Checklist of the Ants (Hymenoptera: Formicidae) from Jalisco State, México

by

Miguel Vásquez-Bolaños & José Luis Navarrete-Heredia[1]

ABSTRACT

A checklist of ants recorded from Jalisco, Mexico is provided. One hundred and twenty morphospecies are known of which 57 are identified to the species level. For each identified species-valid name, the author, year of description, distribution by county, and vegetation type are provided. La Huerta and Zapopan are the counties with the highest diversity with 67 and 24 morphospecies respectively. *Cardiocondyla*, *Cryptopone*, *Camponotus (Colobopsis)*, *Procryptocerus*, *Cepahlotes insularis*, and *Dolichoderus lugens* are recorded for the first time from the state.

INTRODUCTION

Ants are among the most abundant living organisms in terrestrial habitats. For example, in the Amazon Valley their biomass was estimated as 8 million of individuals per hectare or 306 millions of workers plus 1,080,000 queens in 45,000 nests located in a single area of 2.7 km^2 (Higashi & Yamauchi 1979; *in* Hölldobler and Wilson 1990). They belong to a single family of Hymenoptera: Formicidae, comprised of 16 subfamilies, two of them extinct (Bolton 1994). In the World, 297 genera and 8,804 species are recognized (Hölldobler & Wilson 1990), but this number is just a portion of the 15,000 estimated species (Bolton 1994).

In the Neotropical region there are 2,162 described species (Hölldobler & Wilson 1990), whereas in México by now there 501 recorded species; 112 of which are endemic (Rojas 1996).

Jalisco is interesting because of the diversity of habitats starting at the sea level and proceeding to areas at high altitude (+ 4,000 m asl: Nevado de Colima). However the entomological survey was restricted primarily to two areas: Estación de Biología Chamela and, Sierra de Manantlán. These limited surveys apply for the ants and is easily recognized by the small quantity of published data. Watkins (1988) provided a review of the army ants from the Estación de Biología,

[1]Entomología, Centro de Estudios en Zoología,CUCBA, Universidad de Guadalajara, Apdo. Postal 234, 45100 Zapopan, Jalisco, MEXICO
Email addresses: mvb14145@hotmail.com, snavarre@cucba.udg.mx

Chamela; Mercado (1994) recognized 70 species associated to the tropical deciduous forest, Castaño (1994 and 1997) recognized 80 species for the same locality. Abud (1987) recorded 19 species from the Bosque de la Primavera (near to Guadalajara Metropolitan Area). Other papers, not specific for Jalisco, but with a taxonomical view, provide information on species from the state, for example: Bolton (1979), Snelling (1976), and others. Finally, Rojas (1996) recorded 34 species of ants from Jalisco, belonging to Ponerinae, Ecitoninae, Pseudomyrmecinae, Myrmicinae, Dolichoderinae and, Formicinae.

The goal of this paper is update the information of the ants distributed in Jalisco and to provide a taxonomical tool for future research.

MATERIALS AND METHODS

Records for the species were obtained from literature and most of the new data came from labels of the specimens deposited at the Entomological Collection of the Centro de Estudios en Zoologia, Universidad de Guadalajara collected in different localities between 1997-2003.

The checklist is ordered following Bolton (1995) for subfamilies, tribes and, subtribes. Genera are in alphabetical order. Author and year of the description are provided in genera and species. Distribution in the State includes County and, vegetation type. At the end in brackets, the reference is provided. When the information came from the entomological collection the acronym CZUG is included. Several morphospecies were recognized in ecological contributions. They are included because some genera were recorded for the first time from Jalisco in those papers, but specific names are still wanting.

RESULTS

In Jalisco there are at least 120 morphospecies, 57 are indentified to specific level (47.5%). All the Mexican subfamilies (Cerapachinae, Ponerinae, Ecitoninae, Pseudomyrmecinae, Myrmicinae, Dolichoderinae and, Formicinae) have at least one species (Appendix 1). Cerapachinae is represented by one genus and one species, whereas Myrmicinae has the highest diversity with 25 genera, 20 identified species and, more than 60 morphospecies. Ecitoninae is the most well known group: all the species are identified to specific level.

There are 58 genera recorded from Jalisco; 24 have at least one identified species and 34 are represented by morphospecies. *Pseudomyrmex* is the most diverse genus with 16 species (seven identified plus 9 morphospecies), followed by *Neivamyrmex* (14 identified species), *Pheidole* (three identified species plus ten morphospecies) and, *Solenopsis* (three identified species plus nine morphospecies).

