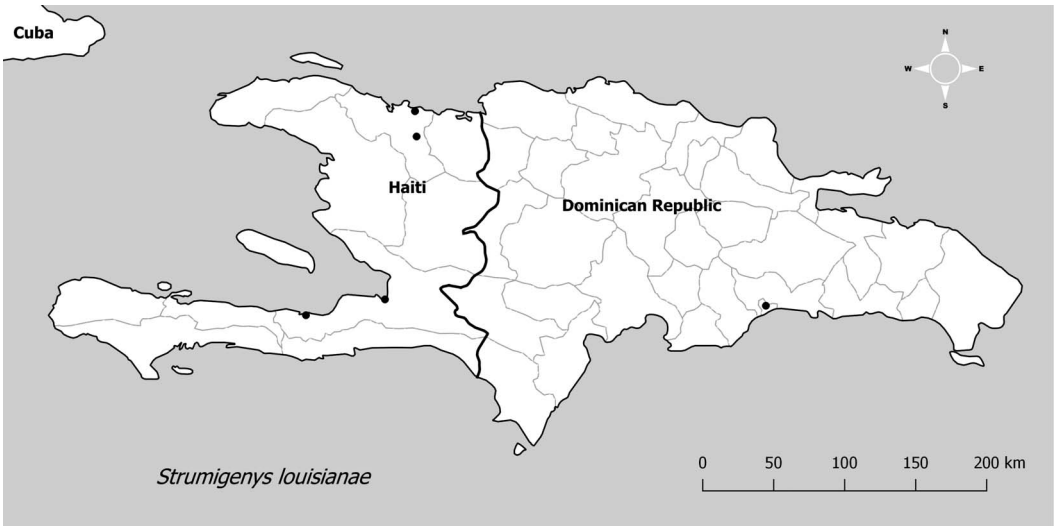
Elevation. No data.

Strumigenys louisianae is one of the more commonly encountered *Strumigenys* species in the New World (Wilson, 1953). Deyrup (1997: 4) noted: "Nests are often in rotten wood, colonies were found in Nassau in a pile of rotting coconut husks. Although Brown (1962) found this species tolerant of relatively dry conditions, I have usually found it in mesic forest, swamp forest, or even the edge of salt marshes." This ant is known from a few locations in Hispaniola, but all the records lack any ecological information.

Strumigenys membranifera Emery, 1869
Figures 213, 214. MCZ-ENT00653104.

Pantropical. DR—DN. Map 83.

Elevation. No data.



Map 86. Hispaniola locality records of *Strumigenys louisianae*. All locations are marked by black circles.

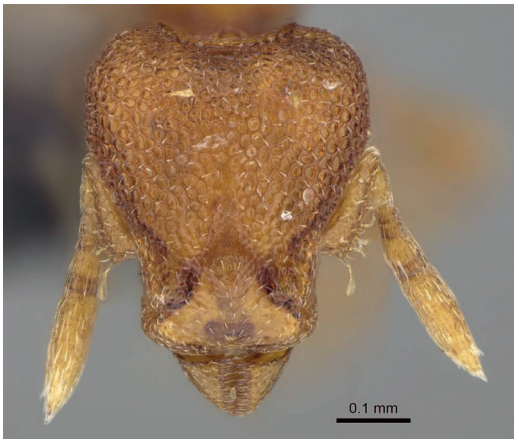


Figure 213. *Strumigenys membranifera* worker (CASENT0023769), head view. Photograph by Michele Esposito.

Strumigenys membranifera is an Old World species but its native range has not been resolved in any greater detail. This species has been spread throughout the tropical and subtropical areas of the world. *Strumigenys membranifera* can be found in a broad range of habitats and a variety of nest situations at ground level in the soil (Wilson, 1953; Wetterer, 2011c). The lone Hispaniola record of this species is from the Botanical Garden in Santo Domingo.

Figure 214. *Strumigenys membranifera* worker (CASENT0023769), profile view. Photograph by Michele Esposito.

Figure 215. *Strumigenys nigrescens* worker (CASENT0281985), head view. Photograph by Shannon Hartman.

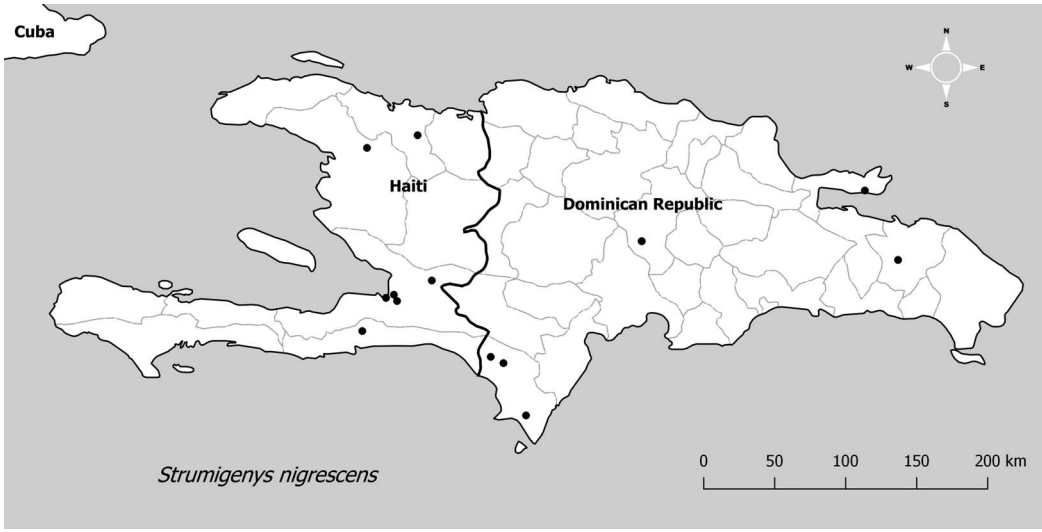
Strumigenys nigrescens Wheeler, 1911
Figures 215, 216. MCZ-ENT00510526.

Caribbean, North, Central, and South America. H—Ar, No, Ou, SE; DR—ES, LV, Ped, Sam. Map 87.

Elevation. 160–1,300 m.

A common *Strumigenys* in the Greater Antilles (Brown, 1953). A colony of *S. nigrescens* from Jaragua National Park (Dominican Republic) was found nesting

Figure 216. Strumigenys *nigrescens* worker (CASENT0281985), profile view. Photograph by Shannon Hartman.



Map 87. Hispaniola locality records of *Strumigenys nigrescens*. All locations are marked by black circles.

in the rotting wood and litter of a hollowed-out depression of a large downed tree trunk. Other collections from the island were noted as being found under a rock, fitting well with Brown's (1953: 98) observations of this species in Cuba: "A very common ant . . . occurring in all sort of habitats. It is known from one end of the island to the other in agricultural as well as wilder districts. Many of the reported colonies were found nesting under stones."

Strumigenys rogeri Emery, 1890
Figures 217, 218. MCZ-ENT00521525.

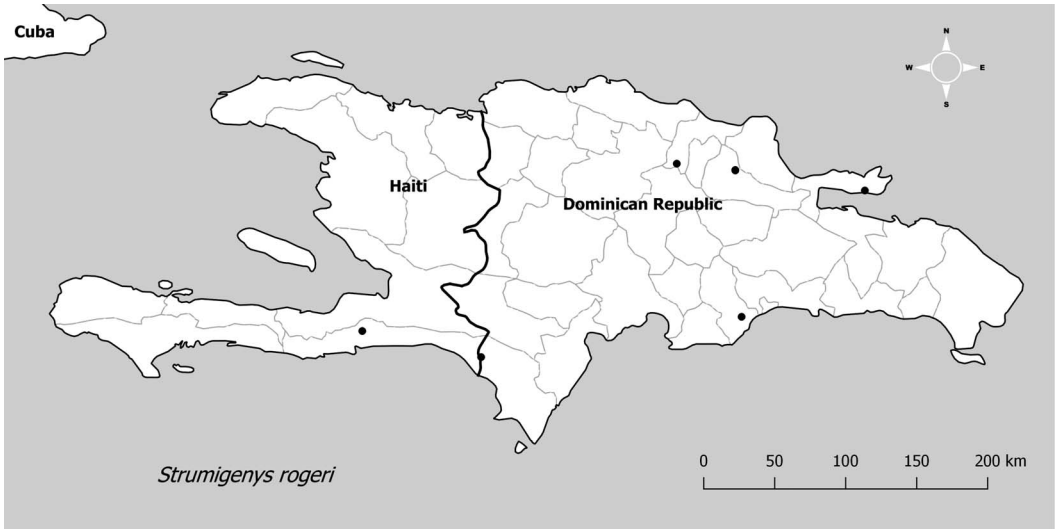
Pantropical. H—SE; DR—Du, Esp, Ped, Sam, SC. Map 88.

Elevation. 268–280 m.

Native to tropical Africa, this species has been spread unevenly to numerous tropical areas, including now being common on many Caribbean islands (Wetterer, 2012e). *Strumigenys rogeri* is a ground-nesting

Figure 217. *Strumigenys rogeri* worker (CASENT0158880), head view. Photograph by Erin Prado.

Figure 218. *Strumigenys rogeri* worker (CASENT0158880), profile view. Photograph by Erin Prado.



Map 88. Hispaniola locality records of the introduced *Strumigenys rogeri*. All locations are marked by black circles.

species that nests in and under downed wood. One Hispaniola collection from a riverine forest is consistent with its known preference for mesic nesting sites. Details from other island collections note specimens being found in litter samples and a downed stick.

Figure 219. *Strumigenys silvestrii* worker (FMNHINS0000078527), head view. Photograph by Gracen Brilmyer.

Strumigenys silvestrii Emery, 1906
Figures 219, 220. CASENT0220448.

Caribbean, North, Central, and South America, Madeira Island, Mainland Portugal, and Macau. DR—In. Map 72.

Elevation. 47 m.

A South American species that has been spreading northward and is now found in Florida (MacGown et al., 2012). *Strumigenys silvestrii* is typically collected in forest litter samples (Deyrup et al. 2000). The lone Hispaniola record is from a litter sample.

Figure 220. *Strumigenys silvestrii* worker (FMNHINS0000078527), profile view. Photograph by Gracen Brilmyer.

Figure 221. *Syscia* worker (MCZ-ENT00523986), head view. Photograph by Patrick McCormack.

Figure 222. *Syscia* worker (MCZ-ENT00523986), profile view. Photograph by Patrick McCormack.

Strumigenys Notes. All of the named *Strumigenys* present on Hispaniola are commonly collected representatives of the genus. The majority of these species are native to the New World (*S. eggersi, S. gundlachi, S. louisianae, S. nigrescens*, and *S. silvestrii*) and have large ranges. Much of the remainder are well-known tramp species native to other regions (*S. emmae, S. membranifera,* and *S. rogeri*). One new undescribed species (e.g., MCZ-ENT00539558) is the first known endemic species of this genus. This ant was collected from cloud forest at Loma Quita Espuela reserve by Prebus.

Problematic Strumigenys Record. *Strumigenys alberti* Forel, 1893. Reported from Haiti by Wheeler and Mann (1914). No specimens of this species are in the MCZ collection nor are there any other reports of this species from the island. Brown (1953) notes Greater Antilles records of this species were usually misidentified *Strumigenys nigrescens*. *Strumigenys alberti* is not listed as being present on the island.

Syscia

A small genus (five species) with species that occur in the Neotropical and Indomalayan regions (Borowiec, 2016). Their biology is mostly unknown. There is a single worker (Figs. 221, 222; MCZ-ENT00523986) of an undescribed species from the Dominican Republic. It was collected from leaf litter in Los Haitises National Park, Hato Mayor Province (Map 65).

Tapinoma

A diverse (95 species) cosmopolitan genus of morphologically unremarkable ants (Shattuck, 1992). One species, *Tapinoma melanocephalum*, is a well-known invasive that can be common in and around human dwellings. Most *Tapinoma* species are polygynous and have large colonies. In favorable habitats they can be abundant and will recruit quickly to a wide range of food resources. Individuals and foraging trails are often noticeable because workers will readily move through and across open areas.

Tapinoma litorale Wheeler, 1905
Figures 223, 224. MCZ-ENT00513112.

Caribbean, North, Central, and South America. DR—Du, LV, MTS, Ped, SJO. Map 5.

Elevation. 150–1,095 m.

Wheeler (1905) found this species to be common along coastal areas in the Bahamas,

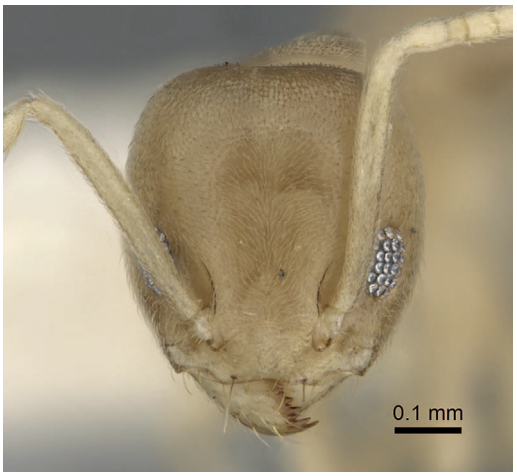


Figure 223. *Tapinoma litorale* worker (CASENT0249763), head view. Photograph by Shannon Hartman.

with nests in bromeliads and the twigs and culms of various plants. He observed the ants produce carton nest material that they used to shape their nest entrances and were often found in parabiotic associations with other ant colonies. *Tapinoma litorale* has been collected in numerous Hispaniola forest habitats, with records showing nests were found in dead branches of living plants.

Figure 224. *Tapinoma litorale* worker (CASENT0249763), profile view. Photograph by Shannon Hartman.

Figure 225. *Tapinoma melanocephalum* worker (CASENT0005325), head view. Photograph by April Nobile.

