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The Ants of Indiana (Hymenoptera: Formacidae)

For the degree of Master of Science

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THE ANTS OF INDIANA (HYMENOPTERA: FORMICIDAE)

A Thesis  
Submitted to the Faculty  
of  
Purdue University  
by  
Tabatha May Carroll

In Partial Fulfillment of the  
Requirements for the Degree  
of  
Master of Science

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For my Dad, who always believed in me and encouraged me to discover and explore the world around me.

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## ABSTRACT

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One hundred thirty-six species belonging to 36 genera of the family Formicidae are recorded from the state of Indiana. This number has greatly increased from the previous count of 92 species in 1986 when the last checklist was created. Until recently, little to no work had been done on Indiana myrmecology. With ants rising in the ranks of household pests, a better understanding of which species are present, their diversity, distribution, abundance, and unique individual biology is needed to understand and treat the problem.

Species level identification keys are provided for the workers of all the known species present in the state. Diagnostic characteristics that are useful in differentiating each species from other Indiana species are provided, as well as previous names and synonyms, taxonomy, biology, behavior, colony social and spatial structure, known North American ranges, Indiana distribution and range map, select references and materials examined, and unique or interesting comments.

A separate key for the pest control industry is also presented to aid in pest management that keys out common species encountered on the job. It is provided both as a manual dichotomous key as well as an electronic interactive key.

Various habitats were sampled, including remnant forests, agricultural fields, urban settings, parks, wetlands, bogs, state forests, and national forests. Rare habitats such as bogs and remnant oak forests produced a variety of common species as well as rare species like *Formica ulkei* and *Aphaenogaster mariae*, respectively, that are ill equipped to survive elsewhere. Other species such as *Camponotus pennsylvanicus* and *Tapinoma sessile* are quick to adapt and disperse and therefore are more common throughout the state in various habitats. *Proceratum pergandei*, *Neivamyrmex nigrescens*, and *Polyergus breviceps* are considered rare but may be under collected due to reclusive behaviors. The International Union for Conservation of Nature (IUCN) Red List contains six species of ants found in Indiana with a VU D2 status: *Crematogaster pilosa*



Emery, *Dorymyrmex insanus* (Buckley), *Lasius latipes* (Walsh), *Polyergus breviceps*  
Emery, *Polyergus lucidus* Mayr, and *Protomognathus americanus* (Emery).

## CHAPTER 1: INTRODUCTION

### Introduction

Ants (Formicidae) are common insects in the order Hymenoptera. They can be found in a variety of habitats, from forested areas to grasslands and urban environments. Ants have an incredible ability to occupy niches, giving them the ability to inhabit such a diverse variety of environments.

Ants may be seen both as beneficial insects or pests. They are one of the most important groups of terrestrial insects, due to their incredibly high numbers and the ecological roles they play. Ants are key in predation on other arthropods, seed dispersal (Beattie, 1990), soil aeration (Lyford, 1963), and encouraging the decomposition of wood and leaf litter (Holldobler & Wilson, 1990). Because of their unique roles, ants are highly useful as indicator species (Agosti et al., 2000). They are also useful in agricultural and garden settings as they prey on insects that may damage crops and plants.

Because of their tenacity and ability to cope with so many different environments, ants have also become pest species. Ants are pests in structural, household, industry, garden, and turf environments. To control such industrious pests, we must know which ants are being dealt with, as well as where they nest, how they behave, and what they are feeding on. However, many who deal with ants as a pest find it difficult to identify which species they are dealing with due to lack of knowledge of the ants present, the scarcity of keys present to identify, and the difficulty of the keys that can be found. To improve pest control of ants within the state of Indiana, basic research on the identification, diversity, distribution, and general biology of ants is needed. This information needs to be gathered and presented in a format that is easy to understand and use. This study aims to provide an understanding of the ants present in Indiana, as well as their distribution and biology. This information will be presented along with easy to use identification keys to the species of ants in Indiana to encourage correct identification of ants by pest control operators, biologists, and ant enthusiasts. The results gathered from this study will be applicable to many other states in the Midwest, and might provide a good format for other states to follow.