Cardiocondyla, *Cryptopone*, *Camponotus* (*Colobopsis*) *Procryptocerus*, *Cephalotes insularis*, *Dolichoderus lugens*, are recorded for the first time from Jalisco.

DISCUSSION

The most recent checklist of the Mexican ants, recorded 501 species distributed in the country, including 112 endemic (Rojas 1996). Veracruz is the richest state with 157 species (identified), followed by Chiapas (83), Nuevo León (76) and, Nayarit (54). Based on identified species from Jalisco (57), our findings increase by 67.34% the number of the species recorded from the state, and now Jalisco occupies the third place in diversity.

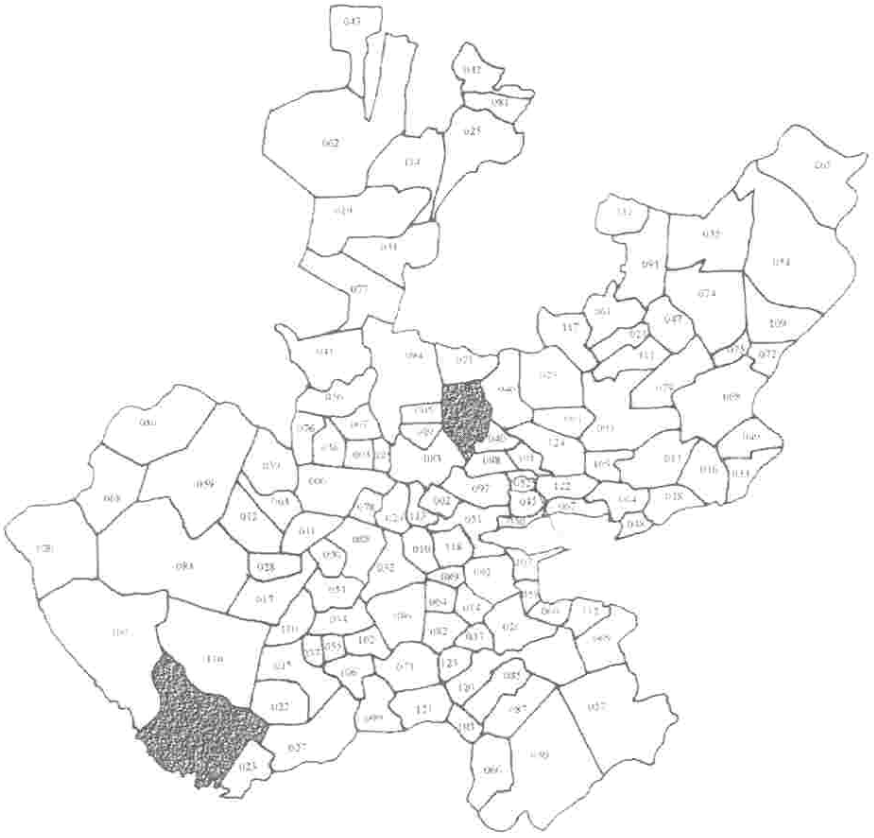

Fig. 1. Counties from Jalisco State. La Huerta (SW) and Zapopan (Central Jalisco) are filled. The list of counties is contained in Table 1.

Table 1. Counties from Jalisco State. La Huerta (SW) and Zapopan (Central Jalisco). Numbers refer to Fig. 1.

001	Acatic	051	Jocotepec
002	Acatlán de Juárez	052	Juanacatlán
003	Ahualulco del Mercado	053	Juchitlán
004	Amacueca	054	Lagos de Moreno
005	Amatitán	055	Limón, El
006	Ameca	056	Magdalena
007	Antonio Escobedo	057	Manuel M. Diéguez
008	Arandas	058	Manzanilla de la Paz, La
009	Arenal	059	Mascota
010	Atemajac de Brizuela	060	Mazamitla
011	Atengo	061	Mexticacán
012	Atenguillo	062	Mezquitic
013	Atotonilco El Alto	063	Mixtlán
014	Atoyac	064	Ocotlán
015	Autlán de Navarro	065	Ojuelos de Jalisco
016	Ayotlán	066	Pihuamo
017	Ayutla	067	Poncitlán
018	Barca, La	068	Puerto Vallarta
019	Bolaños	069	Quitupan
020	Cabo Corrientes	070	Salto, El
021	Cañada de Obregón	071	San Cristobal de la Barranca
022	Casimiro Castillo	072	San Diego de Alejandria
023	Cihuatlán	073	San Gabriel
024	Cocula	074	San Juan de los Lagos
025	Colotlán	075	San Julián
026	Concepción de Buenos Aires	076	San Marcos
027	Cuautitlán de García Barragán	077	San Martín de Bolaños
028	Cuautla	078	San Martín Hidalgo
029	Cuquío	079	San Miguel El Alto
030	Chapala	080	San Sebastián del Oeste
031	Chimaltitlán	081	Santa María de los Angeles
032	Chiquilistlán	082	Sayula
033	Degollado	083	Tala
034	Ejutla	084	Talpa de Allende
035	Encarnación de Díaz	085	Tamazula de Gordiano
036	Etzatlán	086	Tapalpa
037	Gomez Farías	087	Tecalitlán
038	Grullo, El	088	Tecolotlán
039	Guauchinango	089	Techaluta de Montenegro
040	Guadalajara	090	Tenamaxtlán
041	Hostotipaquillo	091	Teocaltiche
042	Huejúcar	092	Teocuitatlán de Corona
043	Huejuqilla El Alto	093	Tepatitlán de Morelos
044	Huerta, La	094	Tequila
045	Ixtlahuacán de los Membrillos	095	Teuchitlán
046	Ixtlahuacán del Río	096	Tizapán El Alto
047	Jalostotitlán	097	Tlajomulco de Zuñiga
048	Jamay	098	Tlaquepaque
049	Jesús María	099	Tolimán
050	Jilotán de los Dolores	100	Tomatlán