Tapinoma melanocephalum (Fabricius, 1793)

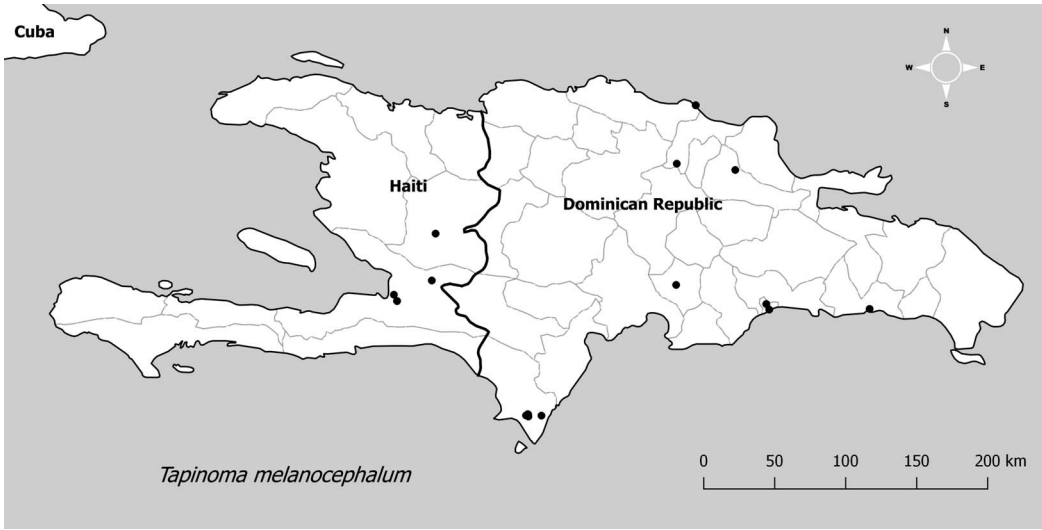
Figures 225, 226. MCZ-ENT00510529.

Widespread Throughout the World. H—Ce, Ou; DR—DN, Du, Esp, Ped, PP, SJO, SPM. Map 89.

Elevation. 5–925 m.

The ghost ant, *Tapinoma melanocephalum*, is an invasive pest throughout much of the tropics and subtropics (Wetterer, 2009a). It is an Old World species, putatively native to the Indo-Pacific region.

Figure 226. *Tapinoma melanocephalum* worker (CASENT0005325), profile view. Photograph by April Nobile.



Map 89. Hispaniola locality records of the introduced *Tapinoma melanocephalum*. All locations are marked by black circles.

Colonies are polygynous and readily move nest locations. This can lead to the formation of new nests via fission, a characteristic that has doubtlessly helped this ant in its success as an invasive species. *Tapinoma melanocephalum* flourishes in disturbed areas and some natural habitats. Occurrence data for this species in Hispaniola is relatively sparse.

Tapinoma opacum Wheeler and Mann, 1914

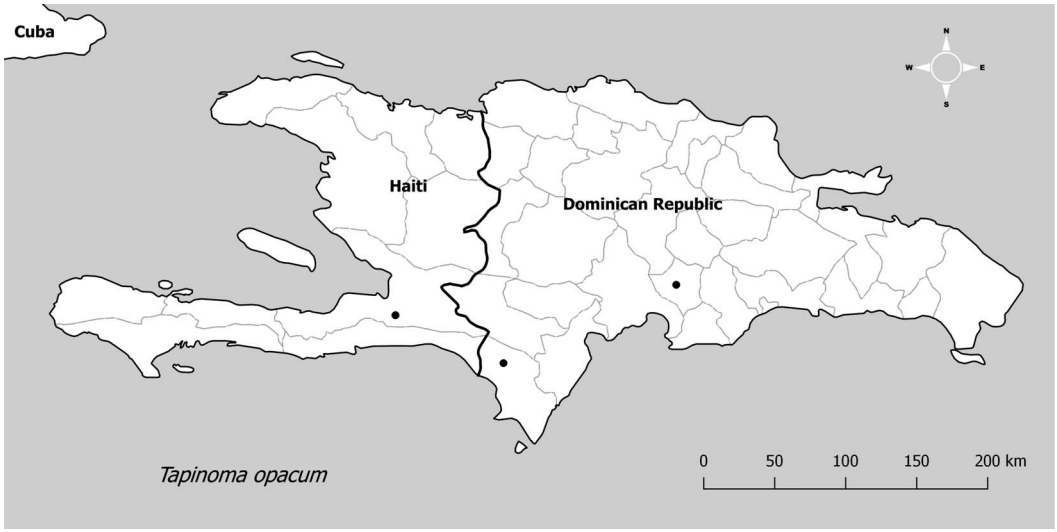
Figures 227, 228. MCZ-ENT00653118.

Endemic. H—Ou (type locality); DR—Ped, SJO. Map 90.

Elevation. 800–980 m.

Figure 227. *Tapinoma opacum* worker (CASENT0249768), head view. Photograph by Shannon Hartman.

Figure 228. *Tapinoma opacum* worker (CASENT0249768), profile view. Photograph by Shannon Hartman.



Map 90. Locality records of the endemic *Tapinoma opacum*. All locations are marked by black circles.

An endemic species known from a few collections. Mann's (Wheeler and Mann, 1914) type material was found under the bark of a downed pine tree. Additional collections were taken from vegetation in a moist forest and a nest in downed wood.

Tapinoma rasenum Smith and Lavigne, 1973
Figures 229, 230. MCZ-ENT00531370.

Greater Antilles. DR—LA. Map 15.
Elevation. 125 m.

Described from Puerto Rico and known from one contemporary collection in the Dominican Republic. Details of this record, from a dead stick hanging in the understory of a lowland evergreen forest, fits well with the nesting details of what is known from Puerto Rico.

Temnothorax

A large genus (433 species) that occurs in many regions of the world. The

Figure 229. *Tapinoma rasenum* worker (MCZ-ENT00531373), head view. Photograph by Patrick McCormack.

Figure 230. *Tapinoma rasenum* worker (MCZ-ENT00531373), profile view. Photograph by Patrick McCormack.

Figure 231. *Temnothorax ciferrii* worker (MCZ-ENT00531355), head view. Photograph by Patrick McCormack.

Figure 232. *Temnothorax ciferrii* worker (MCZ-ENT00531355), profile view. Photograph by Patrick McCormack.

majority of *Temnothorax* species are small in stature and colony size. A few species are known to be polydomous and polygynous and have larger colonies. Most species feed opportunistically and their foragers are general scavengers. Nests are often located in preformed cavities and in a species-specific location (e.g., arboreal species that form nests in dead, hollowed-out branches or ground-nesting species that prefer preformed cavities in leaf litter debris). *Temnothorax* has undergone an adaptive radiation in Cuba (Wheeler, 1931; Baroni Urbani, 1978; Wilson, 1988; Fontenla Rizo, 2000a,b), with more than 40 named species known from the island. These species inhabit niches and exhibit morphological variation that is much beyond what is seen in many other parts of its range. Hispaniola also has a few *Temnothorax* species that are atypical for the genus but have not radiated as extensively as has been observed in neighboring Cuba.

Temnothorax ciferrii (Menozzi and Russo, 1930)
Figures 231, 232. MCZ-ENT00521294.

Endemic. DR—MC (type locality), Ped. Map 91.

Elevation. 92–400 m.

The type material of this endemic ant was collected from the Sietes Los Hermanos Islands, a small group of islands adjacent to the mainland Monte Cristo National Park. Subsequent collections are all from dry forest in Pedernales Province; two were found in sifted soil and litter taken from the base of a stump, and a third was taken from a litter sample.

Temnothorax creolus (Baroni Urbani, 1978)
Figures 233, 234. MCZ-ENT00513355.

Endemic. DR—LV, MC, MN, Per (type locality). Map 8.

Elevation. 65–2,030 m.

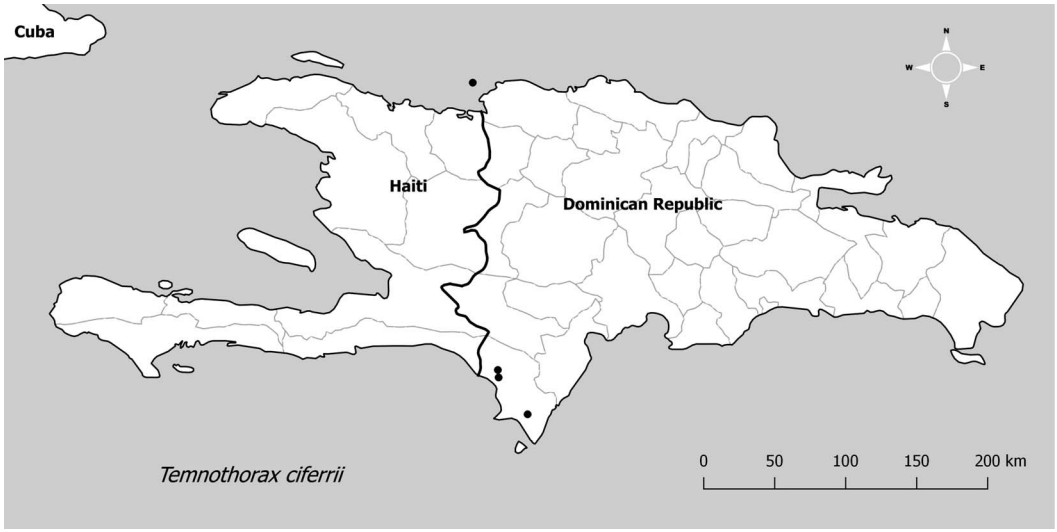
Temnothorax creolus has also been collected from various forest habitats. A few collections were noted as being taken from nests in hollow twigs.

Temnothorax flavidulus (Wheeler and Mann, 1914)
MCZ-ENT00021015, Syntype.

Endemic (Types Only). H—Ou. Map 85.

Elevation. No data.

Known from its type collection of three workers and a queen "taken from a single nest in the ground under a stone at Manneville" (Wheeler and Mann, 1914: 38).



Map 91. Locality records of the endemic *Temnothorax ciferrii*. The northern point located beyond the coastline represents a record from a small Dominican Republic island that is not rendered on the map. All locations are marked by black circles.

Temnothorax hispaniolae (Baroni Urbani, 1978)

Figures 235, 236. MCZ-ENT00513119.

Endemic. DR—Du, LV (type locality). Map 35.

Elevation. 610–2,000 m.

The holotype was collected from "Cazabita," a locality name that cannot be placed to a named location. All but one of the remaining localities for *T. hispaniolae* are from La Vega Province. A Darlington specimen noted in Baroni Urbani (1978) from "Monte Quita-Espuela" (assumed here to be Loma Quita Espuela Reserve) constitutes the single Duarte Province distribution record. This specimen is stated to be in the MCZ collection but could not be located. Collecting details from existing MCZ specimen labels (e.g., dead twig, stick

Figure 233. *Temnothorax creolus* worker (CASENT0912921), head view. Photograph by Will Ericson.

Figure 234. *Temnothorax creolus* worker (CASENT0912921), profile view. Photograph by Will Ericson.

Figure 235. *Temnothorax hispaniolae* worker (CASENT0912948), head view. Photograph by Zach Lieberman.

on ground, poke weed stem) indicate *T. hispaniolae* opportunistically nests in hollow cavities. Baroni Urbani (1978) stated Bill Brown reported this ant only nests in the ground, but oddly, Brown himself had found specimens in a "rot hole in a tree" (label data, MCZ-ENT00513119). Brown also conveyed that this ant, like *Temnothorax sallei*, is aggressive and pugnacious.

Temnothorax sallei (Guérin-Méneville, 1852)
Figures 237, 238. MCZ-ENT00521433.

Endemic. H—GA, Ou; DR—unknown province (type locality), Bar, LV, Ped, PP, SJO. Map 92.

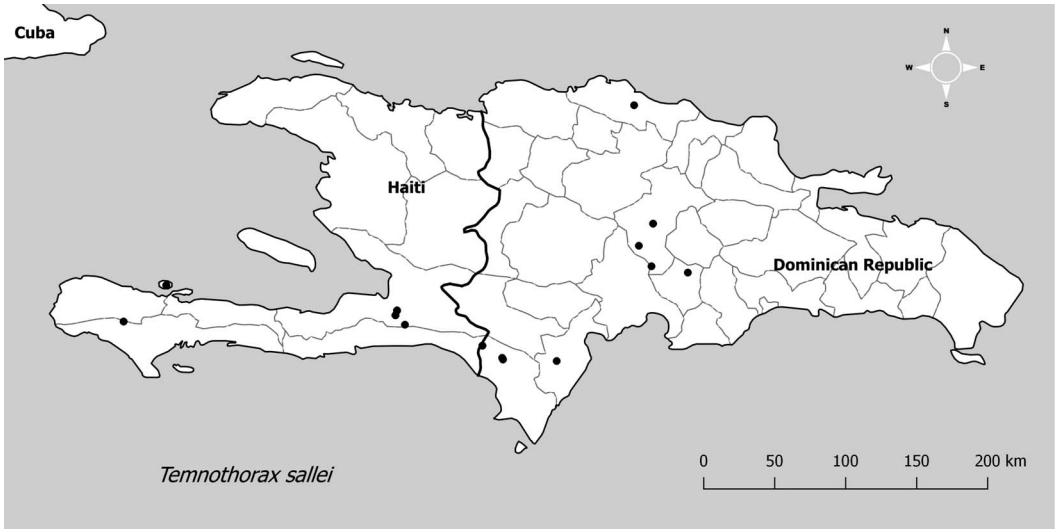
Figure 236. *Temnothorax hispaniolae* worker (CASENT0912948), profile view. Photograph by Zach Lieberman.

Figure 237. *Temnothorax sallei* worker (CASENT0901797), head view. Photograph by Will Ericson.

