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CHECKLIST OF THE ANTS OF MICHIGAN (HYMENOPTERA: FORMICIDAE)

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ABSTRACT

A total of 113 species of ants is recorded by county from the state of Michigan. The list is based upon literature records and specimens in the authors' collections and those of the University of Michigan Museum of Zoology and the Michigan State University Department of Entomology. The list includes 3 species in Ponerinae, 44 in Myrmicinae, 6 in Dolichoderinae, and 60 in Formicinae. Ten species represent new state records. Five distribution patterns are evident: statewide (39 species), southern counties only (5), southern 3/4th of Lower Peninsula (10), Lower Peninsula (17), and Upper Peninsula (2). Forty species have been collected too infrequently to determine the distribution within the state.

The earliest record of ants collected in Michigan is W. M. Wheeler's (1905) description of *Formica impexa*, collected by O. McCreary in 1902 "on the Porcupine Mountains in northern Michigan" (Ontonagon County). This is the first of five species described from the state. In 1909 W. M. Wheeler described *Formica adamsi* from Isle Royale (Keweenaw County), collected in 1908. The specimens collected by C. C. Adams, H. A. Gleason, and Otto McCreary from Isle Royale and the Porcupine Mountains in the Upper Peninsula are in the collection of the Museum of Zoology at the University of Michigan.

F. M. Gaige, curator of insects at the University of Michigan Museum of Zoology, was the first myrmecologist to live and work in Michigan. In 1910 he collected ants on Charity Island (Arenac County) and published a list of 20 species in 1914. He also published (1916) a list of 15 species from Whitefish Point (Chippewa County) that were collected in 1914 by N. A. Wood. Twenty eight species are represented in these two studies. Gaige also collected extensively in Schoolcraft and Washtenaw counties but did not publish these studies.

Mary Talbot (1934) included species in extreme southwestern Michigan as part of a study of the ecology of ants in the region around Chicago, Illinois. In 1945 and for several years thereafter she studied the ecology of certain ants at the University of Michigan Biological Station in Cheboygan County (Talbot 1946, 1948). For 25 summers between 1951 and 1980 Talbot conducted research on the ants of the Edwin S. George Reserve in Livingston County. From the research on this 514 ha (1268 acre) sanctuary of the University of

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Michigan she published 20 articles including a list of the 87 species found on the Reserve (1975b). She collected three new species of ants: *Formica gynocrates* Snelling and Buren (1985), *Formica talbotae* Wilson (1976), and *Monomorium talbotae* DuBois (1981). In addition, a specimen that Talbot collected at the Reserve was selected by Wing (1968) as a neotype for *Acanthomyops latipes* (Walsh). There are probably other species that will be described from her collections at the Reserve.

In a study of the ants of the Chicago area Gregg (1944) found 95 species, of which 30 were from Berrien and St. Joseph counties, Michigan. Taxonomic revisions by Creighton (1940), Francoeur (1973), Smith (1947, 1952), Weber (1948,1950), Wheeler (1910a, 1910b, 1913, 1915), Wilson (1955), and Wing (1968) recorded species from Michigan. Behavioral studies by Groskin (1944) and Kannowski (1957, 1958, 1959a, 1959b, 1959c, 1967, 1970; Kannowski and Kannowski, 1957) were based upon species observed in Michigan.

The list is based upon literature records and 4,692 collections: 2,382 in the Division of Insects, Museum of Zoology, University of Michigan; 926 in the Department of Entomology, Michigan State University; 1,244 in the Kannowski collection; and 140 in the Wheeler collection. The specimens in the University of Michigan, Michigan State University, and Kannowski collections were identified by P. B. Kannowski between March 1989 and December 1992; the specimens in the Wheeler collection were checked by Jeanette Wheeler in 1991. Mary Talbot's collection, which is now in the Department of Biology at the University of Missouri–St. Louis, was not checked. However, there is a nearly complete synoptic collection of her records from the E. S. George Reserve in the University of Michigan Museum of Zoology, which was checked. Two species (*Harpagoxenus canadensis* M.R. Smith and *Smithistruma ornata* [Mayr]) have been included based upon the citation of Michigan as a locality by M. R. Smith (1951 for *H. canadensis*; 1967 for *S. ornata*). David Smith (personal communication, 1991) has been unable to locate the counties or the sources of those records.

Some of the species names used in the literature referenced in this study are either synonyms or misidentifications. There are also several specimens in the Michigan State University collection that were collected by R. R. Dreisbach that appear to be incorrectly labelled. All suspect records have been omitted in this compilation. However, the specimens on which the studies by Gaige (1914, 1916) and Wheeler (1909) were based are in the collection at the University of Michigan Museum of Zoology. These were re-identified and incorporated into the list.

Michigan has 83 counties, which are shown in Figure 1.

RESULTS

A total of 113 species has been identified from the state. There is at least one record from each county, with four counties (Antrim, Genesee, Houghton, and Menominee) having only a single record each (Fig. 2). The most intensively collected counties (Livingston and Washtenaw) are located in the southeastern region of the state. All 88 records for Livingston County are the species recorded by Talbot (1975), with adjustments for recent taxonomic changes. Washtenaw County has many species (67) because four myrmecologists (F. M. Gaige, P. B. Kannowski, and G. C. and J. N. Wheeler) collected there while they were associated with the University of Michigan. Cheboygan County at the northern end of the Lower Peninsula has the third highest number of species (57) due to the collections of P. B. Kannowski, M. Talbot,

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Figure 1. Map of Michigan showing the locations of counties.

and G. C. and J. N. Wheeler in the vicinity of the University of Michigan Biological Station.