Table 1.(continued) Counties from Jalisco State. La Huerta (SW) and Zapopan (Central Jalisco). Numbers refer to Fig. 1.

101	Tonalá	113	Villa Corona
102	Tonaya	114	Villa Guerrero
103	Tonila	115	Villa Hidalgo
104	Totatiche	116	Villa Purificación
105	Tototlán	117	Yahualica de González Gallo
106	Tuxcacuesco	118	Zacoalco de Torres
107	Tuxcueca	119	Zapopan
108	Tuxpan	120	Zapotiltic
109	Unión de San Antonio	121	Zapotitlán de Vadillo
110	Unión de Tula	122	Zapotlán del Rey
111	Valle de Guadalupe	123	Zapotlán El Grande
112	Valle de Juárez	124	Zapotlanejo

Of the 124 counties recognized in the state , there are records for 32 of them, a small portion for a this Mexican State. La Huerta (67 species, including identified and morphospecies) and Zapopan (28) have the highest number of species due to the intensive field work in these areas. Thirteen counties are represented by one species and 92 lack of any species recorded! (Fig. 1).

Although there are several faunistic papers from different regions in México (García-Pérez *et al.* 1992, Quiroz & Valenzuela 1993, Rojas & Fragoso 1994, Alemán 1985, Mackay *et al.* 1985) and others, our knowledge of the Mexican ants requires more field work in several areas. Our work is focused primarily in Jalisco, but we have new data from other Mexican states that are important contributions, either as new distributional data (Vásquez-Bolaños 1998, *in prep.*), clarifying published information with discrepancy data (Vásquez-Bolaños 2003) or finding new species for the country (Mackay & Vásquez-Bolaños *in prep.*). There are many things to do with the ants from Jalisco, but in the near future our efforts will be in Central Jalisco to increase our knowledge from this region because most of the information came from the coast of the State.

ACKNOWLEDGMENTS

We want to thank to Gabriela Castaño Meneses for her kind help and academic support during the progress of this work, but specially for her great friendship. Also to P. Rojas, W.P. MacKay, W.F. Watkins, R.R. Snelling, N. Quiroz y J. García for their corroboration or identification of some of the specimens examined and for donation of specialized literature.

LITERATURE CITED

Abud, Q.G. 1987. Aspectos ecológico y taxonómico de insectos (orden Lepidoptera e Hymenoptera) en el Bosque-Escuela de la Sierra de La Primavera. Tesis de Licenciatura, Facultad de Ciencias Biológicas, Universidad de Guadalajara.

Alemán, C.G. 1985. Contribución al conocimiento del género *Pseudomyrmex* Lund (Hymenoptera: Formicidae) en el estado de Morelos. Tesis de Licenciatura, Escuela de Ciencias biológicas, Universidad Autónoma del Estado de Morelos.

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) 38(4): 129-181.

Bolton, B. 1994. Identification guide to the ants of the world. Harvard University Press, Cambridge.

Bolton, B. 1995. A new general catalogue of the ants of the world. Harvard University Press, Cambrige.

Brandao, C.R.E. 1991. Adendos ao catálogo abreviado das formigas da região neotropical (Hymenoptera: Formicidae). Revista Brasileira de Entomologia. 35(2): 319-412.