Elevation. 610–2,438 m.

One of the earliest described ant species from Hispaniola. The description of this species is contained in a paper (Guérin-Méneville, 1852) that provides a fascinating account of the type locality, including details about what was once likely to be prevalent palustrine habitats of Hispaniola that have since been extirpated. The type locality is not readily placeable to a specific place, but Wheeler and Mann (1914) did suggest it was centrally located, as opposed to near the coast. In their discussion of *T. sallei* they state (Wheeler and Mann, 1914:

Figure 238. *Temnothorax sallei* worker (CASENT0901797), profile view. Photograph by Will Ericson.



Map 92. Locality records of the endemic *Temnothorax sallei*. All locations are marked by black circles.

32): "All three phases were taken by Auguste Sallé in April 1850 from arboreal nests in a large morass known as the Cienaga del Timbladero, near Rancho Arriba, on the River Nisae, in the heart of San Domingo."

Temnothorax sallei is polydomous. A colony inhabits numerous carton nests in vegetation and at least one soil nest at the base of a plant, with workers moving freely between nests (Lubertazzi, personal observation). Individual colonies can be spread across numerous bushes or small trees. When a nest is disturbed, the aggressive workers pour forth en masse and deliver painful stings to an unwary collector. The species appears to be able to live in a wide range of habitats, from river bottoms to more than 2,000 m in elevation.

Temnothorax Notes. There are currently five named *Temnothorax* species on Hispaniola. All are endemic. Numerous undescribed species are also present in the MCZ (Prebus, personal communication).

Problematic Temnothorax Record. *Temnothorax pastinifer* (Emery, 1894). Baroni Urbani (1978) suggested label data from the holotype of *Macromischa lucayensis* (Forel, 1901), a synonym of *T. pastinifer*, infers the specimen came from Haiti. From what is presently known, it appears more likely that this species does not occur on Hispaniola.

Tetramorium

This diverse genus (580 species) occurs worldwide but is most diverse in the Old World. *Tetramorium* species inhabit a wide range of habitats and nest in strata from the ground to the forest canopy (Hita Garcia and Fischer, 2011, 2014). All of the *Tetramorium* species that occur on the island are introduced tramp species that also occur on other Caribbean islands.

Tetramorium bicarinatum (Nylander, 1846) Figures 239, 240. MCZ-ENT00519390.

Pantropical. H—Ar, No, Ou; DR—Sam. Map 93.

Elevation. No data.

A pantropical tramp species native to the Indo-Pacific region (Wetterer, 2009b). It occurs in a wide range of natural and anthropogenic habitats (Wetterer, 2009b). There are a few, mostly older, Hispaniola

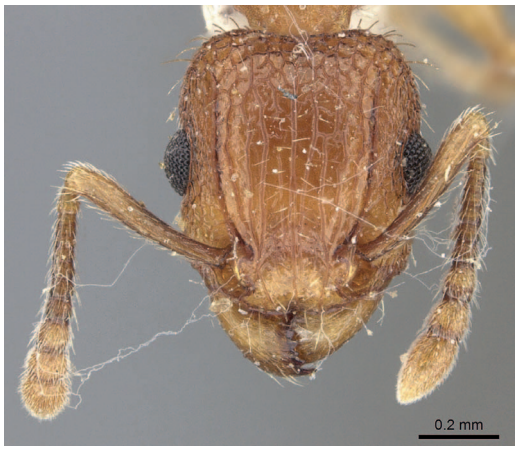


Figure 239. *Tetramorium bicarinatum* worker (CASENT0235200), head view. Photograph by Will Ericson.

Figure 240. *Tetramorium bicarinatum* worker (CASENT0235200), profile view. Photograph by Will Ericson.

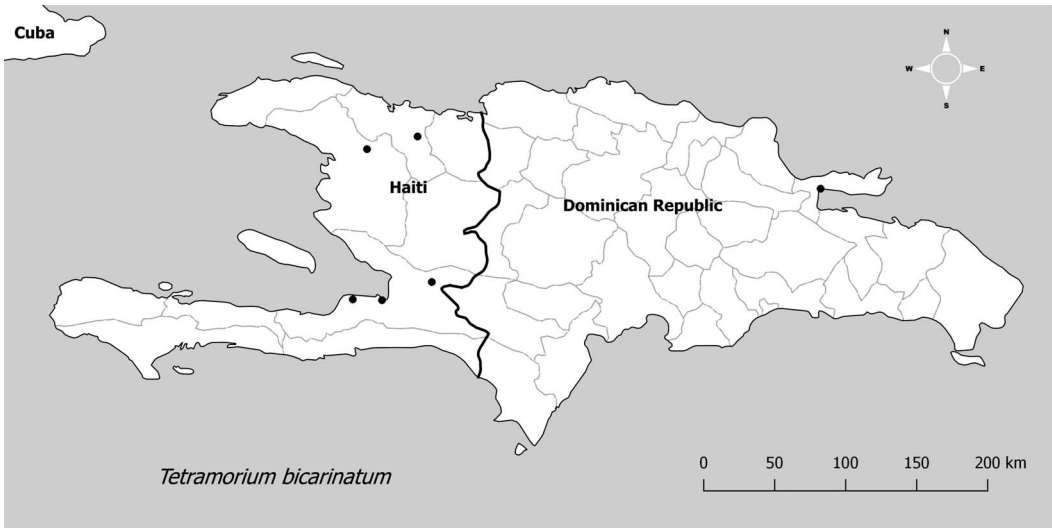
records with nothing having been noted about the collecting conditions.

Tetramorium caldarium (Roger, 1857)
Figures 241, 242. MCZ-ENT00510563.

Found Throughout the World. H—Ce, Ou; DR—Ped. Map 94.

Elevation. 5–18 m.

An African native that has been spread throughout the world via human commerce (Wetterer and Hita Garcia, 2015). *Tetramorium caldarium* is known from tropical, subtropical, and temperate areas. Despite its wide range, this ant is an inconspicuous and seemingly innocuous species that is poorly studied. It is often found in arid habitats and, in its native range, does not occur in shaded (e.g., forest) habitats. On Hispaniola it has been found at a tuna bait, in a small dead twig, and in litter under an acacia scrub overstory.



Map 93. Hispaniola locality records of the introduced *Tetramorium bicarinatum*. All locations are marked by black circles.

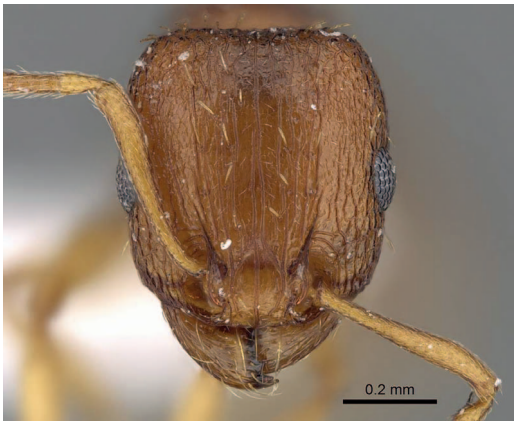


Figure 241. *Tetramorium caldarium* worker (CASENT0922289), head view. Photograph by Michele Esposito.

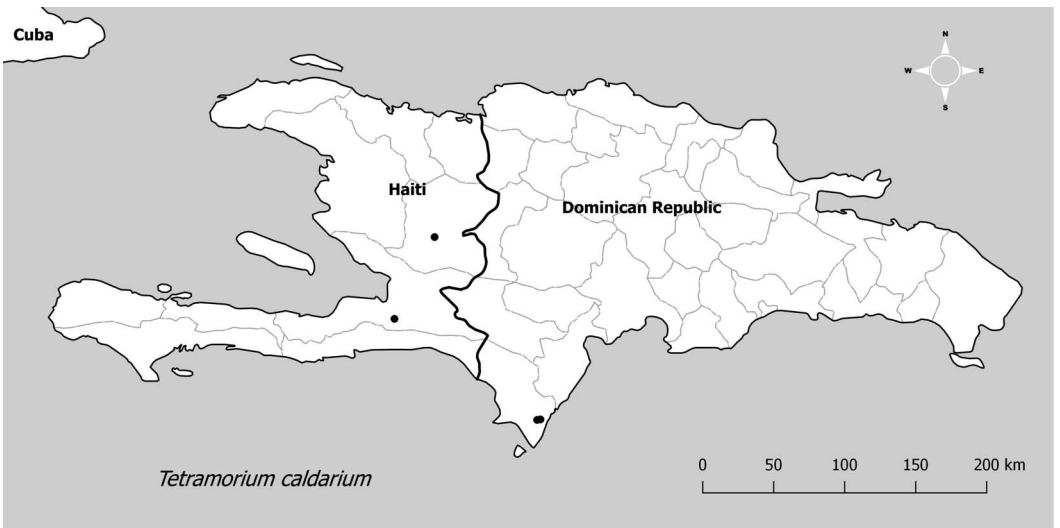
Figure 242. *Tetramorium caldarium* worker (CASENT0922289), profile view. Photograph by Michele Esposito.

Tetramorium lanuginosum Mayr, 1870
Figures 243, 244. MCZ-ENT00513394.

Scattered Across the Globe. DR—DN. Map 83.

Elevation. No data.

Putatively a native of tropical and subtropical East Asia, this ant is now pantropically distributed (Wetterer, 2010c; Hita Garcia and Fisher, 2011). Its present distribution shows that *Tetramorium lanuginosum* is inexplicably most successful in invading new areas when it is introduced to small islands (Wetterer, 2010c). The single known specimen of *T. lanuginosum* from the island was found in 2003 on the grounds outside of a Santo Domingo hotel.



Map 94. Hispaniola locality records of the introduced *Tetramorium caldarium*. All locations are marked by black circles.

Figure 243. *Tetramorium lanuginosum* worker (CASENT0125328), head view. Photograph by April Nobile.

Figure 245. *Tetramorium lucayanum* worker (CASENT0217212), head view. Photograph by Ryan Perry.

Tetramorium lucayanum Wheeler, 1905
Figures 245, 246. MCZ-ENT00539596.

Caribbean. DR—DN. Map 83.
Elevation. 45–55.

An African native (Brown, 1964) that has not become as widely spread as other co-occurring non-native Caribbean congeners. Prebus made numerous collections of this species in secondary broadleaf forest of the Botanical Garden in Santo Domingo. Specimens were found on the ground, on a limestone wall, and along a foraging trail at the edge of a botanical garden road.

Figure 244. *Tetramorium lanuginosum* worker (CASENT0125328), profile view. Photograph by April Nobile.

Tetramorium simillimum (Smith, 1851)
Figures 247, 248. MCZ-ENT00519392.

Widespread Throughout the World. H—No, Ou, SE; DR—DN, Esp. Map 95.
Elevation. 40–50 m.

A tramp species native to Africa (Bolton, 1977). *Tetramorium simillimum* has spread throughout the warmer regions of the world and can also persist indoors in temperate areas. Its biology is poorly known. In both cases where nesting details are known for Hispaniola specimens, the ants were found in a stump.

Figure 246. *Tetramorium lucayanum* worker (CASENT0217212), profile view. Photograph by Ryan Perry.

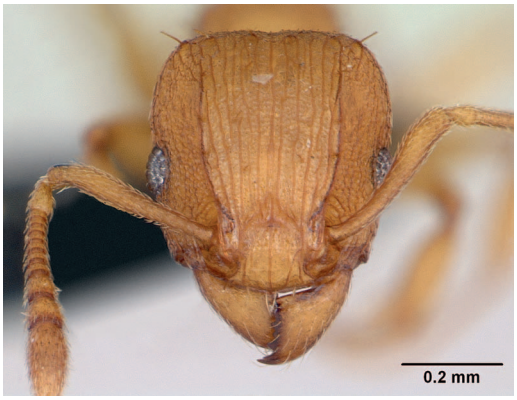


Figure 247. *Tetramorium simillimum* worker (CASENT0135001), head view. Photograph by April Nobile.

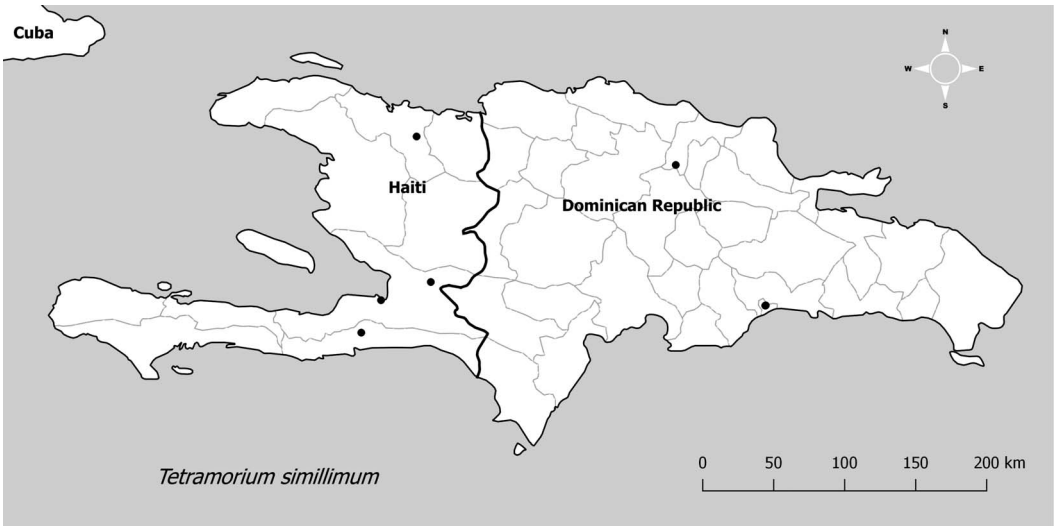
Figure 248. *Tetramorium simillimum* worker (CASENT0135001), profile view. Photograph by April Nobile.

Problematic Tetramorium Records.