### Systemic Background

In the order Hymenoptera, Formicidae is a large family of terrestrial insects composed of approximately 8,800 extant species (Holldobler & Wilson, 1990). There are 524 unchallenged names in North America, of which roughly 300 represent individual species currently recognized, and they occur in every habitat imaginable. The highest diversities are found in subtropical and tropical areas, although those areas still remain poorly studied and collected in.

Formicidae is currently divided into 16 subfamilies: Myrmicinae, Ponerinae, Leptanillinae, Dorylinae, Ectoninae, Myrmeciinae, Pseudomyrmeciinae, Aneuretinae, Dolichoderiinae, Nothomyrmeciinae, and Formiciinae; with 297 genera (Holldobler & Wilson, 1990). Only 5 of these subfamilies (Ecitoniinae, Poneriinae, Myrmiciinae, Dolichoderiinae, & Formiciinae) are present in the state of Indiana. The Ecitoniinae contains only the genus *Neivamyrmex* in this area. Poneriinae contains the genera *Amblyopone*, *Proceratium*, *Ponera*, and *Hypoponera*. Myrmiciinae includes the genera *Myrmica*, *Stenamma*, *Aphaenogaster*, *Pheidole*, *Crematogaster*, *Monomorium*, *Solenopsis*, *Leptothorax*, *Temnothorax*, *Protomognathus*, *Myrmecina*, *Tetramorium*, *Anergates*, *Wasmannia*, *Smithistruma*, and *Trachymyrmex*, and is the largest subfamily represented in Indiana. Dolichoderiinae contains the genera *Dolichoderus*, *Linepithema*, *Forelius*, *Dorymyrmex*, and *Tapinoma*. Finally, the subfamily Formiciinae includes *Brachymyrmex*, *Paratrechina*, *Prenolepis*, *Lasius*, *Formica*, *Camponotus*, and *Colobopsis*.

Formicidae arose in the Cretaceous age and are documented as such by the new subfamily Sphecomyrminae, and in that subfamily two well preserved workers of the species, *Sphecomyrma freya* that were found in New Jersey amber (Holldobler & Wilson, 1990). These specimens date to the late middle (Late Santonian) portion of the Cretaceous period and are estimated to be about 80 million years old (Holldobler & Wilson, 1990). This species of ant provided the link between modern ants and nonsocial aculeate wasps. This primitive ant contained wasp-like mandibles, an ant-like petiole, and antennae that were transitional between modern ants and wasps (Holldobler & Wilson, 1990).

Ants are eusocial in that they exhibit cooperative brood care, have a reproductive division of labor, and overlapping generations. They live in colonies of organized structure; the three primary castes being queens, males, and workers (Holldobler & Wilson, 1990). There are very strong differences that distinguish the queen and worker castes. Queens are typically the largest members of the colony, while males are slightly smaller and workers are much smaller; however there are many exceptions to this generalization. The worker caste may be divided even further into major and minor workers. Both queens and males have a reproductive form that both possess wings. These forms are known as alates. Their have nuptial flights that are triggered by

weather patterns where their sole purpose is to pair off, mate, and form new colonies. Once mated, the pair removes their wings. Then the male reproductive dies and the female reproductive searches for a suitable nest site. Only queen ants lay eggs, and the workers tend the eggs, larvae, and pupae. Workers may also forage for food and defend the nest if threatened. Some colonies may be polydomous, meaning they contain more than one nest site and often more than one queen (polygynous).

### Previous Studies on the Ants of Indiana

Prior to the 1940's, little taxonomic or distribution work was done on Indiana ants. Wheeler and Bolton reported ants that may be present across the Midwest, however nothing was published as definitive for Indiana.

The first real work on Indiana ants came in 1943. R. L. Morris published the first annotated list of the ants of Indiana, listing 92 species for the state. J. R. Munsee (1966) studied the ecology of ants in strip-mine spoil banks for his Ph.D. dissertation. In 1967 he went on to publish a paper that revised the previous checklist done by Morris and add an additional 9 species he had discovered in the state. The revision and additions concluded that there were only 85 species of ants present in Indiana.