Castaño, M.G. 1994. Mirmecofauna de Chamela, Jal. y caracterización de dos especies de *Crematogaster* con espectroscopias infrarroja y raman por transformada de fourier. Tesis de Licenciatura, Facultad de Ciencias, Universidad Nacional Autónoma de México.

Castaño, M.G. 1997. Caracteristicas ecológicas de las hormigas en la selva baja caducifolia de Chamela, Jalisco. Tesis de Maestria, Facultad de Ciencias, Universidad Nacional Autónoma de México.

Garcia-Pérez, J.A., W.P. MacKay, D. Gonzalez-Villareal y & R. Camacho-Trujillo 1992. Estudio preliminar de la mirmecofauna del Parque Nacional Chipinque, Nuevo León, México y su distribución altitudinal. Folia Entomologica Mexicana. 86: 185-190.

Higashi, S. & K. Yamauchi 1979. Influence of a supercolonial ant *Formica (Formica) yessensis* Forel on the distribution of other ants in Ishikari Coast. Japanese Journal of Ecology, 29(3): 259-264 (consulted *In*: Hölldobler & Wilson 1990)

Höldobler, B. & E.O. Wilson 1990. The ants. Harvard University Press, Cambridge.

Kempf, W.W. 1972. Catálogo abreviado das formigas da região neotropical (Hymenoptera: Formicidae). Studia Entomologica, 95: 2-345.

MacKay, W.P., E.E. MacKay, J.F. Pérez, L.I. Valdez & P. Vielma 1985. Las hormigas del estado de Chihuahua, México: el género *Pogonomyrmex* (Hymenoptera: Formicidae), Sociobiology, 11(1): 39-54.

Mercado, U.I. 1994. La comunidad de hormigas del suelo, del Bosque Tropical Caducifolio de la región de Chamela, Jalisco (Hymenoptera: Formicidae). Tesis de Licenciatura, Facultad de Ciencias Biológicas, Universidad de Guadalajara.

Quiroz, L.N.R. & J.E.G. Valenzuela 1993. Contribución al conocimiento de la mirmecofauna del estado de Hidalgo, México (Hymenoptera: Formicidae). Capitulo 9, 339-393. *In*: Vilavicencio, M.A., Y.S. Marmolejo & B.E. Pérez-Escandon (Ed.). Investigaciones recientes sobre la Flora y Fauna de Hidalgo, México. Universidad Autónoma de Hidalgo, Pachuca, Hidalgo.

Rojas, F.P. 1996. Formicidae (Hymenoptera). 483-500. *In*: Llorente, J. B., A.N.A. García & E.S. González (Ed.). Biodiversidad, taxonomía y biogeografía de artrópodos de México: Hacia una síntesis de su conocimiento. CONABIO, México, D. F.

Rojas, F.P. 2001. Las hormigas del suelo en México: Diversidad, distribución e importancia (Hymenoptera: Formicidae). Acta Zoológica Mexicana (n. s.), Número especial 1: 189-238.

Rojas, F.P. & A. Cartas 1997. Ecitoninae. *In*: González, S.E., R. Dirzo & R.C. Vogt (Ed.). Historia Natural de Los Tuxtlas. UNAM-CONABIO, México, D. F.

Rojas, F.P. & C. Fragoso 1994. The ant fauna (Hymenoptera: Formicidae) of the Mapimi Biosphere Reserve, Durango, Mexico. Sociobiology, 24(1): 47-75.

Snelling, R.R. 1976. A revision of the honey ants genus *Myrmecosistus* (Hymenoptera: Formiciade). Bulletin of Los Angeles County Museum of Natural History, 24: 1-163.

Vásquez-Bolaños, M. 1998. *Anoplolepis longipes* (Jerdon, 1852) (Hymenoptera: Formicidae). Dugesiana 5(1): 44-45.

Vásquez-Bolaños, M. 2003. *Atta mexicana* (F. Smith, 1858) (Hymenoptera: Formicidae). Dugesiana 10(1): 37-38.

Watkins, W.F., II. 1988. The army ants (Hymenoptera: Formicidae) of Chamela Biological Station in Jalisco, México. Folia Entomológica Mexicana, (77): 379-393.

APPENDIX 1

Checklist of the ants from Jalisco State, México. Records from literature are cited for each species. Original data came from specimens deposited at the Entomological Collection of the Centro de Estudios en Zoología, Universidad de Guadalajara (CZUG).

CERAPACHYINAE

Acanthostichini

Acanthostichus Mayr, 1887

One unidentified species from La Huerta in BTC (Mercado 1994, as *Ctenopyga*).

PONERINAE

Amblyioponini

Amblyopone Erichson, 1842

Some unidentified species from La Huerta in BTC (Castaño 1994, 1997).