Ten species are recorded for the first time from Michigan: *Aphaenogaster mariae* Forel, *Formica argentea* Wheeler, *F. fossaceps* Buren, *F. prociliata* Kennedy & Dennis, *F. querquetulana* Kennedy & Dennis, *Harpagoxenus*

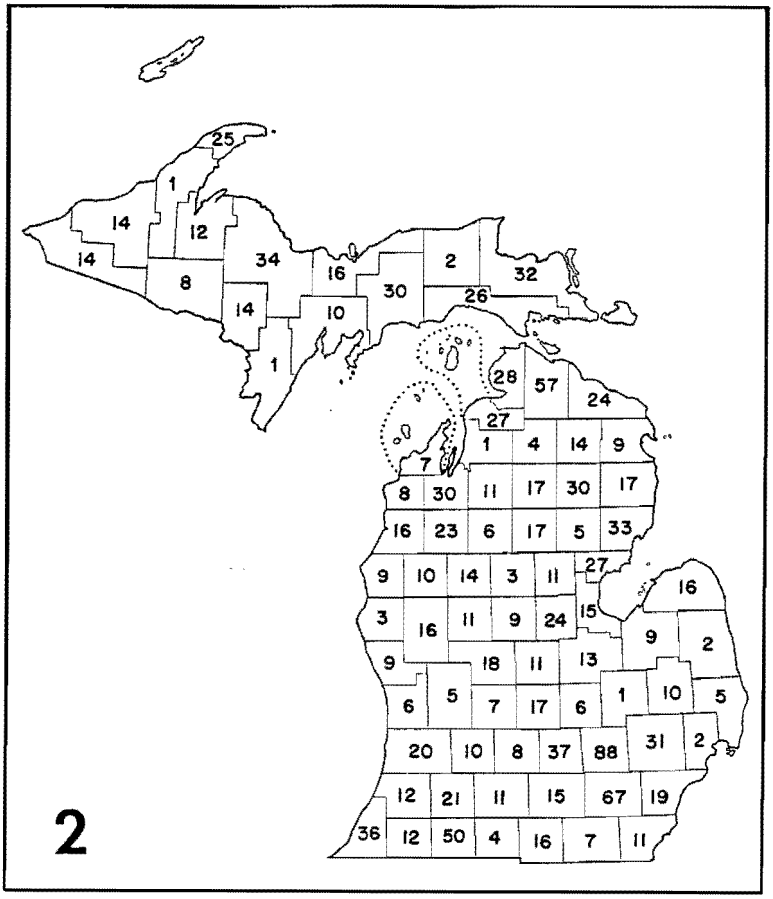

Figure 2. The number of species recorded from each county in Michigan.

americanus (Emery), *Lasius subumbratus* Viereck, *Monomorium pharaonis* (Linn.), *Myrmica alaskensis* Wheeler and *Tetramorium caespitum* (Linn.).

The most frequently collected species is *Tapinoma sessile* (Say), which has been recorded from 65 of the 83 counties. Other species that have been collected in a large proportion of the counties include *Camponotus noveboracensis* (Fitch) (62), *Lasius alienus* (Foerster) (54), *Crematogaster cerasi* (Fitch) (52), *Camponotus pennsylvanicus* (DeGeer) (52), and *Formica subsericea* Say (51).

There are five patterns for distribution within the state. Thirty nine species can be found throughout the state. Most of these are forest-dwelling species that find suitable habitats in all parts of the state. A few, such as *Myrmica americana* Weber and *Lasius neoniger* Emery, commonly occur in open habitats throughout the state. Five species have distributions limited to the southernmost counties of the Lower Peninsula. Four of these are forest species that are near the northern limits of their distribution; the fifth species,

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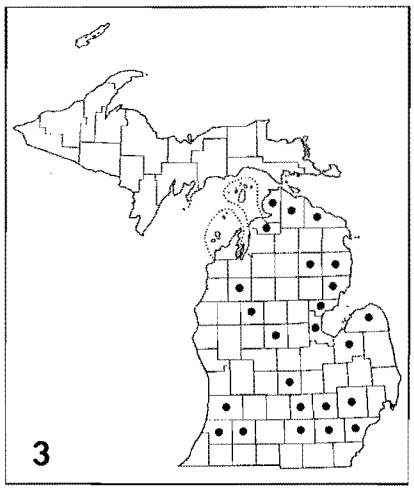

Figure 3. Lower Peninsula distribution pattern: records for *Myrmica americana* Weber.

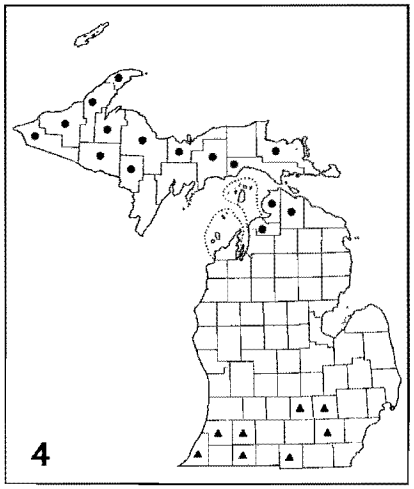

Figure 4. Upper Peninsula distribution pattern (circles): records for *Camponotus herculeanus* (Linnaeus). Southern counties only distribution pattern (triangles): records for *Leptothorax curvispinosus* Mayr.

Pheidole bicarinata Mayr, is limited to sand dunes, which have limited occurrence in southern Michigan. Another 10 occur only in the lower two-thirds to three-fourths of the Lower Peninsula, while 17 others occur throughout the Lower Peninsula. Some of these, i. e., *Aphaenogaster tennesseensis* (Mayr), *Camponotus americanus* Mayr, and *Formica schaufussi* Mayr, are species that occur primarily in more southern regions and reach their northern limits near the upper end of the Lower Peninsula. Others may be limited by weak flights from traversing the Straits of Mackinac. Only two species (*Camponotus herculeanus* (Linn.) and *Formica podzolica* Francoeur) live primarily in the Upper Peninsula. These are boreal species that have not extended very far below the northern tip of the Lower Peninsula, even though suitable habitat is available. Forty one species have been collected too infrequently to establish their distributions. The records of three species that are representative of different distributions within the state are shown in Figs. 3 and 4.

According to Smith 1979 (and some more recent authors), the North American ranges of 73 species of Michigan ants are intraneous. One species (*Monomorium talbotae* DuBois) is endemic; one (*Monomorium pharaonis*) is introduced. One species is near its southern limit in Michigan, 19 reach their northern limits, 8 their eastern limits and 5 their western limits. For five species we have too little information to designate ranges.

Ecologically, Michigan is divided broadly into deciduous forest biome in the southern portion and ecotone (between deciduous and coniferous forest biomes) in the northern portion.

The list that follows is organized by subfamilies following the arrangement in Creighton (1950). Within each subfamily the genera and species are listed alphabetically. Localities are listed by counties in alphabetical sequence.

Information on nests and habitats, unless bracketed by parentheses, is based upon Michigan collections.

SUBFAMILY PONERINAE

***Amblyopone pallipes* (Haldeman).** In rotting logs in moist woods. Baraga, Livingston, Midland, St. Joseph, Washtenaw.