A revision of the Catalogue of Hymenoptera in America north of Mexico (Krombein et al., 1979) initiated an additional revision to the checklist of Indiana ants. Munsee, Jansma, and Schrock published their updated checklist for Indiana ants in 1986 in the Indiana Academy of Science. The list they created was a compilation of all the previous work done in Indiana, and was also expanded by 5 species new to the state discovered by Schrock. In total, the updated checklist brought the number of species of ants in Indiana to 92, but no further work was done thereafter.

### Morphology

Ants are classified as a single family (Formicidae) within the order Hymenoptera. This order also includes bees, wasps, sawflies, ichneumons, and velvet ants, among others. The following introduction to ant morphology is adapted from Wheeler (1926).

Ants possess three main body segments: the head, alitrunk (Thorax), and gaster (abdomen). See Figure 1.1 for the morphological features of an ant. The head of ants varies greatly in size and shape. It may be circular, elliptical, rectangular, or triangular, and all pieces of the head may show an equal amount of variability. The head of an ant has eyes, clypeus, antennae, and mouthparts, all of which are used in identification. Ants have two types of eyes: the compound eyes and the simple eyes or ocelli. Both types of eyes are best developed in

reproductive males. Reproductive females have fairly well developed eyes, and workers have the least developed eyes. Most ants have compound eyes. Some members of the subfamily Ecitoniinae may have eyes absent or a single facet present. Most workers lack ocelli, however, some species in the subfamily Formiciinae have them. The clypeus of an ant's head is variable in size, shape and function. The antennae of an ant are inserted in sockets on each side of the frontal carinae. Antennae are composed of an elongate scape and the funiculus, which may possess anywhere from 4 segments, as found in the genus *Epitritus*, to 13 segments, found in the males of some species. The antennae are elbow shaped, forming a right angle at the joint of the scape and first funicular segment. The end of the funiculus may be uniform or create a 2-4 segmented club. The mouthparts can further be broken down into the labrum, mandibles, maxillae, and labium. The maxillae are paired, and each part of the pair is composed of a hinge, stipes, maxillary palp which may contain anywhere from 1 to 6 segments, lacinia, and galea. The galea has a row of gustatory papillae and a row of stiff bristles that are used to clean the legs and antennae. The labium consists of single submentum, mentum, and tongue, with a paired set of palpi which may contain anywhere from one to four segments, paraglossae, and hypopharynx. See Figure 2. for the morphology of the head and mouth pieces.

The thorax of an ant is said to consist of four segments: a pro-, meso-, and meta-thoracic segment and a propodeum. Each thoracic segment consists of a notum (pronotum, mesonotum & metanotum) and a pair of legs. The meso-thoracic and meta-thoracic segments also possess spiracles that are used in identification. Below the mesonotum one can find the anepisternum, and connected to it the katepisternum. The legs consist of a coxa, trochanter, femur, tibia, tarsus, and tarsal claws. Each tibia has a spur associated with it. In reproductive females and males, the meso- and meta-thoracic segments have a pair of wings each. The wings are unequal in length. The propodeum is part of the thorax as well as the abdomen. It is formed from the fusion of the first abdominal segment to the metathoracic segment. The propodeum has a spiracle that is useful in identification.

The abdomen of an ant is composed of a peticel and a gaster. The peticel may be a single segment known as the petiole, or may also contain a second segment known as the post petiole. The petiole has a node, which is usually visible. In the genus *Tapinoma*, the petiolar node is hidden from view. The number of segments in the gaster is morphologically eight when the petiole consists of a single segment, and 7 when the petiole consists of 2 segments. However, only 4 segments of the gaster are visible in worker and queen ants. This number increases to 5 in male ants. The remaining segments are not visible due to their telescoping properties. The last segment of the gaster on females and workers may possess a stinger. This stinger is very well

developed in the subfamilies Poneriinae, Doryliinae, and Myrmiciinae, and is vestigial or absent in the other subfamilies.

The body of an ant may possess any number of erect setae, as well as appressed pubescence. Often the number of setae and density of appressed pubescence is used in identification.