Prionopelta Mayr, 1866

Two unidentified species, one from La Huerta (Castaño 1994) and one from Zapopan (CZUG), both in BTC.

Ectatommini

Ectatomma F. Smith, 1858

E. ruidum Roger, 1861 La Huerta, BTC (Castaño 1997).

Other unidentified species are recorded from Casimiro Castillo, and San Sebastián del Oeste, in BTC, and BTSC (CZUG), and La Huerta in BTC (Castaño 1994; Mercado 1994).

Gnamptogenys Roger, 1863

G. curtula (Emery, 1896) Guadalajara (Kempf 1972).

Additional unidentified species are recorded by Castaño (1994), and Mercado (1994) from La Huerta in BTC.

Platythyreini

Platythyrea Roger, 1863

Some unidentified species are recorded by Castaño (1997), and Mercado (1994) from La Huerta in BTC.

Ponerini

Cryptopone Emery, 1893

One unidentified species is recorded from Zapopan in BTC (CZUG).

Hypoponera Santschi, 1938

Five unidentifed species are cited from La Huerta, in BTC (Castaño 1994, 1997).

Odontomachus Latreille, 1804

Two unidentified species from San Sebastián del Oeste from BTC, and BTSC (CZUG); other unidentified species are recorded by Castaño (1994, 1997), and Mercado (1994) from La Huerta, in BTC.

Pachycondyla F. Smith, 1858

Three unidentified species are recorded from Puerto Vallarta, San Sebastián del Oeste, and Tuxcacuesco, in BTC, BTSC, and Manglar (CZUG); other unidentified species are recorded by Castaño (1994, 1997), and Mercado (1994) from La Huerta, in BTC.

Ponera Latreille, 1804

One unidentified species is recorded by Mercado (1994) from La Huerta, in BTC.

Proceratiini

Discothyrea Roger, 1863

Castaño (1997) recorded one unidentified species from La Huerta, in BTC.

Typhlomyrmecini

Typhlomyrmex Mayr, 1862

Castaño (1997) recorded one unidentified species from La Huerta, in BTC.

ECITONINAE

Ecitonini

Eciton Latreille, 1804

E. burchelli parvispinum Forel, 1899

Autlán, Ciudad Guzmán, Puerto Vallarta, and San Sebastián del Oeste, in BMM, BTC y BTSC (CZUG); La Huerta, BTC (Castaño 1997, Mercado 1997, and Watkins 1988).

E. mexicanum Roger, 1863

La Huerta, BTC (Watkins 1988).

E. vagans angustatum Roger, 1863

San Sebastián del Oeste, BTC (CZUG); La Huerta, BTC (Castaño 1994, and Watkins 1988).

Labidus Jurine, 1807

L. coecus (Latreille, 1802)

Arandas, San Sebastián, Tala, Tecolotlán, Tequila, and Zapopan, in BE, BEP, BG, BMM, and BTC (CZUG); La Huerta, BTC (Castaño 1997, and Watkins 1988).

Neivamyrmex Borgmeier, 1940

N. agilis Borgmeier, 1953

Zapopan, in BTC (CZUG); La Huerta, BTC (Castaño 1997, and Watkins 1988).

N. andrei (Emery, 1901)

Zapopan, in BTC (CZUG); La Huerta, in BTC (Watkins 1988).

N. chamelensis Watkins, 1986

La Huerta, in BTC (Castaño 1997, and Watkins 1988).

N. cornutus Watkins, 1975

La Huerta, in BTC (Mercado 1994, and Watkins 1988).

N. fallax Borgmeier, 1953

La Huerta, in BTC (Mercado 1994).

N. graciellae (Mann, 1926)

Zapopan, BPE (CZUG); La Huerta, BTC (Castaño 1994, and Watkins 1988).

N. harrisi (Haldeman, 1852)

San Sebastián del Oeste, and Tonalá, in BTSC, and VS (CZUG); La Huerta, in BTC (Mercado 1994, and Watkins 1988).

N. melanocephalus (Emery, 1895)

Ciudad Guzmán, San Sebastián del Oeste, Tecolotlan, and Tequila, in BE, BEP, BJ y BP (CZUG); La Huerta, in BTC (Castaño 1997, and Mercado 1994).

N. nigrscens (Cresson, 1872)

Zapopan, in BTC (CZUG); Kempf (1972) recorded if from Jalisco without specific locality.

N. opacithorax (Emery, 1894)

Zapopan, in BTC (CZUG); La Huerta, BTC (Mercado 1994, and Watkins (1988).