***Ponera pennsylvanica* Buckley.** In rotting logs in woods. Alcona, Arenac, Barry, Berrien, Cass, Cheboygan, Clinton, Delta, Emmet, Gladwin, Gratiot, Huron, Ingham, Iron, Jackson, Kalamazoo, Lake, Lapeer, Livingston, Mackinac, Manistee, Midland, Montcalm, Muskegon, Newaygo, Oakland, Oscoda, Presque Isle, Saginaw, St. Joseph, Schoolcraft, Washtenaw, Wayne, Wexford.

***Proceratium silaceum* Roger.** In soft rotting logs in woods. Livingston.

SUBFAMILY MYRMICINAE

***Aphaenogaster fulva* Roger.** In logs or stumps in woods. Livingston.

***Aphaenogaster mariae* Forel.** Oakland.

***Aphaenogaster rudis* (Emery).** In logs or stumps in woods. Arenac, Berrien, Cass, Charlevoix, Cheboygan, Chippewa, Clinton, Crawford, Emmet, Grand Traverse, Hillsdale, Huron, Ingham, Ionia, Iosco, Kalamazoo, Leelanau, Livingston, Marquette, Midland, Ontonagon, Presque Isle, St. Joseph, Schoolcraft, Washtenaw.

***Aphaenogaster tennesseensis* (Mayr).** In hard wood of logs and stumps in woods. Allegan, Arenac, Berrien, Cass, Grand Traverse, Huron, Ingham, Ionia, Jackson, Lake, Leelanau, Livingston, Manistee, Midland, Montcalm, Montmorency, Muskegon, Newaygo, Oakland, Oscoda, Ottawa, St. Joseph, Washtenaw.

***Aphaenogaster treatae* Forel.** In soil in grassy fields. Livingston.

***Crematogaster cerasi* (Fitch).** In logs and stumps in dense woods. Alcona, Allegan, Arenac, Baraga, Bay, Berrien, Branch, Cass, Charlevoix, Cheboygan, Chippewa, Clare, Crawford, Dickinson, Eaton, Emmet, Gladwin, Grand Traverse, Gratiot, Hillsdale, Ingham, Ionia, Iosco, Iron, Isabella, Jackson, Kalamazoo, Kalkaska, Lake, Lapeer, Livingston, Mackinac, Manistee, Marquette, Midland, Montcalm, Muskegon, Newaygo, Oakland, Ogemaw, Osceola, Oscoda, Presque Isle, Roscommon, Saginaw, St. Clair, St. Joseph, Schoolcraft, Shiawassee, Van Buren, Washtenaw, Wayne.

***Crematogaster lineolata* (Say).** In logs and stumps in open woods. Bay, Berrien, Grand Traverse, Ingham, Iosco, Isabella, Kalamazoo, Livingston, Manistee, Midland, Montmorency, Saginaw, St. Joseph, Van Buren, Washtenaw, Wayne, Wexford.

***Formicoxenus hirticornis* (Emery).** (Previously recorded as *Leptothorax hirticornis*.) Xenobiotic in nests of *Formica obscuripes*. Livingston.

***Formicoxenus provancheri* (Emery).** (Previously recorded as *Leptothorax provancheri*.) Xenobiotic in nests of *Myrmica lobifrons*. Cheboygan.

***Harpagoxenus americanus* (Emery).** St. Joseph.

***Harpagoxenus canadensis* M.R. Smith.** (Dulotic on *Leptothorax muscorum*.) "Michigan."

***Leptothorax ambiguus* Emery.** In acorns and other plant cavities in open woods and woods edges. Allegan, Alpena, Arenac, Bay, Cheboygan, Clinton, Crawford, Grand Traverse, Ingham, Ionia, Isabella, Lenawee, Livingston, Mackinac, Midland, Montcalm, Newaygo, Oakland, Saginaw, St. Joseph, Washtenaw.

***Leptothorax curvispinosus* Mayr.** In acorns and twigs in open woods.

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Berrien, Hillsdale, Ingham, Kalamazoo, Livingston, St. Joseph, Van Buren, Washtenaw.

Leptothorax duloticus **Wesson.** Dulotic on *Leptothorax ambiguus*, *L. curvispinosus* and *L. longispinosus*. Livingston, Washtenaw.

Leptothorax longispinosus **Roger.** In logs or stumps in moist woods. Berrien, Cheboygan, Ingham, Lapeer, Livingston, Midland, Newaygo, Washtenaw.

Leptothorax muscorum **(Nylander).** Under bark and in twigs in swamps and bogs. Charlevoix, Cheboygan, Delta, Emmet, Gladwin, Gogebic, Keweenaw, Livingston, Mackinac, Marquette, Mecosta, Montcalm, Osceola, Oscoda, Roscommon, Saginaw, Schoolcraft, Washtenaw.

Leptothorax schaumi **Roger.** Under bark in woods. Livingston.

Leptothorax texanus **Wheeler.** In soil in sandy areas. Cheboygan, Grand Traverse, Livingston, Oscoda, Roscommon, Wayne.

Monomorium minimum **(Buckley).** In soil in dry grassy areas. Alcona, Allegan, Berrien, Crawford, Lenawee, Livingston, Midland, Newaygo, Oakland, St. Joseph, Washtenaw, Wexford.

Monomorium pharaonis **(Linnaeus).** Introduced; from buildings in: Ingham, St. Joseph, Washtenaw, Wayne.

Monomorium talbotae **DuBois.** Inquiline in nests of *Monomorium minimum*. Livingston.

Myrmecina americana **Emery.** In logs and stumps in moist woods. Berrien, Ingham, Jackson, Kalamazoo, Livingston, Marquette, St. Joseph, Washtenaw.

Myrmica alaskensis **Wheeler.** In soil in moist woods. Keweenaw.

Myrmica americana **Weber.** In soil in grasslands. Alcona, Allegan, Arenac, Bay, Charlevoix, Cheboygan, Clinton, Emmet, Huron, Ingham, Iosco, Isabella, Jackson, Kalamazoo, Livingston, Oakland, Osceola, Oscoda, Presque Isle, Tuscola, Van Buren, Washtenaw, Wayne, Wexford.

Myrmica brevispinosa **Wheeler.** In soil in sand dunes and ridges. Charlevoix, Cheboygan, Chippewa, Emmet, Grand Traverse, Iron, Keweenaw, Mackinac, Presque Isle, Schoolcraft.