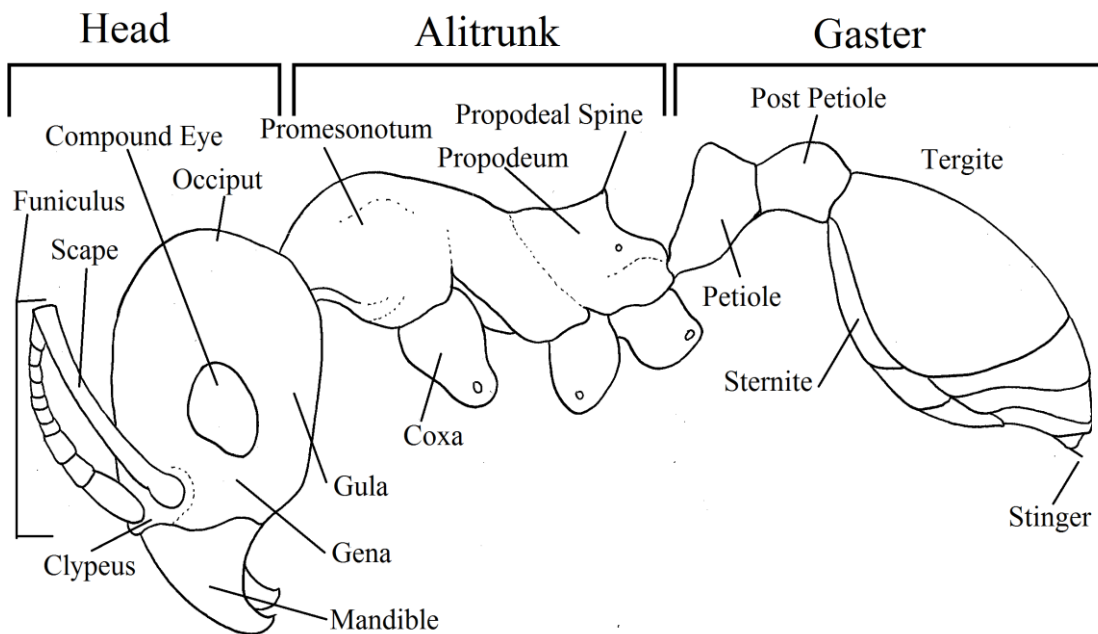


Figure 1.1 Morphological features of ants

### Study Area

The state of Indiana covers an area of 36,420 square miles, 35,870 of which is land that has a variety of regions, and each region a variety of habitats. There are four main regions recognized in Indiana: the Northern Moraine and Lake Region, Maumee Lake Plain Region, Central Till Plain Region, and Southern Hills and Lowlands Region (Fig. 1.2).

The Northern Moraine and Lake Region is found across the north of the state, and is comprised of the Lake Michigan Border, Valparaiso Morainal Complex, Plymouth Morainal Complex, Auburn Morainal Complex, Warsaw Moraines and Drainageways, Kankakee Drainageways, and the St. Joseph's Drainageways. This region is covered with natural lakes, marshlands, bogs, fens, and moraines. Very near Lake Michigan, this region is covered with large amounts of sand which create dunes. These dunes produce a variety of microhabitats.

The Maumee Lake Plain Region is located in northeastern Indiana in Allen County. This area was once home to the Black Swamp, but the majority has been drained for agriculture and industry. Only small swamps and marshes can be found there.

The Central Till Plain Region spans the central Indiana counties. It includes the Iroquois Till Plain, Tipton Till Plain, Bluffton Till Plain, Central Wabash Valley, and the New Castle Till Plains and Drainageways. The majority of this region is very flat and the soil is very fertile. This is due to the glaciers flattening the earth and depositing till as they receded.

The Southern Hills and Lowlands Region can be found across the southern portion of the state. This region is comprised of the Wabash Valley Lowland, Boonville Hills, Martinsville Hills, Crawford Upland, Norman Upland, Mitchell Plateau, Scottsburg Lowland, Charlestown Hills, Muscatatuck Plateau, and Dearborn Upland. This region of the state was untouched by glaciers. Because of this, the area is very hilly with rocky outcrops. It also has various underground streams, caves, sinkholes, and limestone deposits.