N. pilosus mandibularis (M. R. Smith, 1942)

La Huerta, BTC (Watkins 1988).

N. rugulosus Borgmeier, 1953

San Sebastián del Oeste, and Zapopan, in BTC y BTSC (CZUG); La Huerta, BTC (Watkins 1988); Ciudad Guzmán (Kempf 1972).

N. swainsoni (Shuckard, 1840)

Lagos de Moreno, Tepatitlán, Tonalá, and Zapopan, in CV, BTC, and VS (CZUG); La Huerta, BTC (Watkins 1988).

N. texanus Watkins, 1972

Rojas (1996) recorded species from Jalisco, without specific locality.

Nomamyrmex Borgmeier, 1936

N. esenbecki mordax Santschi, 1928

Tonalá, and Zapopan, in BTC, and VS (CZUG); La Huerta, BTC (Watkins 1988).

N. esenbecki wilsoni (Santschi, 1920)

Rojas and Cartas (1997) recorded it from Jalisco without specific locality.

PSEUDOMYRMECINAE

Pseudomyrmex Lund, 1831

Nine unidentified species are recorded from Cabo Corrientes, Chapala, Lagos de Moreno, La Huerta, Mascota, Ojuelos, Puerto Vallarta, San Sebastián del Oeste, Tala, Tecolotlan, Tepatitlán, Tequila, Tonalá and, Zapopan; in CV, BEP, BG, BMM, BP, BTC, BTSC, MG, MX and, VS (CZUG); other unidentified species are cited by Abud (1987 as *Pseudomyrma*) from Tala in BPE; Castaño (1997) and, Mercado (1994) from La Huerta in BTC.

P. cubaensis (Forel, 1901)

Jalisco without specific locality (Brandao 1991).

P. elongatus Mayr, 1870

Jalisco without specific locality (Brandao 1991).

P. gracillis Fabricius, 1804

La Huerta in BTC (Castaño, 1994).

P. major Forel, 1899

La Huerta in BTC (Castaño, 1994).

P. pallidus (Fr. Smith, 1855)

La Huerta in BTC (Castaño, 1994).

P. spiculus Ward, 1989

Jalisco without specific locality (Brandao 1991).

P. unicolor (Fr. Smith, 1855)

La Huerta in BTC (Castaño, 1994).

MYRMICINAE

Attini

Acromyrmex Mayr, 1865

One unidentified species from La Huerta, in BTC (Castaño 1994, 1997).

Atta Fabricius, 1804

A. mexicana (F. Smith, 1858)

Ameca, Atenguillo, Atoyac, Casimiro Castillo, La Huerta, Mascota, Sayula, Tala, Tecolotlán, Tepatitlán, Tequila, Tonalá y Zapopan; in BE, BEP, BTC y VS (CZUG); Tala, in BPE (Abud 1987); La Huerta, in BTC (Castaño 1994, 1997; Mercado 1994).

Cyphomyrmex Mayr, 1862

Unidentified species from La Huerta, in BTC(Castaño 1994, 1997; Mercado 1994).

Mycocepurus Forel 1893

One unidentified species from Mixtlán (CZUG).

M. smithii Forel, 1893

Jalisco without specific locality (Kempf 1972).

Myrmicocrypta F. Smith, 1860

M. dilacerata cornuta Forel, 1899

Recorded from Jalisco (Kempf 1972), but specific locality provided is San Blas (locality from Nayarit). However, as this locality is near to the border with Jalisco, their oc-

currence in the state is suspected.

Trachymyrmex Forel, 1893
Three unidentified species from Tecolotlán, Tequila y Zapopan, in BEP and BTC (CZUG). Other unidentified species are recorded by Castaño (1997) and, Mercado (1994) from La Huerta, in BTC.

Cephalotini

Cephalotes Latreille, 1802
Five species unidentified from Cabo Corrientes, La Huerta, San Sebastián del Oeste, Talpa and, Tuxcacuesco, in BTC, BTSC, MG and ME (CZUG).

C. insularis Wheeler, 1934
Zapopan, in BTC (CZUG).

C. multispinosus Norton, 1868
La Huerta, in BTC (Castaño 1994).

C. varians (F. Smith, 1876)
Tala, in BPE (Abud 1987 as *Cryptocerus varians*)
Other unidentified species are recorded from La Huerta in BTC by Castaño (1997) and, Mercado (1994).

Procryptocerus Emery, 1887
One unidentified species from San Sebastián del Oeste, in BTC and, BTSC (CZUG).

Crematogastrini

Crematogaster Lund, 1831
Nine unidentified species from Cabo Corrientes, Puerto Vallarta, San Gabriel, Tala, Tequila, Tonalá and, Zapopan, in BE, BEP, BMM, BTC and, BTSC (CZUG).