Myrmica detritinodis **Emery.** (Previously recorded as *M. emeryana* Forel, in part.) In logs and stumps in moist woods. Alcona, Alger, Arenac, Bay, Berrien, Charlevoix, Cheboygan, Chippewa, Clinton, Emmet, Gogebic, Grand Traverse, Gratiot, Hillsdale, Huron, Ingham, Iosco, Kalamazoo, Keweenaw, Lake, Livingston, Mackinac, Manistee, Marquette, Mason, Midland, Montmorency, Oakland, Oscoda, Presque Isle, Roscommon, St. Joseph, Schoolcraft, Washtenaw, Wayne, Wexford.

Myrmica fracticornis **Emery.** In soil hummocks in edges of marshes and in sedge hummocks in marshes. Alcona, Bay, Berrien, Cass, Charlevoix, Cheboygan, Crawford, Emmet, Gratiot, Hillsdale, Lapeer, Livingston, Mackinac, Midland, Montmorency, Ontonagon, Osceola, Presque Isle, Saginaw, St. Joseph, Schoolcraft, Washtenaw.

Myrmica incompleta **Provancher.** In soil and moss hummocks in bogs and swamps. Alcona, Alger, Arenac, Benzie, Berrien, Charlevoix, Cheboygan, Chippewa, Emmet, Gogebic, Iosco, Keweenaw, Livingston, Mackinac, Marquette, Oakland, Presque Isle, Schoolcraft, Washtenaw.

Myrmica lobifrons **Pergande.** (Previously recorded as *M. fracticornis*, in part. Recorded as "*M.* species A" in Kannowski, 1959a.) In moss hummocks in bogs and swamps. Cheboygan, Livingston, St. Joseph, Schoolcraft, Washtenaw.

Myrmica nearctica **Weber.** (Previously recorded as *M. monticola* Wheeler.) Under bark of logs and stumps in woods. Cheboygan, Emmet, Livingston, Marquette, St. Joseph, Schoolcraft.

Myrmica pinetorum **Wheeler.** In soil in mesic woods. Livingston.

***Myrmica punctiventris* Roger.** In soil in mesic woods. Allegan, Arenac, Berrien, Cheboygan, Clinton, Huron, Ingham, Livingston, Oakland, St. Joseph, Washtenaw.

***Myrmica* species 1.** (Previously recorded as *M. emeryana*, in part.) In soil in low fields and mesic woods. Cheboygan, Crawford, Emmet, Grand Traverse, Livingston, Presque Isle, St. Joseph, Washtenaw.

***Myrmica* species 2.** (Recorded by Talbot 1975b as *M. spatulata* M.R. Smith.) In soil in dry woods. Cheboygan, Grand Traverse, Livingston, Washtenaw.

***Pheidole bicarinata* Mayr.** In soil in sand dunes and ridges. Arenac, Berrien, St. Joseph.

***Smithistruma ornata* (Mayr).** "Michigan."

***Smithistruma pergandei* (Emery).** In logs or soil in woods. Livingston.

***Smithistruma pulchella* (Emery).** In woods. Livingston.

***Solenopsis molesta* (Say).** In soil in grasslands. Alcona, Arenac, Berrien, Cheboygan, Chippewa, Emmet, Hillsdale, Lenawee, Livingston, Midland, Monroe, Oakland, Presque Isle, St. Joseph, Washtenaw, Wexford.

***Stenamma brevicorne* (Mayr).** In soil in open woods. Arenac, Berrien, Eaton, Ingham, Livingston, Osceola, Saginaw, St. Joseph, Sanilac, Shiawassee, Washtenaw, Wayne.

***Stenamma diecki* Emery.** In soil in moist woods. Alger, Cheboygan, Chippewa, Grand Traverse, Livingston, Marquette, Montmorency, Presque Isle, St. Joseph, Schoolcraft, Washtenaw.

***Stenamma impar* Forel.** In soil in moist woods. Cheboygan, Livingston, St. Joseph, Washtenaw.

***Stenamma schmitti* Wheeler.** In soil in moist woods. Livingston, Oakland, St. Joseph, Washtenaw.

***Tetramorium caespitum* (Linnaeus).** Introduced; in soil in urban areas. Ingham, St. Joseph, Washtenaw, Wayne.

SUBFAMILY DOLICHODERINAE

***Conomyrma grandula* (Forel).** (Recorded as *Dorymyrmex pyramicus* (Roger) by Talbot, 1975b.) In soil in sandy ridges. Livingston.

***Dolichoderus mariae* Forel.** In domes of plant fragments and soil in marshes and swamps. Berrien, Cheboygan, Ingham, Livingston, Manistee, St. Joseph, Washtenaw.

***Dolichoderus plagiatus* (Mayr).** In hollow twigs and curled leaves in woods and woods edges. Bay, Cheboygan, Dickinson, Grand Traverse, Gratiot, Huron, Iosco, Lake, Livingston, Midland, St. Joseph, Washtenaw, Wexford.

***Dolichoderus pustulatus* Mayr.** In hollow stems and curled leaves in bogs and swamps. Alcona, Cass, Cheboygan, Chippewa, Crawford, Emmet, Grand Traverse, Ingham, Livingston, Montcalm, Oscoda, Roscommon, St. Joseph, Washtenaw, Wexford.

***Dolichoderus taschenbergi* (Mayr).** In domes of plant fragments and soil in woods edges. Cheboygan, Crawford, Delta, Gogebic, Gladwin, Grand Traverse, Iosco, Kalkaska, Livingston, Mackinac, Marquette, Mecosta, Montcalm, Ontonagon, Oscoda, Otsego, Presque Isle, Roscommon, Schoolcraft, Van Buren, Wexford.

***Tapinoma sessile* (Say).** In soil, under bark and in dead plant cavities in diverse habitats. Alcona, Alger, Allegan, Alpena, Antrim, Arenac, Baraga, Barry, Bay, Benzie, Berrien, Cass, Charlevoix, Cheboygan, Chippewa, Clare, Clinton, Crawford, Delta, Eaton, Emmet, Gladwin, Gogebic, Grand Traverse, Gratiot, Ingham, Iosco, Isabella, Kalamazoo, Kalkaska, Keweenaw, Lake, Lapeer, Leelanau, Livingston, Luce, Mackinac, Manistee, Marquette,

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Mecosta, Midland, Missaukee, Monroe, Montcalm, Montmorency, Muskegon, Newaygo, Oakland, Oceana, Ontonagon, Osceola, Oscoda, Otsego, Presque Isle, Roscommon, Saginaw, St. Clair, St. Joseph, Schoolcraft, Shiawassee, Tuscola, Van Buren, Washtenaw, Wayne, Wexford.