1. *Tetramorium caldarium*. Bolton (1979: 170) lists a record: "Dominican Republic: series on logs ex Dominica, intercepted at New York." This is an occurrence record for the Caribbean island of Dominica.
2. *Tetramorium lucayanum*. Smith (1937) reported this species was known from Haiti. No source is given for this record nor are there any known specimens to substantiate this occurrence. This ant was recently found in the botanical garden in Santo Domingo, as noted in the treatment of this species given above, but we presently do not report this species as being present in Haiti.

Thaumatomyrmex

A low diversity (12 species) Neotropical genus. *Thaumatomyrmex* are rarely collect-



Map 95. Hispaniola locality records of the introduced *Tetramorium simillimum*. All locations are marked by black circles.

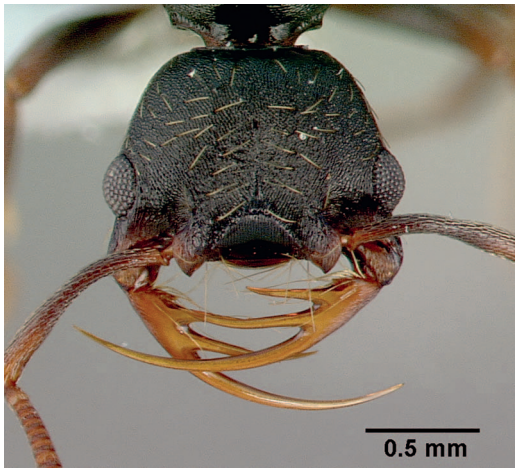


Figure 249. *Thaumatomyrmex* worker (CASENT0010674), head view. Photograph by April Nobile.

ed (Kempf, 1975), and the total number of known specimens of the genus is small. The unusual pitchfork-like mandibles of these ants have been found, at least for two species, to be used for capturing and processing polyxenid millipedes (Brandão et al., 1991). A few specimens of *Thaumatomyrmex* have been collected in the Dominican Republic (MCZ-ENT00519422 La Altagracia Province, CASENT0010674, Pedernales Province; Map 59. Figs. 249, 250) and represent two undescribed species.

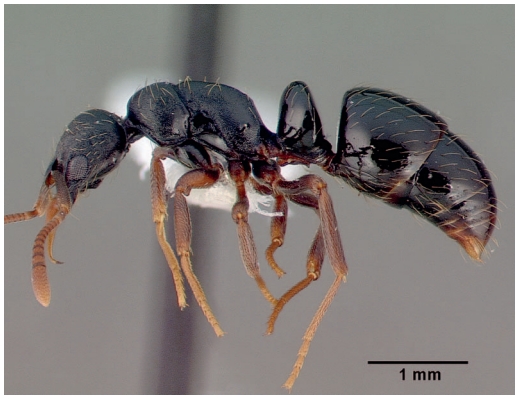


Figure 250. *Thaumatomyrmex* worker (CASENT0010674), profile view. Photograph by April Nobile.

Figure 251. *Trachymyrmex haytianus* worker (MCZ-ENT00021156), head view. Photograph by Patrick McCormack.

Trachymyrmex

A predominately Central and South American genus (48 species) with a few species also known to occur in the United States. *Trachymyrmex* are fungus-growing ants common in many parts of their range (Rabeling et al., 2007a). The two species of this genus known from the island are part of a small species group within *Trachymyrmex* that was the focus of a recent taxonomic revision (Mayhé-Nunes and Brandão, 2007).

Trachymyrmex haytianus (Wheeler and Mann, 1914)

Figures 251, 252. MCZ-ENT00021156, Syntype.

Hispaniola, Jamaica. H—Ou (type locality). Map 22.

Elevation. No data.

Known from Jamaican records and a single Hispaniola collection, the Haitian type series of Mann. Wheeler and Mann (1914: 41) reported: "several workers taken from a single colony in a canyon near Petionville. The nest entrance opened directly on the surface of the ground and was not surrounded by a crater."

Figure 252. *Trachymyrmex haytianus* worker (MCZ-ENT00021156), profile view. Photograph by Patrick McCormack.

Figure 253. *Trachymyrmex jamaicensis* worker (CASENT0919971), head view. Photograph by Michele Esposito.

Trachymyrmex jamaicensis (André, 1893) Figures 253, 254. MCZ-ENT00510564.

Caribbean, North America (Florida), and South America. H—Ar, Nip, Ou; DR—Bar, HM, LA, Ped. Map 96.

Elevation. 21–1,500 m.

A widely distributed Neotropical species. *Trachymyrmex jamaicensis* is known to make multi-chamber ground nests (Weber, 1967; Rabeling et al., 2007a). Wheeler (1905, 1907) estimated that mature colonies contain several hundred workers. Specimen records suggest this ant thrives in coastal areas and dry scrub.

Hispaniola collection records are all from coastal areas. Mann (Wheeler and Mann, 1914) reported he found this species in dry, sandy soil with nests that had broad, low craters around their entrances. All were in shady sites. Foragers were observed collecting plant material and were most active in the late afternoon. Other collections also note *T. jamaicensis* as being found in ground nests in dry habitats.

Trichomyrmex

A moderately diverse (28 species) Old World genus recently resurrected from synonymy under *Monomorium* (Ward et al., 2014). *Trichomyrmex* would be an obscure genus if not for the well-known exotic pest species *Trichomyrmex destructor*.

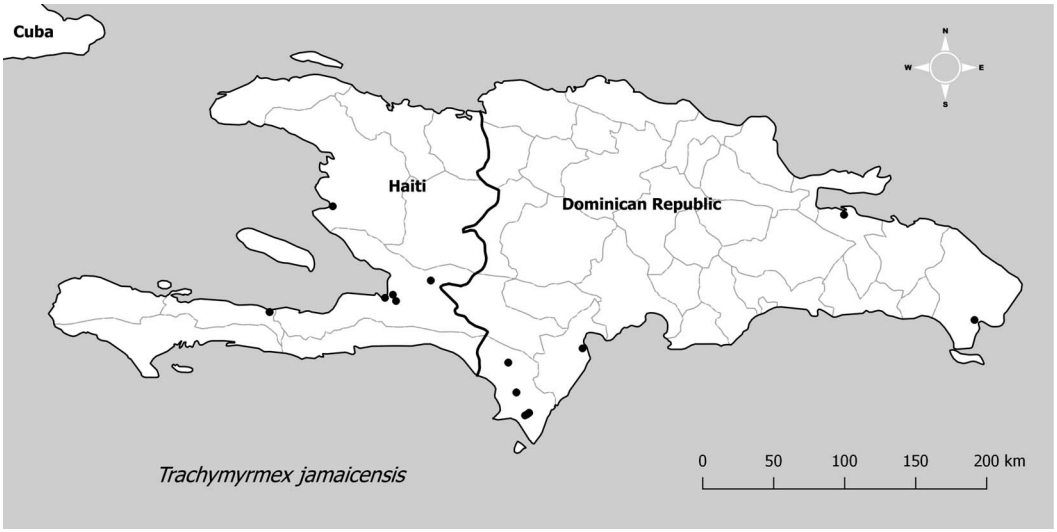
Trichomyrmex destructor (Jerdon, 1851) Figures 255, 256. MCZ-ENT00514783.

Widespread Throughout the World. H—Su; DR—DN, Esp, Per, SPM. Map 97.

Elevation. 50–175 m.

Trichomyrmex destructor is an Old World native, putatively from Africa, that is now a widespread exotic having many

Figure 254. *Trachymyrmex jamaicensis* worker (CASENT0919971), profile view. Photograph by Michele Esposito.



Map 96. Hispaniola locality records of *Trachymyrmex jamaicensis*. All locations are marked by black circles.

negative interactions with humans (Wetterer, 2009c). This ant inhabits open, disturbed sites (Wetterer, 2009c). Older records show *Trichomyrmex destructor* has been present on the island for at least 100 years. Contemporary records, all from 2015, include records of nests being found in dead twigs of live trees and foragers being collected from tree trunks.

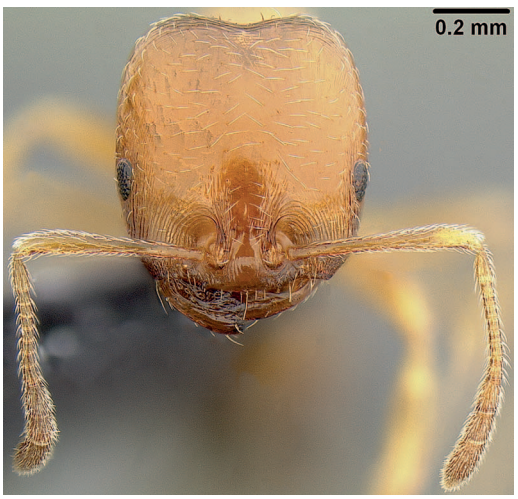
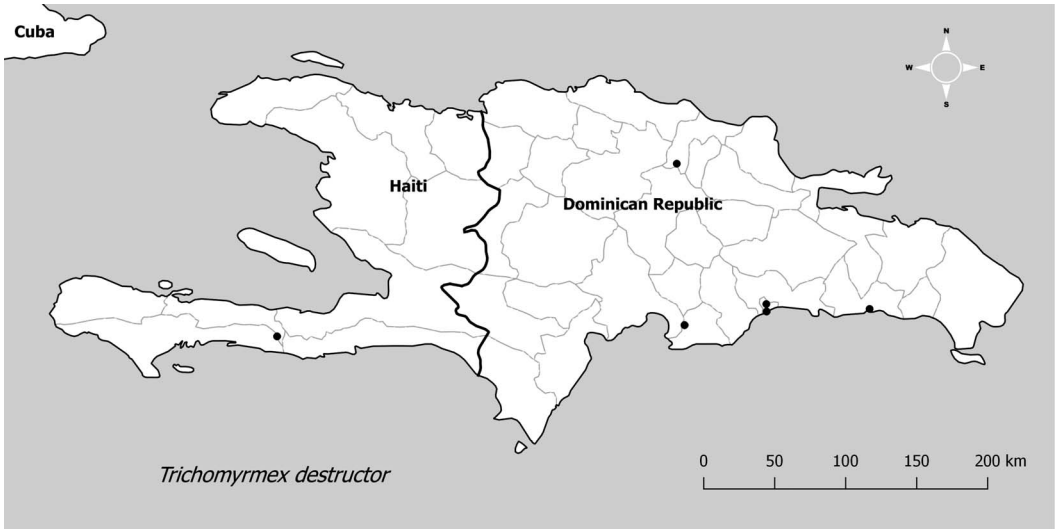


Figure 255. *Trichomyrmex destructor* worker (CASENT0171088), head view. Photograph by Eli M. Sarnat.

Wasmannia

A relatively small genus (11 species) of Neotropical ants (Longino and Fernández, 2007). Most species are rarely encountered and easily overlooked. The one exception is the invasive pest *Wasmannia auropunctata*, also known as the little fire ant.

Figure 256. *Trichomyrmex destructor* worker (CASENT0171088), profile view. Photograph by Eli M. Sarnat.



Map 97. Hispaniola locality records of the introduced *Trichomyrmex destructor*. All locations are marked by black circles.

Wasmannia auropunctata (Roger, 1863)
Figures 257, 258. MCZ-ENT00521477.

Pantropical. H—Ar, GA, No, Ou, SE; DR—Bar, DN, Du, ES, Esp, LA, LV, MN, MTS, Ped, PP, Sam, SC, SJO, SPM. Map 98.

Elevation. 45–1,295 m.

Native to the Neotropics, there is some disagreement as to the original extent of its range (Longino and Fernández, 2007; Wetterer, 2013). It is evident this ant has spread beyond its original range, even in the New World, and that the diminutive *Wasmannia auropunctata* can be a surprisingly

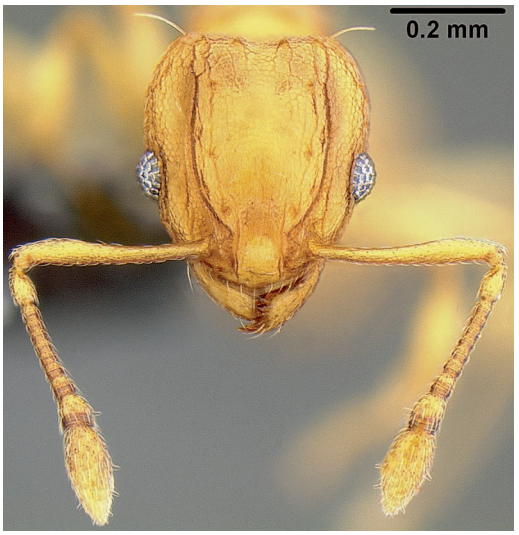
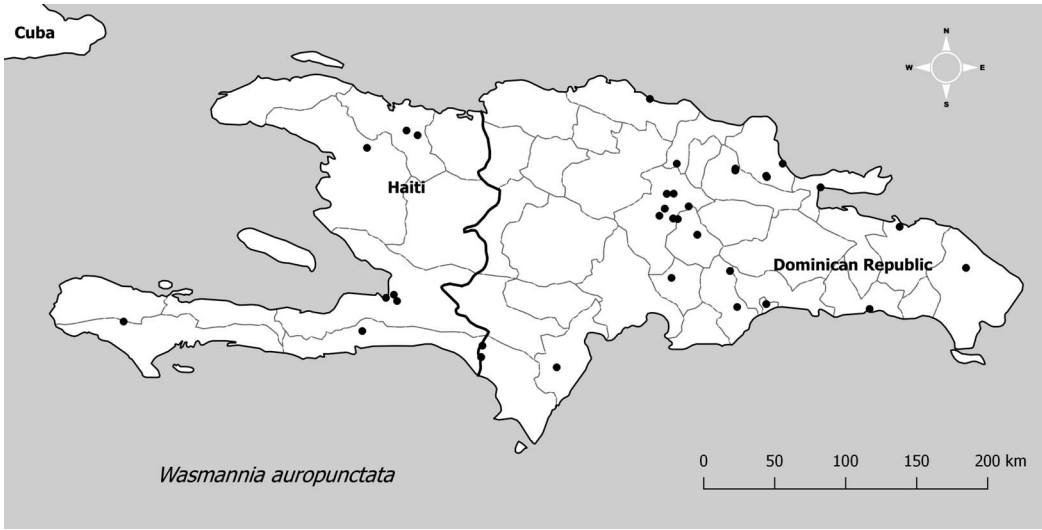


Figure 257. *Wasmannia auropunctata* worker (CASENT0171093), head view. Photograph by Eli M. Sarnat.