Each sub-region has specific habitats and environments that may contain different species. An attempt was made to collect in as many different habitats within each county, to try and account for the diversity of Indiana microhabitats.

### Objectives

The goal of this study is to explore the basic diversity, distribution, and biology of Indiana ants. The results gathered from this study can be applied to a variety of agendas, including pest control, taxonomy, bio-monitoring, and climate change. Not only will this study give a better idea of what is present in Indiana, it can also be applied to neighboring states in the Midwest and provide an outline for other states to follow. The objectives are as follows:

The primary objective of this study is to conduct a survey of the Formicidae present in the state of Indiana. Local insect collections and national collections will be contacted to obtain any specimen data on Indiana ants that may be present. In addition to this, a survey of counties in the state will be done to gather further information where data may be lacking.

Next it will be determined if there are any new species within the state that have yet to be recorded. This will be done at the state level as well as at the county level.

Species level identification keys for the worker caste for all the species that are found to occur in Indiana will be constructed. The general biology of each species will be researched and included in addition to the keys.

A key to the species that are common pests will be constructed for use in industry. This key will be formatted as a dichotomous key, as well as electronic interactive key.

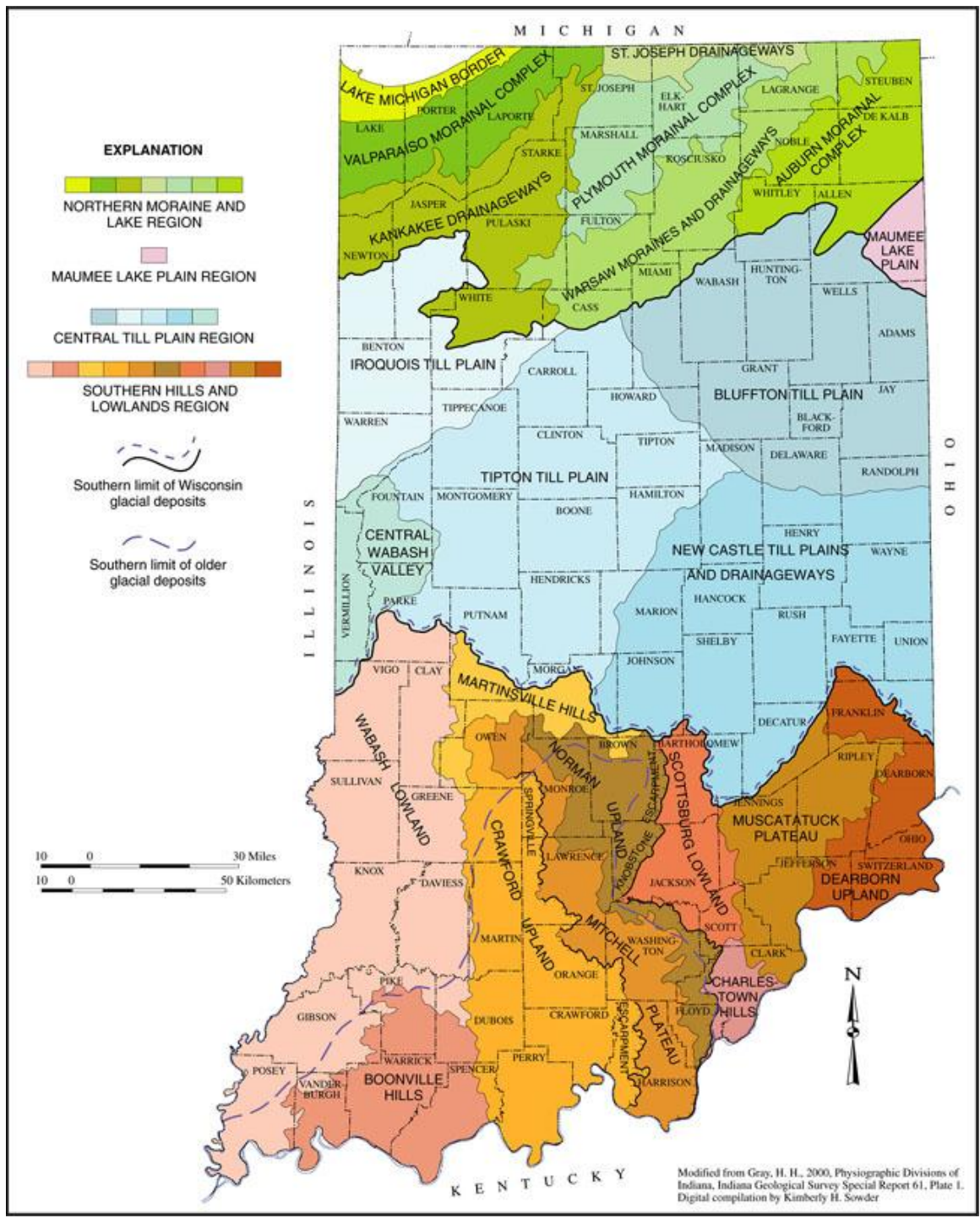


Figure 1.2 Indiana regions and counties



## CHAPTER 2: METHODS

### Review

All publications on the ants of Indiana were reviewed and the species data present was tabulated in an excel sheet by county.