C. brevispinosa Mayr, 1870
La Huerta in BTC (Castaño 1994, 1997).

C. sumichrasti Mayr, 1870
La Huerta in BTC (Castaño 1994, 1997).
Other unidentified species are recorded from Tala in BPE (Abud 1987); La Huerta in BTC (Mercado 1994).

Dacetini

Neostruma Brown, 1948
Unidentified species from La Huerta, in BTC (Castaño 1994, 1997).

Smithistruma Brown, 1948
One unidentified species from La Huerta, in BTC (Castaño 1994).

Strumigenys F. Smith, 1860
One unidentified species from San Sebastián del Oeste, in BTSC (CZUG).

S. deltisquama Brown, 1957
Recorded from Jalisco without specific locality (Brandao 1991).
Other unidentified species are recorded from La Huerta, in BTC, by Castaño (1994 y 1997) and, Mercado (1994).

Formicoxenini

Cardiocondyla Emery, 1869
One unidentified species from Zapopan, in BTC (CZUG).

Leptothorax Mayr, 1855
Unidentified species from La Huerta, in BTC (Castaño 1994, 1997; Mercado 1994 as *Macromischa*).

Myrmecinini

Myrmecina Curtis, 1829

One unidentified species from La Huerta, in BTC (Castaño 1994).

Myrmicini

Pogonomyrmex Mayr, 1868

P. barbatus (Fr. Smith, 1858)

Lagos de Moreno, San Martin Hidalgo, Tala, Tecolotlán, Tepatitlán, Tequila, Tlaquepaque, Tonalá, Tuxcacuesco y Zapopan (CZUG).

One unidentified species from Tala, in BPE (Abud 1987)

Pheidolini

Aphaenogaster Mayr, 1853

Eight unidentified species from Atoyac, Aután, La Huerta, Mascota, San Sebastián del Oeste, Tala, Tecolotlán, Tequila, Tuxcacuesco and, Zapopan, in BE, BEP, BMM, BTC and, VS (CZUG). Other unidentified species is recorded from Tala, in BPE (Abud 1987) and La Huerta, in BTC (Mercado 1994).

Pheidole Westwood, 1839

Ten unidentified species from Ciudad Guzmán, San Sebastián del Oeste, Tala, Tequila and, Zapopan, in BE, BEP, BP, BTC and, VS (CZUG).

P. hirtula Forel, 1899

Jalisco without specific locality (Brandao 1991).

P. tepicana Pergande, 1896

Jalisco without specific locality (Kempf 1972).

P. vasliti Forel, 1899

Jalisco without specific locality (Kempf 1972).

Other unidentified species are recorded from Tala in BPE by Abud (1987); La Huerta, in BTC by Castaño (1994, 1997) and, Mercado (1994).

Pheidologetonini

Carebara Westwood, 1840

One unidentified species from La Huerta, in BTC (Mercado 1994).

Oligomyrmex Mayr, 1867

Two unidentified species from La Huerta, in BTC (Castaño 1997).

Solenopsidini

Megalomyrmex Forel, 1885

One unidentified species from La Huerta, in BTC (Castaño, 1994, 1997).

Oxyepoecus Santschi, 1926

One unidentified species from La Huerta, in BTC (Mercado 1994).

Monomorium Mayr, 1855

Two unidentified species from Tala and, Tecolotlán, in BPE and, BTC (CZUG). Other unidentified species from Tala in BPE are recorded by Abud (1987); La Huerta, in BTC by Mercado (1994).

M. cyaneum Wheeler, 1914

Jalisco without specific locality (Rojas 2001).

Solenopsis Westwood, 1840

Nine unidentified species from Jesús María, Lagos de Moreno, La Huerta, Puerto Vallarta, San

Gabriel, San Sebastián del Oeste, Tala, Tecolotlán, Tequila, Tonalá, Tuxcacuesco and, Zapopan, in BE, BEP, BMM, BPE, BTC, BTSC and, VS (CZUG).

S. amblychyla Wheeler, 1915
Jalisco without specific locality (Rojas 2001).

S. aurea Wheeler, 1906
Jalisco without specific locality (Kempf 1972).

S. geminata (Fabricius, 1804)
Jalisco without specific locality (Rojas 2001).
Other unidentified species from La Huerta, in BTC are recorded by Castaño (1994, 1997) and, Mercado (1994).

Stenammini

Rogeria Emery 1894
Two unidentified species are recorded from La Huerta, in BTC (Castaño 1997).