Figure 258. *Wasmannia auropunctata* worker (CASENT0171093), profile view. Photograph by Eli M. Sarnat.



Map 98. Hispaniola locality records of the introduced *Wasmannia auropunctata*. All locations are marked by black circles.

aggressive and bothersome invasive pest (Wetterer and Porter, 2003; Wetterer, 2013). In this study, it is provisionally categorized, without any new data as regards past hypotheses, as a native Hispaniola species. *Wasmannia auropunctata* nests in a wide range of locations, from the soil to arboreally, and can be polydomous. It also thrives in anthropogenic habitats. Foragers are general scavengers that rapidly recruit nestmates to food. The small workers can deliver a surprisingly powerful sting.

This species is relatively well collected on the island. It has been found in a variety of habitats and nesting situations.

Zatania

A small genus (six species) that occurs in the Caribbean and in Central America. *Zatania* are not well studied but are all assumed to be generalist omnivores with large nests (LaPolla et al., 2012). They can be found in soil, leaf litter, and rotten downed wood.

Zatania darlingtoni (Wheeler, 1936) MCZ-ENT00021675, Lectotype.

Endemic. H—Ou (Types only). Map 38.
Elevation. 1,524–2,134 m.

An endemic species recently transferred from the genus *Nylanderia* (Williams and LaPolla, 2016). *Zatania darlingtoni* is only known from the type material. Wheeler (1936) stated the larger workers from this series were repletes with distended gasters.

Zatania gibberosa (Roger, 1863) Figures 259, 260. MCZ-ENT00539148.

Cuba, Hispaniola. H—Ou. Map 57.
Elevation. No data.

Mann (1920: 434) reported on this species (as *Prenolepis gibberosa rogeri* Mann, 1920) from Cuba, stating: "Both *gibberosa* and its subspecies *rogeri* live in deep woods, where they form large colonies in decayed logs. The workers are exceedingly active." Fontenla (2000), also commenting on Cuban observations of *Z. gibberosa*, noted it could be found on

Figure 259. *Zatania gibberosa* worker (CASENT0281461), head view. Photograph by Zach Lieberman.

Figure 260. *Zatania gibberosa* worker (CASENT0281461), profile view. Photograph by Zach Lieberman.

standing trees, fallen tree trunks, and, less commonly, the ground.

There is a single record of *Z. gibberosa* from Haiti, a collection of pinned material Mann apparently prepared and deposited in the MCZ but did not include in his Haitian ant manuscript (Aguayo, 1932). Available evidence suggests *Z. gibberosa* is an ant that prefers well-developed forest and, on Hispaniola, is only known from Haiti. Intact native forest is exceedingly rare in Haiti today, and it is possible this ant has been extirpated from the island.

Additional Problem Species Occurrences

Dolichoderus intermedius Mackay, W.P., 1993. This fossil species was incorrectly listed as an extant species in Perez-Gelabert (2008).

Leptothorax oceanicus (Kuznetsov-Ugamsky, 1928). This Palearctic species was erroneously reported as occurring on the island (Perez-Gelabert, 2008).

CONCLUSIONS

This research represents the first contemporary faunal study of the ants of one of the large Caribbean islands. This work reveals there is much to be done before we can be confident that the ant diversity of the Greater Antilles is well characterized. Thorough studies of the ant faunas of Cuba, Jamaica, and Puerto Rico have not been completed; hence, our knowledge of their ant faunas remain incomplete. Faunal studies of these islands should include a synthesis of published species occurrence records, an accounting (and ideally databasing) of the specimens in all the significant collections of existing museum material, and contemporary collecting. This approach, as shown here for Hispaniola, brings previous faunal research into clearer focus, fills gaps in sampling coverage, and delineates areas that require further study. Until such a time that any of these other islands are similarly studied, comparisons of the ant diversity between any of the Greater Antilles islands are ill advised because of the poor characterization of these other island's ant faunas.

Half of the ant species that occur on Hispaniola are endemic, with many known from a small number of samples. Details about the biology of most species are also sparse. Despite this, it is evident there is intriguing novelty present. Summarizing what is known about some elements of the arboreal fauna and other organisms associ-

ated with them provides one illustrative example. *Temnothorax sallei* form colonies that have numerous arboreal carton nests, often spread across multiple trees, and aggressively defend the vegetation they inhabit. The ants swarm out of their nest when disturbed and aggressively attack intruders with their strong biting mandibles and a potent sting. These attributes are not shared with any of *T. sallei's* mainland congeners. This ant's behavior and other aspects of its biology are instead more typical of other Neotropical ant genera (e.g., *Azteca* and *Pseudomyrmex*). The Hispaniola *Cephalotes* lineage that has lost its soldier caste also differs from its mainland congeners. The soldier caste in this genus typically fills a defensive role. They use their heads to block their nest entrances, which effectively eliminates the threat of other arboreal ant species accessing and invading their colonies. The loss of soldiers in Hispaniola *Cephalotes* species suggests this caste's defensive role, and the associated investment needed for producing these large workers, is unnecessary. Ecological conditions within the arboreal environment apparently differ enough from tropical mainland areas that ant species present in Hispaniola are able to evolve novel traits. Hispaniola's arboreal *Cepahalotes* species are also involved in a mimicry complex that has evolved across a triad of taxa: *Cephalotes*, *Camponotus*, and salticid spiders. Research examining these species and the ecology of arboreal ants on Hispaniola may, in part, reveal interesting ecological and evolutionary dynamics that contrast with and help better understand more complex arboreal ant communities in Central and South America.

Hispaniola's native ants show a distinct dichotomy in their ranges. Most species are either found in both the Caribbean and the mainland Neotropics or are strictly Hispaniola endemics. Relatively few species are restricted to the Caribbean and inhabit more than one island. Of the 75 native species (Table 3) with ranges confined to the Caribbean, only 14 have a multi-island distribution. Seven occur on more than two islands (*Crematogaster steinheili*, *Dorymyrmex antillana*, *Eurhopalothrix floridana*, *Myrmelachista ramulorum*, *Pheidole jamaicensis*, *Rogeria brunnea*, and *Trachymyrmex jamaicensis*), and the remainder are only known from two islands (Cuba-Hispaniola: *Cylindromyrmex darlingtonia*, *Camponotus claviscapus occultus*, and *Zatania gibberosa*; Jamaica-Hispaniola: *Trachymyrmex haytianus*; Puerto Rico-Hispaniola: *Tapinoma rasenum* and *Fulakora falcata*) or inhabit Hispaniola and the Bahama archipelago (*Camponotus lucayanus*). Overall, the native ant fauna of Hispaniola is diverse and exhibits high endemism, and its endemic species are not vagile. Wilson (personal communication) suggests the high number of single-island endemics is caused by and provides evidence for the taxon cycle (Wilson, 1961).

This study highlights a range of taxonomic problems that require further attention. Work is already underway describing new species within some genera (*Nylanderia*, *Strumigenys*, *Thaumatomyrmex*, and *Temnothorax*), but the taxonomic issues that will remain are significant. Ten (*Brachymyrmex*, *Camponotus*, *Crematogaster*, *Hypoponera*, *Odontomachus*, *Pheidole*, *Pseudomyrmex*, *Rogeria*, *Solenopsis*, *Syscia*) of the island's 43 genera will have outstanding undescribed species. Many of these genera are well known for having extensive species-level taxonomic problems (Ward, 2007). Resolving species boundaries and determining the proper application of existing names for some of the more speciose taxa will require examining specimens from across the Caribbean and carrying out comprehensive regional revisions.

Despite all that is now known about the Hispaniola ant fauna, it remains unclear how many species ultimately occur on the island. No systematic sampling data exist, and the current data set, in its present form,

is not suitable for estimating species richness. New species (described and undescribed) continue to be found, although the total number of new species being discovered appears to be decreasing with successive contemporary collecting expeditions. Additional sampling in previously unexplored areas will likely continue to lead to the discovery of new species. Additional genera, if present, are likely be represented by a single rare, or at least not widely distributed, species.

This study of Hispaniola's ant fauna establishes an important foundation for future research and highlights the need for further diversity sampling. The occurrence data, and what it reveals about what we know about the ant fauna, have significant implications for understanding what remains to be accomplished. First, occurrence records for most species are limited. Twenty-one of the islands 62 endemic species, for example, are represented solely by their type material. Little is known about the range and even the most rudimentary biological details for far too many species. Second, sampling has almost exclusively been restricted to natural habitats. There has been no sampling in the range of disturbed habitats that dominate the island. Numerous introduced species that thrive in anthropogenic habitats and are likely to be common and widespread are known from only a few collections. We also know little about how diversity changes among habitats and within habitats across the island or how native species are faring in any disturbed areas. Third, Haitian collections by Mann (Wheeler and Mann, 1914) and Darlington (Wheeler, 1936) include numerous species that remain known only from their type material. It is not clear if these species represent ants that were, even then, only found in a small area or if they are more broadly distributed but have simply yet to be sampled again in a different location. Haiti today is almost completely denuded of any larger blocks of native habitat, and we are left to wonder if some endemic ants are now extinct. For any rare species with a small range in Haiti it is possible their preferred native habitats are entirely destroyed. This same scenario could also apply to endemic species confined to small populations in the Dominican Republic. Fortunately, habitat destruction there, while still extensive, has not been as pervasive. The recent discovery in the Dominican Republic of new *Syscia*, *Bothriomyrmex*, and *Strumigenys* species suggests conserved natural areas in the Dominican Republic have preserved populations of some uncommon species.

ACKNOWLEDGMENTS

My initial interest in the ants of Hispaniola began with reading studies of Caribbean ant diversity by E. O. Wilson. I have been fortunate and am grateful to have had his support for this work throughout my time studying the Hispaniola ant fauna. Stefan Cover has also been a constant help with many aspects of this research. Brian Farrell was instrumental in helping organize my first field expedition to Jaragua National Park. Matt Prebus and Gary Alpert made invaluable additions to this study with their collecting and interest in Caribbean ants. Patrick McCormack provided assistance curating, photographing, and databasing specimens. Andrea Golden and Jason Jong volunteered many hours of their time sorting and curating Hispaniola ants. In the Dominican Republic, Grupo Jaragua has been an essential partner in all my sampling work. In particular, Ernst Rupp helped to plan my collecting trips, and Hector Andujar managed an array of details involved with organizing and implementing day-to-day field logistics. The hormigólogos José Luis Castillo, Jairo Arache, and Gerson Feliz, naturalists from Grupo Jaragua, assisted with field sampling in the Dominican Republic. José Luis also served as a

translator during the collecting expeditions. It may have been possible to sample and learn about Hispaniola's ants without all of the people at Grupo Jaragua that assisted with this work, but my efforts would have been less productive and much less enjoyable. Tadzio Wand's field assistance during the second ant expedition earned him the title of honorary hormigólogo, despite his being resident in the Dominican Republic for only a single summer. Yvonne Arias (Grupo Jaragua) Yolanda León (Instituto Tecnologico de Santo Domingo and Grupo Jaragua), Gabriel de los Santos (Museo Nacional de Historia Natural "Prof. Eugenio de Jesús Marcano"), and Santo Navarro (Universidad Autónoma de Santo Domingo) helped facilitate my visits and research in the Dominican Republic. Kelvin Guerrero, Christopher Esquea, Patricia Torres Pineda, Benoit Guénard, Jignasha Rana, Scott Powell, and Toby Shaya also assisted with this project. The Museum of Comparative Zoology and the Collections Management staff provided assistance and support related to the databasing of specimens that form the bulk of the data used in this study.

This work was supported by grants from the MCZ Arthur Green fund and the MCZ Barbour Fund. The Ministerio de Medio Ambiente y Recursos Naturales de Republica Dominicana supported this research through providing permits and permissions needed for field sampling. Numerous preserve managers and their staff graciously facilitated access to properties under their care, including, in some cases, providing accommodations while conducting field sampling.

APPENDIX I

The Field Museum database lists 89 collections from Haiti. Numerous specimens have questionable determinations. These specimens were collected in April 1972, and all of this material is believed to be stored in alcohol. These records are not included in the occurrence data for this study.

The Illinois Natural History Survey insect database includes 72 ant specimens from Haiti and the Dominican Republic (http://inhsinsectcollection.speciesfile.org/InsectCollection.aspx, http://wwx.inhs.illinois.edu/collections/insect). None of these records are included in the current data set. There are both unidentified specimens and identified material, with some of the latter having dubious determinations.

LITERATURE CITED

Aguayo, C. G. 1932. Notes on West Indian ants. *Bulletin of the Brooklyn Entomological Society* 27: 215–227.

AntWeb [Internet]. 2015. San Francisco: California Academy of Sciences [cited 1 Apr 2017]. Available from: https://www.antweb.org/.

AntWiki [Internet]. 2017a. Ants of Hispaniola. Available at: http://www.antwiki.org/wiki/Ants_of_Hispaniola.

AntWiki [Internet]. 2017b. Hispaniola Ant Genera. Available at: http://www.antwiki.org/wiki/Hispaniola_Ant_Genera.

AntWiki [Internet]. 2017c. New General Catalogue [cited Jan 2017]. Available at: http://www.antwiki.org/wiki/New_General_Catalogue.