To obtain previously collected data, local and national insect collections were contacted in 2008 and 2009. In addition to these collections referenced, personal collections were also referenced. Specimen data was obtained from the insect collections at Purdue University, Michigan State University, The Chicago Field Museum, Illinois Natural History Survey, and the Smithsonian Institute Museum of Natural History. The personal collections referenced included the collections of Michael Skvarla and Kyle Schnepf. Any ants that were present in these collections were recorded to the county level. This data was added to the table from the literature review.

Once this data had been collected and compiled, total species per county were established. Any county that contained  $\leq 10$  species recorded would be collected in during the field study.

### Sampling

Sampling was done from May to August of 2009 in the 67 counties in Indiana that had  $\leq 10$  species recorded. Figure 2.1. shows the location of all collection sites.

For each of the 67 counties, 5 quadrants were sampled. Each quadrant consisted of a 10 meter square within a habitat. An effort was made to sample in 5 different types of habitats within each county. The quadrants were measured out and marked off with wooden stakes and tape. Each quadrant was heavily surveyed for ants. Individual ants were hand collected from the ground, leaf litter, rotten logs, stumps, trees, under rocks, and on foliage. The specimens collected were preserved in 75% ethanol in labeled screw top vials.

For the first 10 counties sampled, 5 pitfall traps per county were also used. The pitfall traps consisted of a 15 cm diameter plastic cup, baited with fruit and filled halfway with soapy water. The traps were covered with a 40 cm square of wood. These pitfall traps, however, were

constantly tampered with by wildlife and humans, and very few yielded results. For this reason, pitfall traps were not used for the remaining counties.