SUBFAMILY FORMICINAE

***Acanthomyops claviger* (Roger).** In and/or under stumps and logs or under rocks in woods or the edges of fields. Arenac, Berrien, Cheboygan, Clinton, Crawford, Hillsdale, Ingham, Iosco, Kalamazoo, Livingston, Monroe, Muskegon, Oakland, Ogemaw, St. Joseph, Washtenaw, Wayne.

***Acanthomyops interjectus* (Mayr).** In stumps, logs and soil in woods. Iosco, Kalamazoo, Livingston, Monroe, Oakland, Oscoda, Washtenaw, Wexford.

***Acanthomyops latipes* (Walsh).** Temporary social parasite on *Lasius neoniger*. In soil of grassy habitats. Alcona, Barry, Berrien, Cheboygan, Chippewa, Delta, Huron, Iosco, Kalamazoo, Livingston, Marquette, Ogemaw, Oscoda, St. Joseph, Washtenaw.

***Acanthomyops murphyi* (Forel).** Temporary social parasite on *Lasius neoniger*. Under rocks and in soil of grassy habitats. Barry, Kalamazoo, Livingston.

***Acanthomyops plumopilosus* (Buren).** Washtenaw.

***Acanthomyops subglaber* (Emery).** Under rocks in woods. Arenac, Charlevoix, Chippewa, Emmet, Grand Traverse, Iosco, Livingston.

***Brachymyrmex depilis* Emery.** In soil in grasslands and woods. Alger, Cheboygan, Grand Traverse, Iosco, Livingston, Montmorency, Ontonagon, Oscoda, Schoolcraft, Washtenaw.

***Camponotus americanus* Mayr.** In soil in grasslands and woods. Allegan, Charlevoix, Iosco, Livingston, Midland, Washtenaw.

***Camponotus caryae* (Fitch).** In twigs and branches in woods. Livingston.

***Camponotus ferrugineus* (Fabricius).** In logs and stumps in woods. Berrien, Hillsdale, St. Joseph, Washtenaw.

***Camponotus herculeanus* (Linnaeus).** In logs and stumps in woods. Alger, Baraga, Charlevoix, Cheboygan, Chippewa, Dickinson, Emmet, Gogebic, Houghton, Iron, Keweenaw, Mackinac, Marquette, Ontonagon, Schoolcraft.

***Camponotus nearcticus* Emery.** In twigs and branches and under bark in woods. Alger, Allegan, Baraga, Bay, Berrien, Chippewa, Clinton, Hillsdale, Ingham, Kalkaska, Keweenaw, Livingston, Marquette, Midland, Monroe, Montcalm, Newaygo, Oakland, Oceana, Ottawa, Roscommon, Saginaw, St. Clair, St. Joseph, Schoolcraft, Washtenaw.

***Camponotus novaeboracensis* (Fitch).** In logs and stumps in moist woods. Alcona, Alger, Allegan, Alpena, Arenac, Baraga, Barry, Bay, Berrien, Calhoun, Charlevoix, Cheboygan, Chippewa, Clare, Clinton, Crawford, Delta, Dickinson, Eaton, Emmet, Gladwin, Gogebic, Grand Traverse, Gratiot, Hillsdale, Huron, Ingham, Iosco, Jackson, Kalamazoo, Kalkaska, Kent, Lake, Lapeer, Leelanau, Livingston, Mackinac, Macomb, Manistee, Marquette, Mason, Midland, Missaukee, Monroe, Montcalm, Montmorency, Oakland, Oceana, Osceola, Oscoda, Otsego, Presque Isle, Roscommon, Saginaw, St. Joseph, Sanilac, Schoolcraft, Tuscola, Van Buren, Washtenaw, Wayne, Wexford.

***Camponotus pennsylvanicus* (DeGeer).** In logs and stumps and in dead wood in living trees in dry woods. Alger, Allegan, Arenac, Baraga, Barry, Bay, Berrien, Calhoun, Charlevoix, Cheboygan, Chippewa, Clinton, Eaton, Genesee, Gladwin, Gogebic, Grand Traverse, Hillsdale, Huron, Ingham, Ionia, Iosco, Iron, Isabella, Jackson, Kalamazoo, Kent, Lake, Lenawee, Livingston,

Mackinac, Manistee, Marquette, Mason, Mecosta, Midland, Missaukee, Monroe, Montmorency, Muskegon, Newaygo, Oakland, Oscoda, Presque Isle, Saginaw, St. Clair, St. Joseph, Schoolcraft, Shiawassee, Van Buren, Washtenaw, Wayne.

Camponotus subbarbatus **Emery.** In dead twigs and branches in woods. St. Joseph.

Formica argentea **Wheeler.** In soil of field-woods edges. Alcona, Benzie, Berrien, Charlevoix, Cheboygan, Chippewa, Emmet, Iron, Keweenaw, Mackinac, Manistee, Marquette, Montcalm, Ontonagon, Presque Isle, Washtenaw, Wexford.

Formica creightoni **Buren.** In logs and soil in woods. Livingston.

Formica dakotensis **Emery.** Temporary social parasite on *Formica fusca* group species. In soil mounds in grasslands. Cheboygan, Chippewa, Keweenaw, Livingston, Mackinac.

Formica exsectoides **Forel.** In large mounds of soil in dry fields near woods. Alcona, Barry, Berrien, Chippewa, Iosco, Livingston, Mecosta, Montcalm, Oscoda, Washtenaw.

Formica fossaceps **Buren.** In soil in open woods. Keweenaw, Oscoda.

Formica fusca **Linnaeus.** In logs, stumps and soil in mesic woods. Alger, Allegan, Arenac, Berrien, Charlevoix, Cheboygan, Chippewa, Crawford, Dickinson, Grand Traverse, Huron, Ingham, Iosco, Keweenaw, Livingston, Mackinac, Manistee, Marquette, Mecosta, Newaygo, Oakland, Presque Isle, Roscommon, Schoolcraft, Washtenaw, Wayne, Wexford.