Baroni Urbani, C. 1978. Materiali per una revisione dei *Leptothorax* neotropicali appartenenti al sottogenere *Macromischa* Roger, n. comb. (Hymenoptera: Formicidae). *Entomologica Basiliensia* 3: 395–618.

Baroni Urbani, C., and M. L. de Andrade. 2007. The ant tribe Dacetini: limits and constituent genera, with descriptions of new species (Hymenoptera, Formicidae). *Annali del Museo Civico di Storia Naturale "Giacomo Doria"* 99: 1–191.

Berndt, K. P., and W. Eichler. 1987. Die Pharaoameise, *Monomorium pharaonis* (L.) (Hym., Myrmicidae). *Mitteilungen aus den Zoologischen Museum in Berlin* 63: 3–186.

Blaimer, B. B. 2010. Taxonomy and natural history of the *Crematogaster* (*Decacrema*)-group (Hymenoptera: Formicidae) in Madagascar. *Zootaxa* 2714: 1–39.

Bolton, B. 1977. The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* Mayr in the Oriental and Indo-Australian regions, and in Australia. *Bulletin of the British Museum (Natural History) Entomology* 36: 67–151.

Bolton, B. 1979. The ant tribe Tetramoriini (Hymenoptera: Formicidae). The genus *Tetramorium* Mayr in the Malagasy region and in the New World. *Bulletin of the British Museum (Natural History) Entomology* 38: 129–181.

Bolton, B. 1987. A review of the *Solenopsis* genus-group and revision of Afrotropical *Monomorium* Mayr (Hymenoptera: Formicidae). *Bulletin of the*

British Museum (Natural History) Entomology 54: 263–452.

Bolton, B. 2000. The ant tribe Dacetini. With a revision of the *Strumigenys* species of the Malagasy Region by Brian L. Fisher, and a revision of the Austral epopostrumiform genera by Steven O. Shattuck. *Memoirs of the American Entomological Institute* 65.

Bolton, B., and B. L. Fisher. 2011. Taxonomy of Afrotropical and West Palaearctic ants of the ponerine genus *Hypoponera* Santschi (Hymenoptera: Formicidae). *Zootaxa* 2843.

Borowiec, M. 2016. Generic revision of the ant subfamily Dorylinae (Hymenoptera, Formicidae). *ZooKeys* 608.

Brandão, C. R. F. 1991. Adendos ao catálogo abreviado das formigas da região Neotropical (Hymenoptera: Formicidae). *Revista Brasileira de Entomologia* 35: 319–412.

Brandão, C. R. F., J. L. M. Diniz, and E. M. Tomotake. 1991. *Thaumatomyrmex* strips millipedes for prey: a novel predatory behaviour in ants, and the first case of sympatry in the genus (Hymenoptera: Formicidae). *Insectes Sociaux* 38: 335–344.

Brown, W. L., Jr. 1953. Revisionary studies in the ant tribe Dacetini. *American Midland Naturalist* 50: 1–137.

Brown, W. L., Jr. 1957. Predation of arthropod eggs by the ant genera *Proceratium* and *Discothyrea*. *Psyche* 64: 115.

Brown, W. L., Jr. 1958. Contributions toward a reclassification of the Formicidae. II. Tribe Ectatommini (Hymenoptera). *Bulletin of the Museum of Comparative Zoology at Harvard College* 118: 173–362.

Brown, W. L., Jr. 1959. The neotropical species of the ant genus *Strumigenys* Fr. Smith: group of *gundlachi* (Roger). *Psyche* 66: 37–52.

Brown, W. L., Jr. 1960. Contributions toward a reclassification of the Formicidae. III. Tribe Amblyoponini (Hymenoptera). *Bulletin of the Museum of Comparative Zoology at Harvard College* 122: 143–230.

Brown, W. L., Jr. 1962. The neotropical species of the ant genus *Strumigenys* Fr. Smith: synopsis and keys to the species. *Psyche* 69: 238–267.

Brown, W. L., Jr. 1964. Solution to the problem of *Tetramorium lucayanum* (Hymenoptera: Formicidae). *Entomological News* 75: 130–132.

Brown, W. L., Jr. 1975. Contributions toward a reclassification of the Formicidae. V. Ponerinae, tribes Platythyreini, Cerapachyini, Cylindromyrmecini, Acanthostichini, and Aenictogitini. *Search Agriculture* 5.

Brown, W. L., Jr. 1976. Contributions toward a reclassification of the Formicidae. Part VI. Ponerinae, tribe Ponerini, subtribe Odontomachiti. Section A. Introduction, subtribal characters. Genus *Odontomachus*. *Studia Entomologica* 19: 67–171.

Brown, W. L., Jr. 1977. A supplement to the world revision of *Odontomachus* (Hymenoptera: Formicidae). *Psyche* 84: 281–285.

Brown, W. L., Jr. 1978. Contributions toward a reclassification of the Formicidae. Part VI. Ponerinae, tribe Ponerini, subtribe Odontomachiti. Section B. Genus *Anochetus* and bibliography. *Studia Entomologica* 20: 549–638.

Brown, W. L., Jr. 1980. A remarkable new species of *Proceratium*, with dietary and other notes on the genus (Hymenoptera: Formicidae). *Psyche* 86: 337–346.

Brown, W. L., Jr. 1993. Two new species of *Gnamptogenys*, and an account of millipede predation by one of them. *Psyche* 99: 275–289.

Carlin, N. F., and D. S. Gladstein. 1989. The "bouncer" defense of *Odontomachus ruginodis* and other Odontomachine ants (Hymenoptera: Formicidae). *Psyche* 96: 1–19.

Cobo, P. B. 1890. *Historia del Nuevo mundo*. Seville: Imp. de E. Rasco.

Cole, A. C., Jr. 1968. *Pogonomyrmex Harvester Ants. A Study of the Genus in North America*. Knoxville: University of Tennessee Press.

Collingwood, C. A. 1985. Hymenoptera: Fam. Formicidae of Saudi Arabia. *Fauna of Saudi Arabia* 7: 230–302.

Collingwood, C. A., B. J. Tigar, and D. Agosti. 1997. Introduced ants in the United Arab Emirates. *Journal of Arid Environments* 37: 505–512.

Creighton, W. S. 1930. The New World species of the genus *Solenopsis* (Hymenop. Formicidae). *Proceedings of the American Academy of Arts and Sciences* 66: 39–151.

Dalla Torre, K. W. v. 1893. *Catalogus Hymenopterorum hucusque Descriptorum Systematicus et Synonymicus*. Vol. 7. *Formicidae (Heterogyna)*. Leipzig: W. Engelmann.

de Andrade, M. L. 1998. Fossil and extant species of *Cylindromyrmex* (Hymenoptera: Formicidae). *Revue Suisse de Zoologie* 105: 581–664.

de Andrade, M. L., and C. Baroni Urbani. 1999. Diversity and adaptation in the ant genus *Cephalotes*, past and present. *Stuttgarter Beiträge zur Naturkunde Serie B (Geologie und Paläontologie)* 271.

de las Casas, B. 1875. *Historia de las Indias. Tomo 3*. Madrid: Impr. de M. Ginesta.

Deyrup, M. 1997. Dacetine ants of the Bahamas (Hymenoptera: Formicidae). *Bahamas Journal of Science* 5: 2–6.

Deyrup, M. 2002. The exotic ant *Anochetus mayri* in Florida (Hymenoptera: Formicidae). *Florida Entomologist* 85: 658–659.

Deyrup, M. 2016. *Ants of Florida. Identification and Natural History*. Boca Raton, Florida: CRC Press.

Deyrup, M., and S. Cover. 2004. A new species of *Odontomachus* ant (Hymenoptera: Formicidae) from inland ridges of Florida, with a key to *Odontomachus* of the United States. *Florida Entomologist* 87: 136–144.

Deyrup, M., L. Davis, and S. Cover. 2000. Exotic ants in Florida. *Transactions of the American Entomological Society* 126: 293–326.

Deyrup, M., and S. Deyrup. 1999. Notes on introduced ant *Quadristruma emmae* (Hymenoptera: Formicidae) in Florida. *Entomological News* 110: 13–21.

Deyrup, M., C. Johnson, and L. Davis. 1997. Notes on the ant *Eurhopalothrix floridana*, with a description of the male (Hymenoptera: Formicidae). *Entomological News* 108: 183–189.

Deyrup, M., J. Trager, and N. Carlin. 1985. The genus *Odontomachus* in the southeastern United States (Hymenoptera: Formicidae). *Entomological News* 96: 188–195.

d-maps.com. 2017a. Map: Dominican Republic [Internet]. Trets, France: d-maps; [cited 9 Jan 2017]. Available from: https://d-maps.com/carte.php?num_car=38731&lang=en.

d-maps.com. 2017b. Map: Haiti [Internet]. Trets, France: d-maps; [cited 9 Jan 2017]. Available from: http://d-maps.com/carte.php?num_car=5263&lang=en.

DuBois, M. B. 1986. A revision of the native New World species of the ant genus *Monomorium* (*minimum* group) (Hymenoptera: Formicidae). *University of Kansas Science Bulletin* 53: 65–119.

Dubovikoff, D. A., and J. T. Longino. 2004. A new species of the genus *Bothriomyrmex* Emery, 1869 (Hymenoptera, Formicidae, Dolichoderinae) from Costa Rica. *Zootaxa* 776: 1–10.

Ehmer, B., and B. Hölldobler. 1995. Foraging behavior of *Odontomachus bauri* on Barro Colorado Island, Panama. *Psyche* 102: 215–224.

Emery, C. 1893a. Beiträge zur Kenntniss der nordamerikanischen Ameisenfauna. *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und Biologie der Tiere* 7: 633–682.

Emery, C. 1893b. Notice sur quelques fourmis des îles Galapagos. *Annales de la Société Entomologique de France* 62: 89–92.

Emery, C. 1896. Saggio di un catalogo sistematico dei generi *Camponotus*, *Polyrhachis* e affini. *Memorie della Reale Accademia delle Scienze dell'Istituto di Bologna* 5: 761–780.

Fernández, F. 2008. Subfamilia Ponerinae s.str., PP. 123–218 IN: E. Jiménez, F. Fernández, T. M. Arias, and F. H. Lozano-Zambrano, editors. *Sistemática, Biogeografía y Conservación de las Hormigas Cazadoras de Colombia*. Bogotá D.C., Colombia: Instituto de Investigación de Recursos Biológicos Alexander von Humboldt.

Fernández, F., and E. E. Palacio. 1995. Hormigas de Colombia IV: nuevos registros de géneros y especies. *Caldasia* 17: 587–596.

Fernández de Oviedo y Valdés, G. 1535. *La Historia General de las Indias*. Seville: Imprimio en la empré ta de Juam Cromberger.

Fischer, G., and B. L. Fisher. 2013. A revision of *Pheidole* Westwood (Hymenoptera: Formicidae) in the islands of the Southwest Indian Ocean and designation of a neotype for the invasive *Pheidole megacephala*. *Zootaxa* 3683: 301–356.

Foitzik, S., J. Fröba, M. H. Rüger, and V. Witte. 2011. Competition over workers: fertility signalling in wingless queens of *Hypoponera opacior*. *Insectes Sociaux* 58: 271–278.

Foitzik, S., J. Heinze, B. Oberstadt, and J. M. Herbers. 2002. Mate guarding and alternative reproductive tactics in the ant *Hypoponera opacior*. *Animal Behaviour* 63: 597–604.

Foitzik, S., I. M. Kureck, M. H. Rüger, and D. Metzler. 2010. Alternative reproductive tactics and the impact of local competition on sex ratios in the ant *Hypoponera opacior*. *Behavioral Ecology and Sociobiology* 64: 1641–1654.

Fontenla, J. L. 2000. The genus *Prenolepis* Mayr, 1861 (Formicidae) in the Greater Antilles, with an outline of phylogenetic relationships. *Caribbean Journal of Science* 36: 76–86.

Fontenla Rizo, J. L. 2000a. Historical biogeography and character evolution in the phylogenetic taxon "*Macromischa*" (Hymenoptera: Formicidae: *Leptothorax*). *Transactions of the American Entomological Society* 126: 401–416.

Fontenla Rizo, J. L. 2000b. Definition, phylogenetic relationships and morphological species groups of taxon "*Macromischa*" (Hymenoptera: Formicidae: *Leptothorax*). *Avicennia* 12/13: 35–44.

Forel, A. 1879. Études myrmécologiques en 1879 (deuxième partie [1re partie en 1878]). *Bulletin de la Société Vaudoise des Sciences Naturelles* 16: 53–128, pl. I.

Forel, A. 1893. Formicides de l'Antille St. Vincent, récoltées par Mons. H. H. Smith. *Transactions of the Entomological Society of London* 1893: 333–418.

Forel, A. 1899. Formicidae. [part c], PP. 57–80 IN: *Insecta. Hymenoptera. Formicidae*. London: R.H. Porter, Dulau & Co.

Forel, A. 1901a. Formiciden des Naturhistorischen Museums zu Hamburg. Neue *Calyptomyrmex*-, *Dacryon*-, *Podomyrma*- und *Echinopla*-Arten. *Mitteilungen aus dem Naturhistorischen Museum in Hamburg* 18: 43–82.

Forel, A. 1901b. Variétés myrmécologiques. *Annales de la Société Entomologique de Belgique* 45: 334–382.

Forel, A. 1907. Formiciden aus dem Naturhistorischen Museum in Hamburg. II. Teil. Neueingänge seit 1900. *Mitteilungen aus dem Naturhistorischen Museum in Hamburg* 24: 1–20.

Goldich, S. S., and H. R. Bergquist. 1948. *Aluminous Lateritic Soil of the Republic of Haiti, West Indies*. Washington, D.C.: U.S. Government Printing Office, Department of the Interior, Geological Survey Bulletin 954-C.