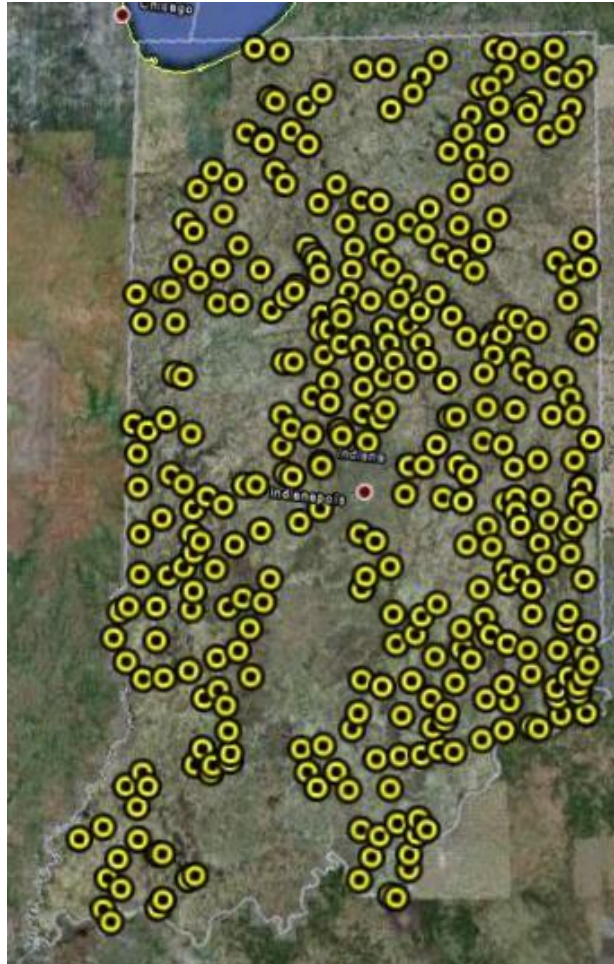


Figure 2.1 Collection locations

In addition to the specimens collected within the quadrants, soil and leaf litter samples were collected. These samples were placed in gallon Ziploc bags and taken back to the lab where they were placed in Berlese funnels. Specimens collected from these samples were also preserved in 75% ethanol in labeled screw top vials.

Once the field collecting was complete, specimens that were collected were pinned or pointed on card stock and placed in Schmidt boxes. All specimens were then identified to species using various keys, and labeled.

### Verification of Species Identification and Deposition of Specimens

Specimens of most species were identified by the author, using various keys already present. Individuals that were more difficult to identify were imaged and sent to Dr. James Trager at the Shaw Nature Reserve, Gray Summit, MO, for verification.

Preserved specimens were placed in the collections of the author, Purdue Entomological Research Collection, West Lafayette, IN, Chicago Field Museum, Chicago, IL, and Smithsonian National Insect Collection, Washington D.C.

### Systematic Organization

The classification of families, genera, and species used follows that of Creighton (1950) for a basic starting key. In addition to Creighton (1950), more modern revisions of groups, genera, and species such as Coovert (2005) and Bolton (1995) were used to compile keys that are specific to Indiana and the Midwest. In some cases, the keys to species had to be rewritten to account for the variety of species present in Indiana. The DELTA Editor software was used to create a key to all the species as well as the industry key to important pest species. This software was also used to create the electronic interactive key for industry pest species. All images for the interactive key were obtained from antweb.org. All genera and species are presented alphabetically for convenience; however this order is in no way an indication of the phylogeny of this family.

For each species, a list of synonyms and references used for identification is provided. Diagnostic characteristics used to separate the species from others within the genus are also provided, as well as the general biology, habitat, and behaviors. The North American distribution of each species is outlined based on previous records. Indiana distributions are given in a brief summary, along with a map of the state with counties marked green where the species is present.

### Illustrations

Illustrations were drawn by the author for the couplets that are difficult to understand without an image. These illustrations were created by a basic transfer method. Images of the needed characteristics were found. The characteristic needed in the image was outlined, and then traced onto transfer paper with a 4B drawing pencil. The image on the transfer paper was then placed drawing side down on velum paper and transferred via burnishing. They were then manipulated and redrawn. Images were scanned onto the computer and edited using Adobe Photoshop before being placed into the keys.

In addition to illustrations for identification purposes within the keys, illustrations were created for species profiles. The same basic trace, transfer redraw concepts were used in creating these profile images.

CHAPTER 3: SYSTEMATICS

The keys presented in this section are combinations of couplets from various keys that were listed in the methods section. They are specific to Indiana; however they may also apply to the surrounding states in the Midwest. Keys are listed in the order of subfamilies, genera, and then species.

Key to the Subfamilies of Formicidae in Indiana

1. Abdominal pedicel (waist) composed of two distinctly differentiated segments, the petiole and postpetiole; stinger usually functional.....2