Formica glacialis **Wheeler.** In soil mounds in low, moist sites. Alpena, Arenac, Bay, Calhoun, Charlevoix, Cheboygan, Chippewa, Clinton, Dickinson, Emmet, Gogebic, Gratiot, Huron, Ingham, Iosco, Keweenaw, Lapeer, Leelanau, Livingston, Mackinac, Marquette, Mecosta, Missaukee, Montcalm, Muskegon, Oakland, Ogemaw, Ontonagon, Roscommon, St. Joseph, Schoolcraft, Van Buren, Washtenaw, Wayne.

Formica gynocrates **Snelling and Buren.** Dulotic on *F. vinculans.* In soil in dry, sparsely vegetated fields. Livingston.

Formica hewitti **Wheeler.** Keweenaw.

Formica impexa **Wheeler.** Dickinson, Marquette, Ontonagon.

Formica integra **Nylander.** Chippewa, Iosco, Keweenaw, Mackinac, Manistee, Marquette, Montcalm, Muskegon, Osceola.

Formica lasioides **Emery.** In soil in fields and woods edges. Alger, Alpena, Bay, Benzie, Branch, Charlevoix, Cheboygan, Chippewa, Dickinson, Emmet, Gogebic, Kalkaska, Livingston, Mackinac, Marquette, Mecosta, Oakland, Ontonagon, Oscoda, Presque Isle, Tuscola, Washtenaw, Wexford.

Formica neogagates **Emery.** In soil in mesic woods. Charlevoix, Cheboygan, Chippewa, Grand Traverse, Iosco, Isabella, Jackson, Kalamazoo, Keweenaw, Lake, Livingston, Marquette, Mason, Mecosta, Montcalm, Montmorency, Newaygo, Oakland, Oscoda, Otsego, Roscommon, St. Joseph, Washtenaw, Wexford.

Formica neorufibarbis **Emery.** In hummocks of moss in bogs. Baraga, Cass, Charlevoix, Cheboygan, Chippewa, Gogebic, Ingham, Keweenaw, Livingston, Mackinac, Marquette, Ontonagon, Schoolcraft, Washtenaw.

Formica nepticula **Wheeler.** Temporary social parasite on *Formica fusca* group species. In soil in dry woods. Livingston.

Formica obscuripes **Forel.** In mounds of soil and thatch in dry grasslands. Cheboygan, Kalkaska, Livingston, Mason, Newaygo, Osceola, Washtenaw, Wexford.

Formica obscuriventris **Mayr.** In logs, stumps and soil in woods edge and open woods. Cheboygan, Dickinson, Keweenaw, Livingston, Oakland, Oscoda, Washtenaw.

Formica pallidefulva nitidiventris **Emery.** In soil, often under objects, in

woods and woods edges. Allegan, Arenac, Baraga, Benzie, Berrien, Branch, Calhoun, Cheboygan, Grand Traverse, Huron, Ingham, Iosco, Jackson, Kalamazoo, Lenawee, Livingston, Marquette, Midland, Monroe, Oakland, Osceola, Oscoda, Ottawa, St. Joseph, Tuscola, Washtenaw, Wayne, Wexford.

***Formica pergandei* Emery.** Dulotic on *Formica pallidefulva nitidiventris* and *F. subsericea*. In soil in woods edges and field edges. Alpena, Benzie, Cheboygan, Chippewa, Delta, Grand Traverse, Ingham, Iosco, Livingston, Mackinac, Marquette, Mason, Oscoda, Presque Isle, Washtenaw.

***Formica podzolica* Francoeur.** In soil in deep woods and swamps. Alger, Alpena, Charlevoix, Chippewa, Delta, Emmet, Gogebic, Keweenaw, Luce, Mackinac, Marquette, Ontonagon, Oscoda, Schoolcraft.

***Formica prociliata* Kennedy and Dennis.** Grand Traverse, Iosco, Oscoda, Roscommon, Wexford.

***Formica querquetulana* Kennedy and Dennis.** Grand Traverse.

***Formica rubicunda* Emery.** Dulotic on *Formica subsericea*. In soil in woods edges and field edges. Cheboygan, Keweenaw, Livingston, Marquette, Washtenaw, Wexford.

***Formica schaufussi* Mayr.** In soil in grasslands and field edges. Berrien, Iosco, Kalamazoo, Livingston, Oscoda.

***Formica subintegra* Emery.** Dulotic on *Formica subsericea*. In soil in woods edge and field borders. Baraga, Calhoun, Cheboygan, Emmet, Livingston, Washtenaw.

***Formica subnuda* Emery.** Dulotic on *Formica subsericea*. In and under logs in mesic woods. Alger, Baraga, Benzie, Charlevoix, Cheboygan, Chippewa, Delta, Dickinson, Emmet, Gogebic, Grand Traverse, Iosco, Kalkaska, Keweenaw, Leelanau, Livingston, Mackinac, Marquette, Mason, St. Joseph, Schoolcraft, Washtenaw.

***Formica subsericea* Say.** In soil in grasslands, woods edge and open woods. Alcona, Alger, Allegan, Arenac, Baraga, Barry, Benzie, Berrien, Branch, Calhoun, Cass, Charlevoix, Cheboygan, Chippewa, Crawford, Dickinson, Eaton, Emmet, Gladwin, Gogebic, Grand Traverse, Hillsdale, Huron, Ingham, Iosco, Iron, Jackson, Kalamazoo, Keweenaw, Lapeer, Lenawee, Livingston, Mackinac, Manistee, Marquette, Mecosta, Menominee, Midland, Monroe, Montcalm, Montmorency, Oakland, Ontonagon, Osceola, Oscoda, St. Joseph, Schoolcraft, Van Buren, Washtenaw, Wayne, Wexford.

***Formica talbotae* Wilson.** Workerless inquiline in mounds of *Formica obscuripes*. Livingston.

***Formica ulkei* Emery.** Temporary social pareasite on *Formica glacialis*. In large mounds of soil in fields near water. Arenac, Berrien, Calhoun, Cass, Hillsdale, Ingham, Jackson, Kent, Livingston, Midland, Oakland, Roscommon, St. Joseph, Shiawassee, Washtenaw.

***Formica vinculans* Wheeler.** (Previously recorded as *F. neogagates*, in part.) In soil in dry grasslands. Berrien, Calhoun, Cheboygan, Crawford, Emmet, Ingham, Kalkaska, Lenawee, Livingston, Mason, Montmorency, Newaygo, Oscoda, Presque Isle, St. Joseph, Tuscola.