Gómez, K., and X. Espadaler. 2006. Exotic ants (Hymenoptera: Formicidae) in the Balearic Islands. *Myrmecologische Nachrichten* 8: 225–233.

Gronenberg, W. 1995a. The fast mandible strike in the trap-jaw ant *Odontomachus*. I. Temporal properties and morphological characteristics. *Journal of Comparative Physiology A Sensory, Neural, and Behavioral Physiology* 176: 391–398.

Gronenberg, W. 1995b. The fast mandible strike in the trap-jaw ant Odontomachus. II. Motor control. *Journal of Comparative Physiology A Sensory, Neural, and Behavioral Physiology* 176: 399–408.

Guérin-Méneville, F. E. 1852. Notice sur une nouvelle espèce de fourmi découverte à Saint-Domingue par M. Auguste Sallé, et qui fait son nid dans les plaines marécageuses, sur les buissons. *Revue et Magasin de Zoologie Pure et Appliquée* 4: 73–79.

Hita Garcia, F., and B. L. Fisher. 2011. The ant genus *Tetramorium* Mayr (Hymenoptera: Formicidae) in the Malagasy region-introduction, definition of species groups, and revision of the *T. bicarinatum*, *T. obesum*, *T. sericeiventre* and *T. tosii* species groups. *Zootaxa* 3039.

Hita Garcia, F., and B. L. Fisher. 2014. The hyperdiverse ant genus *Tetramorium* Mayr (Hymenoptera, Formicidae) in the Malagasy region taxonomic revision of the *T. naganum*, *T. plesiarum*, *T. schaufussii*, and *T. severini* species groups. *ZooKeys* 413.

Hoffmann, B. D., A. N. Andersen, and G. J. E. Hill. 1999. Impact of an introduced ant on native rain forest invertebrates: *Pheidole megacephala* in monsoonal Australia. *Oecologia* 120: 595–604.

Johnson, R. A. 2000. Seed harvester ants (Hymenoptera: Formicidae) of North America: an overview of ecology and biogeography. *Sociobiology* 36: 89–122.

Johnson, R. A. 2001. Biogeography and community structure of North American seed-harvester ants. *Annual Review of Entomology* 46: 1–29.

Johnson, R. A., and S. P. Cover. 2015. A taxonomic revision of the seed-harvester ant genus *Pogonomyrmex* (Hymenoptera: Formicidae) on Hispaniola. *Zootaxa* 3972: 231–249.

Kallal, R. J., and J. S. LaPolla. 2012. Monograph of *Nylanderia* (Hymenoptera: Formicidae) of the World, Part II: *Nylanderia* in the Nearctic. *Zootaxa* 3508.

Kempf, W. W. 1951. A taxonomic study on the ant tribe Cephalotini (Hymenoptera: Formicidae). *Revista de Entomologia (Rio de Janeiro)* 22.

Kempf, W. W. 1958. New studies of the ant tribe Cephalotini (Hym. Formicidae). *Studia Entomologica* 1.

Kempf, W. W. 1963. A review of the ant genus *Mycocepurus* Forel, 1893 (Hymenoptera: Formicidae). *Studia Entomologica* 6: 417–432.

Kempf, W. W. 1972. Catálogo abreviado das formigas da região Neotropical. *Studia Entomologica* 15.

Kempf, W. W. 1975. A revision of the Neotropical ponerine ant genus *Thaumatomyrmex* Mayr (Hymenoptera: Formicidae). *Studia Entomologica* 18: 95–126.

Kugler, C. 1976. A new species of *Platythyrea* (Hymenoptera, Formicidae) from Costa Rica. *Psyche* 83: 216–221.

Kugler, C. 1994. A revision of the ant genus *Rogeria* with description of the sting apparatus (Hymenoptera: Formicidae). *Journal of Hymenoptera Research* 3: 17–89.

LaPolla, J. S. 2004. *Acropyga* (Hymenoptera: Formicidae) of the world. *Contributions of the American Entomological Institute* 33.

LaPolla, J. S., S. G. Brady, and S. O. Shattuck. 2010. Phylogeny and taxonomy of the *Prenolepis* genus-group of ants (Hymenoptera: Formicidae). *Systematic Entomology* 35: 118–131.

LaPolla, J. S., S. G. Brady, and S. O. Shattuck. 2011a. Monograph of *Nylanderia* (Hymenoptera: Formicidae) of the World: an introduction to the systematics and biology of the genus. *Zootaxa* 3110.

LaPolla, J. S., S. P. Cover, and U. G. Mueller. 2002. Natural history of the mealybug-tending ant, *Acropyga epedana*, with descriptions of the male and queen castes. *Transactions of the American Entomological Society* 128: 367–376.

LaPolla, J. S., and B. L. Fisher. 2014. Then there were five: a reexamination of the ant genus *Paratrechina* (Hymenoptera, Formicidae). *ZooKeys* 422: 35–48.

LaPolla, J. S., C. H. Hawkes, and B. L. Fisher. 2011b. Monograph of *Nylanderia* (Hymenoptera: Formicidae) of the World, Part I: *Nylanderia* in the Afrotropics. *Zootaxa* 3110: 10–36.

LaPolla, J. S., R. J. Kallal, and S. G. Brady. 2012. A new ant genus from the Greater Antilles and Central America, *Zatania* (Hymenoptera: Formicidae), exemplifies the utility of male and molecular character systems. *Systematic Entomology* 37: 200–214.

Latreille, P. A. 1802. *Histoire naturelle des fourmis, et recueil de mémoires et d'observations sur les abeilles, les araignées, les faucheurs, et autres insectes*. Paris: De l'impr. de Crapelet (chez T. Barrois).

Lattke, J. E. 1990. Revisión del género *Gnamptogenys* Roger en Venezuela (Hymenoptera: Formicidae). *Acta Terramaris* 2: 1–47.

Lattke, J. E. 1991. Studies of neotropical *Amblyopone* Erichson (Hymenoptera: Formicidae). *Contributions in Science, Natural History Museum, Los Angeles County* 428: 1–7.

Lattke, J. E. 1995. Revision of the ant genus *Gnamptogenys* in the New World (Hymenoptera: Formicidae). *Journal of Hymenoptera Research* 4: 137–193.

Lattke, J. E. 2002. Nuevas especies de *Gnamptogenys* Roger, 1863 de América (Hymenoptera: Formicidae: Ponerinae). *Entomotropica* 17: 135–144.

Lattke, J. E. 2011. Revision of the New World species of the genus *Leptogenys* Roger (Insecta: Hymenoptera: Formicidae: Ponerinae). *Arthropod Systematics & Phylogeny* 69: 127–264.

Lavigne, R. J. 1977. Notes on the ants of Luquillo Forest, Puerto Rico (Hymenoptera: Formicidae). *Proceedings of the Entomological Society of Washington* 79: 216–237.

Levins, R., M. L. Pressick, and H. Heatwole. 1973. Coexistence patterns in insular ants. *American Scientist* 61: 463–472.

Longino, J. T. 2003. The *Crematogaster* (Hymenoptera, Formicidae, Myrmicinae) of Costa Rica. *Zootaxa* 151.

Longino, J. T. 2006. A taxonomic review of the genus *Myrmelachista* (Hymenoptera: Formicidae) in Costa Rica. *Zootaxa* 1141.

Longino, J. T. 2009. Additions to the taxonomy of New World *Pheidole* (Hymenoptera: Formicidae). *Zootaxa* 2181.

Longino, J. T. 2013. A review of the Central American and Caribbean Species of the ant genus *Eurhopalothrix* Brown and Kempf, 1961 (Hymenoptera, Formicidae), with a key to New World species. *Zootaxa* 3693: 101–151.

Longino, J. T., and D. J. Cox. 2009. *Pheidole bilimeki* reconsidered (Hymenoptera: Formicidae). *Zootaxa* 1985: 34–42.

Longino, J. T., and F. Fernández. 2007. Taxonomic review of the genus *Wasmannia*, PP. 271–289 IN: R. R. Snelling, B. L. Fisher, and P. S. Ward, editors. *Advances in Ant Systematics (Hymenoptera: Formicidae): Homage to E. O. Wilson—50 Years of Contributions*. Gainesville, Florida: Memoirs of the American Entomological Institute.

Lubertazzi, D. 2012. The biology and natural history of *Aphaenogaster rudis*. *Psyche* 2012: doi.org/10.1155/2012/752815.

Lubertazzi, D., and G. D. Alpert. 2014. The Ants (Hymenoptera: Formicidae) of Jaragua National Park, Dominican Republic. *Journal of Insects* 2014: doi.org/10.1155/2014/104157.

MacGown, J. A., B. Boudinot, M. Deyrup, and D. M. Sorger. 2014. A review of the Nearctic *Odontomachus* (Hymenoptera: Formicidae: Ponerinae) with a treatment of the males. *Zootaxa* 3802: 515–552.

MacGown, J. A., J. K. Wetterer, and J. G. Hill. 2012. Geographic spread of *Strumigenys silvestrii* (Hymenoptera: Formicidae: Dacetini). *Terrestrial Arthropod Reviews* 5: 213–222.

Mackay, W. P., and E. Mackay. 2010. *The Systematics and Biology of the New World Ants of the Genus Pachycondyla (Hymenoptera: Formicidae)*. Lewiston, New York: Edwin Mellen Press.

Mackay, W. P., J. M. Maes, P. R. Fernández, and G. Luna. 2004. The ants of North and Central America: the genus *Mycocepurus* (Hymenoptera: Formicidae). *Journal of Insect Science* 4: 1–7.

Majer, J. D., J. H. C. Delabie, and N. L. McKenzie. 1997. Ant litter fauna of forest, forest edge and adjacent grassland in the Atlantic rain forest region of Bahia, Brazil. *Insectes Sociaux* 44: 255–266.

Mann, W. M. 1920. Additions to the ant fauna of the West Indies and Central America. *Bulletin of the American Museum of Natural History* 42: 403–439.

Mann, W. M. 1948. *Ant Hill Odyssey*. Boston: Little, Brown, and Co.

Mayhé-Nunes, A. J., and C. R. F. Brandão. 2007. Revisionary studies on the attine ant genus *Trachymyrmex* Forel. Part 3: The *jamaicensis* group (Hymenoptera: Formicidae). *Zootaxa* 1444: 1–21.

MCZBase. The Database of the Zoological Collections [Internet]. 2016. Cambridge, Massachusetts: Museum of Comparative Zoology. Harvard University [cited 1 Apr 2017]. Available from: http://mczbase.mcz.harvard.edu/.

Mehdiabadi, N. J., and R. Schultz. 2010. Natural history and phylogeny of the fungus-farming ants (Hymenoptera: Formicidae: Myrmicinae: Attini). *Myrmecological News* 13: 37–55.

Menozzi, C., and G. Russo. 1930. Contributo alla conoscenza della mirmecofauna della Repubblica Dominicana (Antille). *Bollettino del Laboratorio di Zoologia Generale e Agraria della Reale Scuola Superiore d'Agricoltura, Portici* 24: 148–173.

Mittermeier, R. A., N. Myers, C. G. Mittermeier, and P. R. Gil. 1999. *Hotspots: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions*. Mexico City: CEMEX.

Murakami, T., and S. Higashi. 1997. Social organization in two primitive attine ants, *Cyphomyrmex rimosus* and *Myrmicocrypta ednaella*, with reference to their fungus substrates and food sources. *Journal of Ethology* 15: 17–25.

Nakano, M. A., V. F. O. D. Miranda, D. R. d. Souza, R. M. Feitoso, and M. S. C. Morini. 2013.

Occurrence and natural history of *Myrmelachista* Roger (Formicidae: Formicinae) in the Atlantic Forest of southeastern Brazil. *Revista Chilena de Historia Natural* 86: 169–179.

Naves, M. A. 1985. A monograph of the genus *Pheidole* in Florida, USA (Hymenoptera: Formicidae). *Insecta Mundi* 1: 53–90.

Oliveira, P. S., and B. Hölldobler. 1989. Orientation and communication in the neotropical ant *Odontomachus bauri* Emery (Hymenoptera, Formicidae, Ponerinae). *Ethology* 83: 154–166.

Olsen, O. W. 1934. Notes on the North American harvesting ants of the genus *Pogonomyrmex* Mayr. *Bulletin of the Museum of Comparative Zoology* 77: 493–514.

Ortiz, C., and F. Fernández. 2014. *Brachymyrmex* species with tumuliform metathoracic spiracles: description of three new species and discussion of dimorphism in the genus (Hymenoptera, Formicidae). *ZooKeys* 371: 13–33.

Pacheco, J. A., and W. P. Mackay. 2013. *The Systematics and Biology of the New World Thief Ants of the Genus Solenopsis (Hymenoptera: Formicidae)*. Lewiston, New York: Edwin Mellen Press.

Perez-Gelabert, D. E. 2008. Arthropods of Hispaniola (Dominican Republic and Haiti): a checklist and bibliography. *Zootaxa* 1831.

Powell, S. 2009. How ecology shapes caste evolution: linking resource use, morphology, performance and fitness in a superorganism. *Journal of Evolutionary Biology* 22: 1004–1013.

Prebus, M., and D. Lubertazzi. 2016. A new species of the ant genus *Bothriomyrmex* Emery, 1869 (Hymenoptera: Formicidae) from the Caribbean region. *European Journal of Taxonomy* 211: 1–12.

QGIS. 2018. A Free and Open Source Geographic Information System. Version 2.18.15 x.x.x [software] [cited 29 Mar 2018]. Available from: http://www.qgis.org/.

Rabeling, C., S. P. Cover, R. A. Johnson, and U. G. Mueller. 2007a. A review of the North American species of the fungus-gardening ant genus *Trachymyrmex* (Hymenoptera: Formicidae). *Zootaxa* 1664: 1–53.