Tetramorini

Tetramorium Mayr, 1855
One unidentified species from Zapopan, in BTC (CZUG).

T. spinosum (Pergande, 1896)
Tecolotlán and, Zapopan, in BTC (CZUG). Bolton (1979) recorded this species from Cocula, Mazamitla San Gabriel and, Zapotitlán de Vadillo.

T. mexicanum Bolton, 1979
Autlán (Bolton, 1979)

T. placidum Bolton, 1979
Autlán (Bolton, 1979)
One unidentified species from La Huerta, in BTC (Mercado 1994).

DOLICHODERINAE

Azteca Forel, 1878
Five unidentified species from La Huerta, Puerto Vallarta, San Sebastián del Oeste and, Zapopan, in BTC, BTSC, MG and, VS (CZUG).

A. alfari Forel, 1909
Jalisco without specific locality (Brandao 1991).
One unidentified species from La Huerta, in BTC (Mercado 1994).

Dolichoderus Lund, 1831

D. lugens Emery, 1894
Zapopan (CZUG), in BTC.
Other unidentified species from Tala, in BPE (Abud 1987) and La Huerta, in BTC (Castaño 1994 as *Hypoclinea*).

Dorymyrmex Mayr, 1866
Three unidentified species from Tala, Tequila and, Zapopan, in BPE and, BTC (CZUG).

D. bicolor (Wheeler, 1906)
Jalisco without specific locality (Kempf 1972).

D. pyramicus (Roger, 1863)
Tala, in BPE (Abud 1987)
One unidentified species from La Huerta, in BTC (Castaño 1994 as *Conomyrma*).

Forelius Emery, 1888
Two unidentified species from La Huerta, in BTC (Castaño 1994, 1997).

Iridomyrmex Mayr, 1862

Two unidentified species from Tala, in BPE (Abud 1987) and La Huerta, in BTC (Castaño 1994).

Tapinoma Foerster, 1850

Unidentified species from La Huerta, in BTC are recorded by Castaño (1994, 1997) and, Mercado (1994).

Technomyrmex Mayr, 1872

One unidentified species from La Huerta, in BTC (Mercado 1994).

FORMICINAE

Brachymyrmecini

Brachymyrmex Mayr, 1868

Three unidentified species from Tecolotán, Tequila, Tonalá and, Zapopan, in BTC, BPE and, VS (CZUG). Other unidentified species are recorded from Tala, in BPE (Abud 1987); La Huerta, in BTC by Castaño (1994, 1997) and, Mercado (1994).

Camponotini

Camponotus Mayr, 1861

Six unidentified species from Casimiro Castillo, La Huerta, San Sebastián del Oeste, Tala, Tecolotlán, Tequila, Tonalá and, Zapopan, in BE, BEP, BJ, BP and, BTC (CZUG).

C. sericeiventris rex Forel, 1907

Casimiro Castillo, Cihuatlán, Puerto Vallarta, San Sebastián del Oeste and, Tecolotlán, in BEP, BTC and, BTSC (CZUG). Guadalajara (Kempf 1972).

Other unidentified species are recorded from Tala, in BPE by Abud (1987); La Huerta, in BTC by Castaño (1994, 1997) and, Mercado (1994).

C. (Colobopsis) Mayr, 1861

One unidentified species from Cabo Corrientes, in BTSC (CZUG).

Formicini

Formica Linnaeus, 1758

One unidentified species from La Huerta, in BTC (Mercado 1994).

Lassini

Lasius Fabricius, 1804

One unidentified species from Tala, in BPE (Abud 1987) and other one from La Huerta, in BTC (Castaño 1994).

Myrmecocystus Wesmael, 1838

One unidentified species from Tequila, in BJ (CZUG).

M. depilis Forel, 1901

Encarnación de Díaz (Snelling 1976).

M. melliger Forel, 1886

Lagos de Moreno (Snelling 1976).

Paratrechina Motschoulsky, 1863

Two unidentified species from Tala y Tequila, in BJ and, BTC (CZUG). Other unidentified species from Tala, in BPE (Abud 1987); La Huerta, in BTC (Castaño 1994, 1997).

Prenolepis Mayr, 1861

One unidentified species from Arandas, San Sebastián del Oeste and, Tequila, in BE and, BP (CZUG). One unidentified species from La Huerta, in BTC was recorded by Castaño (1994).

Plagiolepidini

Anoplolepis Santschi, 1914

A. gracilipes (Jerdon, 1852)

La Huerta, San Gabriel, Tequila, Tonalá and, Zapopan, in BG, BTC, MG and, VS. (CZUG) (Vásquez-Bolaños, 1998 as *A. longipes*).