***Formica whymperi adamsi* Wheeler.** Keweenaw, Schoolcraft.

***Formica* sp.** (*microgyna* group). Temporary social parasite on *Formica fusca* group species. In soil in woods edge. Livingston.

***Lasius alienus* (Foerster).** In logs and stumps and in soil in woods. Alcona, Allegan, Arenac, Barry, Bay, Berrien, Calhoun, Cass, Charlevoix, Cheboygan, Chippewa, Clinton, Crawford, Delta, Dickinson, Eaton, Emmet, Gladwin, Gratiot, Hillsdale, Huron, Ingham, Iosco, Isabella, Jackson, Kalamazoo, Kalkaska, Keweenaw, Lake, Lapeer, Livingston, Mackinac, Manistee, Marquette, Mason, Mecosta, Midland, Missaukee, Monroe, Montcalm, Montmorency, Newaygo, Ogemaw, Osceola, Oscoda, Ottawa, Presque Isle, Roscommon, Saginaw, St. Joseph, Schoolcraft, Tuscola, Van Buren, Washtenaw.

***Lasius flavus* (Fabricius).** In soil or under rocks in grasslands and open woods. Cheboygan, Crawford, Grand Traverse, Iosco, Ingham, Jackson, Livingston, Ontonagon, St. Joseph, Schoolcraft, Washtenaw.

***Lasius minutus* Emery.** Temporary social parasite of *Lasius alienus* and *L. pallitarsis*. In soil mounds in swamps and marshes. Arenac, Livingston, Oakland, St. Joseph, Washtenaw.

***Lasius nearcticus* Wheeler.** In soil under rocks and logs in mesic woods. Allegan, Arenac, Berrien, Chippewa, Clinton, Emmet, Ingham, Ionia, Livingston, Marquette, Ottawa, Washtenaw.

***Lasius neoniger* Emery.** In soil with nest entrances surrounded by craters of soil particles; in grasslands and open woods. Alcona, Alger, Allegan, Alpena, Arenac, Bay, Berrien, Calhoun, Charlevoix, Cheboygan, Chippewa, Clinton, Dickinson, Emmet, Gladwin, Grand Traverse, Gratiot, Huron, Ingham, Iosco, Jackson, Kalkaska, Kent, Keweenaw, Leelanau, Livingston, Mackinac, Macomb, Manistee, Marquette, Midland, Missaukee, Montmorency, Muskegon, Oakland, Osceola, Oscoda, Ottawa, Presque Isle, St. Joseph, Schoolcraft, Tuscola, Van Buren, Washtenaw, Wayne, Wexford.

***Lasius pallitarsis* (Provancher).** In mounds of soil in low fields, bogs, swamps and marshes. Alger, Charlevoix, Chippewa, Livingston, Mackinac, Marquette, Schoolcraft.

***Lasius speculiventris* Emery.** Temporary social parasite of *Lasius minutus*. In mounds of soil in moist woods and swamps. Hillsdale, Ingham, Livingston, Oakland, Washtenaw.

***Lasius subumbratus* Viereck.** In soil under logs in open woods. Marquette, Schoolcraft.

***Lasius umbratus* (Nylander).** Temporary social parasite of *Lasius alienus* and *L. pallitarsis*. In soil mounds and under stumps and logs in woods and swamps. Allegan, Alpena, Arenac, Berrien, Calhoun, Cass, Charlevoix, Cheboygan, Clinton, Eaton, Gladwin, Gratiot, Hillsdale, Ingham, Isabella, Lapeer, Livingston, Midland, Monroe, Montcalm, Newaygo, Oakland, Osceola, Presque Isle, Roscommon, Saginaw, St. Clair, St. Joseph, Shiawassee, Tuscola, Washtenaw, Wayne, Wexford.

***Paratrechina parvula* (Mayr).** In soil in woods-field edges and open woods. Allegan, Iosco, Livingston, Manistee, Oscoda, St. Joseph, Washtenaw.

***Polyergus breviceps* Emery.** Dulotic on *Formica subsericea*. In soil mounds in grasslands. Cheboygan, Iron.

***Polyergus lucidus* Mayr.** Dulotic on *Formica pallidefulva* and *F. schaufussi*. In soil mounds in grasslands and woods edges. Cheboygan, Livingston, Roscommon.

***Prenolepis imparis* (Say).** In soil in a wide variety of habitats from grasslands to deep woods. Allegan, Barry, Clinton, Crawford, Grand Traverse, Ingham, Ionia, Iosco, Jackson, Kalamazoo, Kent, Livingston, Mackinac, Newaygo, Oakland, Oscoda, St. Joseph, Washtenaw.

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LITERATURE CITED

Creighton, W. S. 1940. A revision of the forms of *Stigmatomma pallipes*. Amer. Mus. Novitates 1079, 8 p.

_____. 1950. The ants of North America. Bull. Mus. Comp. Zool. Harvard Coll. 104:1-585.

Du Bois, M. B. 1981. Two new species of inquilinous *Monomorium* from North America. Univ. Kansas Sci. Bull. 52:31-37.

Francoeur, A. 1973. Revision taxonomique des especies nearctiques du groupe *fusca*, genre *Formica* (Formicidae, Hymenoptera). Mem. Soc. Entomol. Quebec 3:1-316.

Gaige, F. M. 1914. Results of the Mershon Expedition to Charity Island, Lake Huron. The Formicidae of Charity Island. Occ. Papers, Mus. Zool., Univ. Michigan 5, 29 p.

_____. 1916. The Formicidae of the Shiras Expedition to Whitefish Point, Michigan in 1914. Occ. Papers, Mus. Zool., Univ. Michigan 25, 4 p.

Gregg, R. E. 1944. The ants of the Chicago region. Ann. Entomol. Soc. Amer. 37:447-480.

Groskin, H. 1944. An observation of a *Formica sanguinea* raid at Battle Creek, Calhoun County, Michigan. Entomol. News 55:42-44.

Kannowski, P. B. 1957. Notes on the ant *Leptothorax provancheri*. Psyche 64:1-5.

_____. 1958. Swarming of the ant *Stenamma brevicorne* (Mayr). Entomol. News 69:231-233.

_____. 1959a. The flight activities and colony-founding behavior of bog ants in southeastern Michigan. Insect. Soc. 6:115-162

_____. 1959b. The flight activities of *Dolichoderus* (*Hypoclinea*) *taschenbergi* (Hymenoptera:Formicidae). Ann. Entomol. Soc. Amer. 52:755-760.