Rabeling, C., O. Gonzales, T. R. Schultz, and M. Bacci. 2011. Cryptic sexual populations account for genetic diversity and ecological success in a widely distributed, asexual fungus-growing ant. *Proceedings of the National Academy of Sciences of the United States of America* 108: 12366–12371.

Rabeling, C., M. Verhaagh, and W. Engels. 2007b. Comparative study of nest architecture and colony structure of the fungus-growing ants, *Mycocepurus goeldii* and *M. smithii*. *Journal of Insect Science* 7: doi.org/10.1673/031.007.4001.

Roger, J. 1863. Die neu aufgeführten Gattungen und Arten meines Formiciden-Verzeichnisses nebst Ergänzung einiger früher gegebenen Beschreibungen. *Berliner Entomologische Zeitschrift* 7: 131–214.

Schmidt, C. A., and S. O. Shattuck. 2014. The higher classification of the ant subfamily Ponerinae (Hymenoptera: Formicidae), with a review of ponerine ecology and behavior. *Zootaxa* 3817.

Seal, J. N., K. Kellner, A. Trindl, and J. Heinze. 2011. Phylogeography of the parthenogenic ant, *Platythyrea punctata*: highly successful colonization of the West Indies by a poor disperser. *Journal of Biogeography* 38: 868–882.

Seifert, B. 2003. The ant genus *Cardiocondyla* (Insecta: Hymenoptera: Formicidae)—a taxonomic revision of the *C. elegans*, *C. bulgarica*, *C. batessi*, *C. nuda*, *C. shuckardi*, *C. stambuloffi*, *C. wroughtoni*, *C. emeryi*, and *C. minutior* species groups. *Annalen des Naturhistorischen Museums in Wien Serie B Botanik und Zoologie* 104: 203–338.

Seifert, B. 2012. A review of the West Palaearctic species of the ant genus *Bothriomyrmex* Emery, 1869 (Hymenoptera: Formicidae). *Myrmecological News* 17: 91–104.

Seifert, B. 2013. *Hypoponera ergatandria* (Forel, 1893)—a cosmopolitan tramp species different from *H. punctatissima* (Roger, 1859) (Hymenoptera: Formicidae). *Soil Organisms* 85: 189–201.

Shattuck, S. O. 1992. Higher classification of the ant subfamilies Aneuretinae, Dolichoderinae and Formicinae (Hymenoptera: Formicidae). *Systematic Entomology* 17: 199–206.

Smith, F. 1858. *Catalogue of Hymenopterous Insects in the Collection of the British Museum*. Part VI. *Formicidae*. London: British Museum.

Smith, M. R. 1937. The ants of Puerto Rico. *Journal of Agriculture of the University of Puerto Rico* 20: 819–875.

Snelling, R. R. 1995. Systematics of Nearctic ants of the genus *Dorymyrmex* (Hymenoptera: Formicidae). *Contributions in Science, Natural History Museum, Los Angeles County* 454.

Snelling, R. R. 2006. Taxonomy of the *Camponotus festinatus* complex in the United States of America (Hymenoptera: Formicidae). *Myrmecologische Nachrichten* 8: 83–97.

Snelling, R. R., and J. T. Longino. 1992. Revisionary notes on the fungus-growing ants of the genus *Cyphomyrmex*, *rimosus* group (Hymenoptera: Formicidae: Attini), PP. 479–494 In: D. Quintero and A. Aiello, editors. *Insects of Panama and Mesoamerica: Selected Studies*. Oxford: Oxford University Press.

Snelling, R. R., and J. A. Torres. 1998. *Camponotus ustus* Forel and two similar new species from Puerto Rico (Hymenoptera: Formicidae). *Contributions in Science, Natural History Museum, Los Angeles County* 469.

Torres, J. A. 1989. The status of the fungi-grower ants (Hymenoptera: Formicidae) in Puerto Rico and adjacent islands. *Journal of Agriculture of the University of Puerto Rico* 73: 401–403.

Trager, J. C. 1991. A revision of the fire ants, *Solenopsis geminata* group (Hymenoptera: Formicidae: Myrmicinae). *Journal of the New York Entomological Society* 99: 141–198.

Traniello, J. F. A. 1981. Enemy deterrence in the recruitment strategy of a termite: soldier-organized foraging in *Nasutitermes costalis*. *Proceedings of the National Academy of Sciences of the United States of America* 78: 1976–1979.

Umphrey, G. J. 1992. Differentiation of Sibling Species in the Ant Genus *Aphaenogaster*: Karyotypic, Electrophoretic, and Morphometric Investigations of the *fulva-rudis-texana* Complex [dissertation]. Ottawa, Canada: Carleton University.

Van Pelt, A. F. 1958. The ecology of the ants of the Welaka Reserve, Florida (Hymenoptera: Formicidae). Part II. Annotated list. *American Midland Naturalist* 59: 1–57.

Ward, P. S. 1985. The Nearctic species of the genus *Pseudomyrmex* (Hymenoptera: Formicidae). *Quaestiones Entomologicae* 21: 209–246.

Ward, P. S. 1989. Systematic studies on pseudomyrmecine ants: revision of the *Pseudomyrmex oculatus* and *P. subtilissimus* species groups, with taxonomic comments on other species. *Quaestiones Entomologicae* 25: 393–468.

Ward, P. S. 1990. The ant subfamily Pseudomyrmecinae (Hymenoptera: Formicidae): generic revision and relationship to other formicids. *Systematic Entomology* 15: 449–489.

Ward, P. S. 1992. Ants of the genus *Pseudomyrmex* (Hymenoptera: Formicidae) from Dominican amber, with a synopsis of the extant Antillean species. *Psyche* 99: 55–85.

Ward, P. S. 2007. Phylogeny, classification, and species-level taxonomy of ants (Hymenoptera: Formicidae). *Zootaxa* 1668: 549–563.

Ward, P. S., S. G. Brady, B. L. Fisher, and T. R. Schultz. 2014. The evolution of myrmicine ants: phylogeny and biogeography of a hyperdiverse ant clade (Hymenoptera: Formicidae). *Systematic Entomology* 40: 61–81.

Ward, P. S., and B. L. Fisher. 2016. Tales of dracula ants: the evolutionary history of the ant subfamily Amblyoponinae (Hymenoptera: Formicidae). *Systematic Entomology* 41: 683–693.

Weber, N. A. 1944. The neotropical coccid-tending ants of the genus *Acropyga* Roger. *Annals of the Entomological Society of America* 37: 89–122.

Weber, N. A. 1967. The fungus-growing ant, *Trachymyrmex jamaicensis*, on Bimini Island, Bahamas (Hymenoptera: Formicidae). *Entomological News* 78: 107–109.

Wetterer, J. K. 2007. Biology and impacts of Pacific Island invasive species. 3. The African big-headed ant, *Pheidole megacephala* (Hymenoptera: Formicidae). *Pacific Science* 61: 437–456.

Wetterer, J. K. 2008. Worldwide spread of the longhorn crazy ant, *Paratrechina longicornis* (Hymenoptera: Formicidae). *Myrmecological News* 11: 137–149.

Wetterer, J. K. 2009a. Worldwide spread of the ghost ant, *Tapinoma melanocephalum* (Hymenoptera: Formicidae). *Myrmecological News* 12: 23–33.

Wetterer, J. K. 2009b. Worldwide spread of the penny ant, *Tetramorium bicarinatum* (Hymenoptera: Formicidae). *Sociobiology* 54: 811–830.

Wetterer, J. K. 2009c. Worldwide spread of the destroyer ant, *Monomorium destructor* (Hymenoptera: Formicidae). *Myrmecological News* 12: 97–108.

Wetterer, J. K. 2010a. Worldwide spread of the flower ant, *Monomorium floricola* (Hymenoptera: Formicidae). *Myrmecological News* 13: 19–27.

Wetterer, J. K. 2010b. Worldwide spread of the pharaoh ant, *Monomorium pharaonis* (Hymenoptera: Formicidae). *Myrmecological News* 13: 115–129.

Wetterer, J. K. 2010c. Worldwide spread of the wooly ant, *Tetramorium lanuginosum* (Hymenoptera: Formicidae). *Myrmecological News* 13: 81–88.

Wetterer, J. K. 2011a. Worldwide spread of *Pheidole teneriffana* (Hymenoptera: Formicidae). *Florida Entomologist* 94: 843–847.

Wetterer, J. K. 2011b. Worldwide spread of the tropical fire ant, *Solenopsis geminata* (Hymenoptera: Formicidae). *Myrmecological News* 14: 21–35.

Wetterer, J. K. 2011c. Worldwide spread of the membraniferous dacetine ant, *Strumigenys membranifera* (Hymenoptera: Formicidae). *Myrmecological News* 14: 129–135.

Wetterer, J. K. 2012a. Worldwide spread of Emery's sneaking ant, *Cardiocondyla emeryi* (Hymenoptera: Formicidae). *Myrmecological News* 17: 13–20.

Wetterer, J. K. 2012b. Worldwide spread of the African big-headed ant, *Pheidole megacephala* (Hymenoptera: Formicidae). *Myrmecological News* 17: 51–62.

Wetterer, J. K. 2012c. Worldwide spread of the stigma ant, *Pachycondyla stigma* (Hymenoptera: Formicidae). *Myrmecological News* 16: 39–44.

Wetterer, J. K. 2012d. Worldwide spread of Emma's dacetine ant, *Strumigenys emmae* (Hymenoptera: Formicidae). *Myrmecological News* 16: 69–74.

Wetterer, J. K. 2012e. Worldwide spread of Roger's dacetine ant, *Strumigenys rogeri* (Hymenoptera: Formicidae). *Myrmecological News* 16: 1–6.

Wetterer, J. K. 2013. Worldwide spread of the little fire ant, *Wasmannia auropunctata* (Hymenoptera:

Formicidae). *Terrestrial Arthropod Reviews* 6: 173–184.

Wetterer, J. K. 2016. Geographic distribution of *Cephalotes varians* (Hymenoptera: Formicidae). *Florida Entomologist* 99: 755–758.

Wetterer, J. K., and F. Hita Garcia. 2015. Worldwide spread of *Tetramorium caldarium* (Hymenoptera: Formicidae). *Myrmecological News* 21: 93–99.

Wetterer, J. K., and S. D. Porter. 2003. The little fire ant, *Wasmannia auropunctata*: distribution, impact, control. *Sociobiology* 42: 1–41.

Wheeler, W. M. 1905. The ants of the Bahamas, with a list of the known West Indian species. *Bulletin of the American Museum of Natural History* 21: 79–135, pl. VII.

Wheeler, W. M. 1907. The fungus-growing ants of North America. *Bulletin of the American Museum of Natural History* 23: 669–807.

Wheeler, W. M. 1908. The ants of Porto Rico and the Virgin Islands. *Bulletin of the American Museum of Natural History* 24: 117–158.

Wheeler, W. M. 1931. New and little-known ants of the genera *Macromischa*, *Creosomyrmex* and *Antillaemyrmex*. *Bulletin of the Museum of Comparative Zoology at Harvard College* 72: 1–34.

Wheeler, W. M. 1935. Ants of the genus *Acropyga* Roger, with description of a new species. *Journal of the New York Entomological Society* 43: 321–329.

Wheeler, W. M. 1936. Ants from Hispaniola and Mona Island. *Bulletin of the Museum of Comparative Zoology at Harvard College* 80: 195–211.

Wheeler, W. M. 1937. Ants mostly from the mountains of Cuba. *Bulletin of the Museum of Comparative Zoology at Harvard College* 81: 439–465.

Wheeler, W. M., and W. M. Mann. 1914. The ants of Haiti. *Bulletin of the American Museum of Natural History* 33: 1–61.

Wild, A. L. 2007. Taxonomic revision of the ant genus *Linepithema* (Hymenoptera: Formicidae). *University of California Publications in Entomology* 126: 1–151.

Wild, A. L. 2009. Evolution of the Neotropical ant genus *Linepithema*. *Systematic Entomology* 34: 49–62.

Williams, J. L., and J. S. LaPolla. 2016. Taxonomic revision and phylogeny of the ant genus *Prenolepis* (Hymenoptera: Formicidae). *Zootaxa* 4200: 201–258.

Wilson, E. O. 1953. The ecology of some North American dacetine ants. *Annals of the Entomological Society of America* 46: 479–495.

Wilson, E. O. 1959. Communication by tandem running and ant genus *Cardiocondyla*. *Psyche* 66: 29–34.

Wilson, E. O. 1961. The nature of the taxon cycle in the Melanesian ant fauna. *American Naturalist* 95(882): 169–193.

Wilson, E. O. 1985. Invasion and extinction in the West Indian ant fauna: evidence from the Dominican amber. *Science* 229: 265–267.

Wilson, E. O. 1988. The biogeography of the West Indian ants (Hymenoptera: Formicidae), PP. 214–230 IN: J. K. Liebherr, editor. *Zoogeography of Caribbean Insects*. Ithaca, New York: Cornell University Press.

Wilson, E. O. 2003. *Pheidole on the New World: A Dominant, Hyperdiverse Ant Genus*. Cambridge, Massachusetts: Harvard University Press.

Wilson, E. O. 2005. Early ant plagues in the New World. *Nature* 433: 32–32.

Wilson, E. O., and R. W. Taylor. 1967. The ants of Polynesia (Hymenoptera: Formicidae). *Pacific Insects Monograph* 14.

Wolcott, G. N. 1948. The insects of Puerto Rico. Hymenoptera. *Journal of Agriculture of the University of Puerto Rico* 32: 749–975.

Wolcott, G. N., and L. F. Martorell. 1937. The ant, *Monomorium carbonarium ebeninum* Forel, in a new role: as predator on the egg-clusters of *Diatraea saccharalis* F. in Puerto Rican cane fields. *Journal of Agriculture of the University of Puerto Rico* 21: 577–579.