_____. 1959c. The use of radioactive phosphorus in the study of colony distribution of the ant *Lasius minutus* Emery. Ecology 40:162-165.

_____. 1967. Colony populations of two species of *Dolichoderus* (Hymenoptera:Formicidae). Ann. Entomol. Soc. Amer. 60:1246-1252.

_____. 1970. Colony populations of five species of *Myrmica* (Hymenoptera: Formicidae). Proc. N. Cent. Br. Entomol. Soc. Amer. 25:119-125.

_____., and P. M. Kannowski. 1957. The mating activities of the ant *Myrmica americana*. Ohio J. Sci. 57:371-374.

Smith, M. R. 1947. A study of *Polyergus* in the United States, based on the workers. Amer. Midland Nat. 28:150-161.

_____. 1951. Family Formicidae. Pp. 778-875 *in*: Hymenoptera of America North of Mexico-Synoptic Catalog (C. F. W. Muesebeck, K. V. Krombein and H. K. Townes, eds.). U. S. D. A. Monograph 2.

_____. 1952. North American *Leptothorax* of the *tricarinatus-texanus* complex. J. New York Entomol. Soc. 60:96-106.

_____. 1967. Family Formicidae. Pp. 343-374 *in*: Hymenoptera of America North of Mexico-Synoptic Catalog-Second Supplement (K. V. Krombein and B. D. Burks, eds.). U. S. D. A. Monograph 2.

Snelling, R. R., and W. F. Buren. 1985. Description of a new species of slave-making ant in the *Formica sanguinea* group. Great Lakes Entomol. 18:69-78.

Talbot, M. 1934. Distribution of ant species in the Chicago region with reference to ecological factors and physiological toleration. Ecology 27:416-439.

_____. 1946. Daily fluctuations in the aboveground activity of three species of ants. Ecology 27:65-70.

_____. 1948. A comparison of two ants of the genus *Formica*. Ecology 29:316-325.

_____. 1953. Ants of an old-field community on the Edwin S. George Reserve, Livingston County, Michigan. Contr. Lab. Vert. Biol., Univ. Michigan 63, 13 p.

_____. 1954. Populations of the ant *Aphaenogaster* (*Attomyrma*) *treatae* Forel on abandoned fields on the Edwin S. George Reserve. Contr. Lab. Vert. Biol., Univ. Michigan 69, 9 p.

_____. 1956. Flight activities of the ant *Dolichoderus* (*Hypoclinea*) *mariae* Forel. Psyche 63:134-139.

_____. 1957. Population studies of the slave-making ant *Leptothorax duloticus* and its slave *Leptothorax curvispinosus*. Ecology 38:449-456.

_____. 1959. Flight activities of two species of the genus *Formica*. Amer. Midland Nat. 61:124-132.

_____. 1961. Mounds of the ant *Formica ulkei* at the Edwin S. George Reserve, Livingston County, Michigan. Ecology 42:202-205.

_____. 1963. Local distribution and flight activities of four species of ants of the genus *Acanthomyops* Mayr. Ecology 44:549-557.

_____. 1964. Nest structure and flights of the ant *Formica obscuriventris* Mayr. Anim. Behav. 12:154-158.

_____. 1965. Populations of ants in a low field. Insect. Soc. 12:19-48.

_____. 1966. Flights of the ant *Aphaenogaster treatae*. J. Kansas Entomol. Soc. 39:67-77.

_____. 1967. Slave-raids of the ant *Polyergus lucidus* Mayr. Psyche 74:299-313.

_____. 1968. Flights of the ant *Polyergus lucidus* Mayr. Psyche 75:46-52.

_____. 1971. Flights of the ant *Formica dakotensis* Emery. Psyche 78:169-179.

_____. 1972. Flights and swarms of the ant *Formica obscuripes* Forel. J. Kansas Entomol. Soc. 45:254-258.

_____. 1973. Five species of the ant genus *Acanthomyops* (Hymenoptera:Formicidae) at the Edwin S. George Reserve in southern Michigan. Great Lakes Entomol. 6:19-22.

_____. 1975a. Habitats and populations of the ant *Stenamma diecki* Emery in southern Michigan. Great Lakes Entomol. 8:241-244.

_____. 1975b. A list of the ants of the Edwin S. George Reserve, Livingston County, Michigan. Great Lakes Entomol. 8:245-246.

_____. 1976. The natural history of the workerless ant parasite *Formica talbotae*. Psyche 83:282-288.

_____. 1979. Social parasitism among ants at the E. S. George Reserve in southern Michigan. Great Lakes Entomol. 12:87-89.

_____. 1985. The slave-making ant *Formica gynocrates* (Hymenoptera: Formicidae). Great Lakes Entomol. 18:103-112.

Weber, N. A. 1948. A revision of the North American ants of the genus *Myrmica* with a synopsis of the Palearctic species. I. Ann. Entomol. Soc. Amer. 40:437-474.

_____. 1950. A revision of the North American ants of the genus *Myrmica* with a synopsis of the Palearctic species. II. Ann. Entomol. Soc. Amer. 43:189-226.

Wheeler, W. M. 1905. New species of *Formica*. Bull. Amer. Mus. Nat. Hist. 21:267-274.

_____. 1909. The ants of Isle Royale, Michigan. Report Michigan Geol. Survey (1908), pp. 325-328.

_____. 1910a. The North American ants of the genus *Camponotus* Mayr. Ann. N. Y. Acad. Sci. 20:295-354.

_____. 1910b. The North American forms of *Lasius umbratus* Nylander. Psyche 17:235-243.

_____. 1913. A revision of the ants of the genus *Formica* (Linne) Mayr. Bull. Mus. Comp. Zool. Harvard Coll. 53:379-565.

_____. 1915. A new bog-inhabiting variety of *Formica fusca* L. Psyche 22:203-206.

Wilson, E. O. 1955. A monographic revision of the ant genus *Lasius*. Bull. Mus. Comp. Zool., Harvard Coll. 113:1-125.

_____. 1976. The first workerless parasite in the ant genus *Formica*. Psyche 83:277-281.

Wing, M. W. 1968. Taxonomic revision of the nearctic ant genus *Acanthomyops*. Cornell Univ., Agric. Exp. Sta., N. Y. Coll. Agric. Memoir 405, 173 p.

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