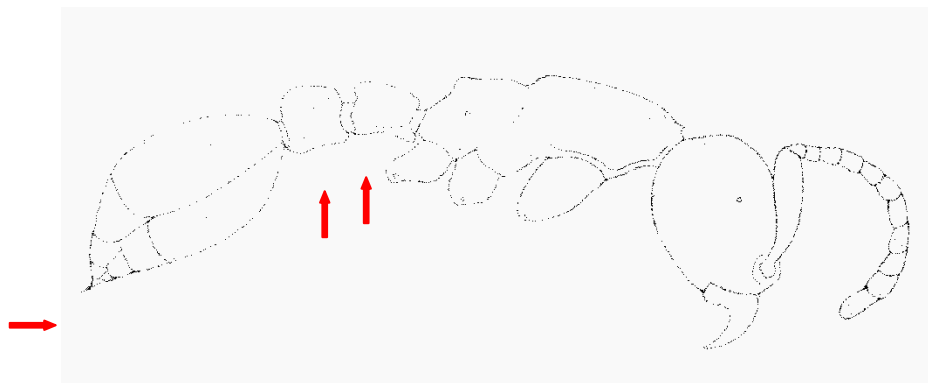


Figure 3.1 Two segmented pedicel

- Abdominal pedicel (waist) composed of a single distinctly differentiated segment, the petiole; stinger vestigial or absent in most genera..... 3

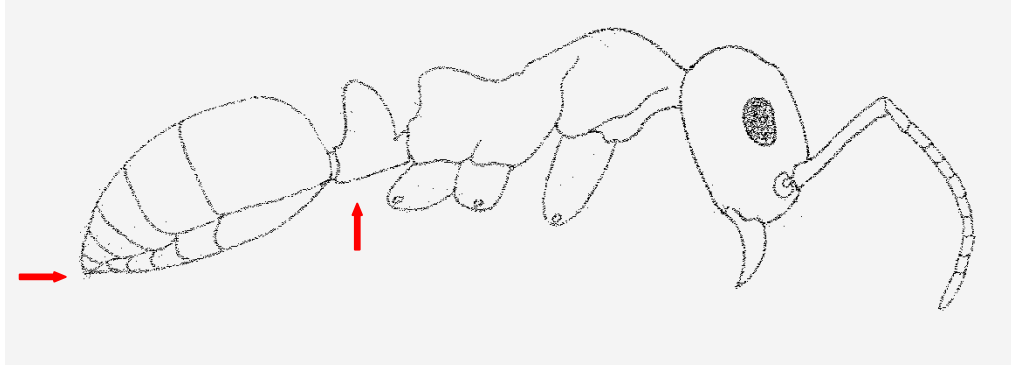


Figure 3.2 One segmented pedicel

- 2(1). Eyes present and conspicuous, if reduced, of more than one facet (ommatidium); antennal sockets not placed close together, always partially or completely covered by the frontal lobes in full-face view and never completely open; clypeus usually prolonged back between the frontal lobes; propodeum usually with a pair of distinct teeth or spines.....

### **Myrmicinae**

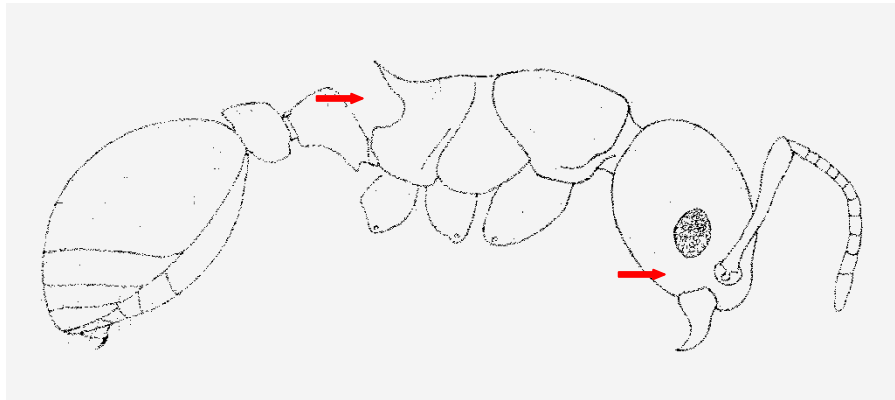


Figure 3.3 Eyes present and conspicuous

Eyes absent or represented by a single facet (ommatidium); antennal sockets placed close together and completely open in full-face view, not at all concealed or covered by the frontal lobes which are absent or greatly reduced; clypeus short; propodeum (epinotum) unarmed..... **Ecitoninae**

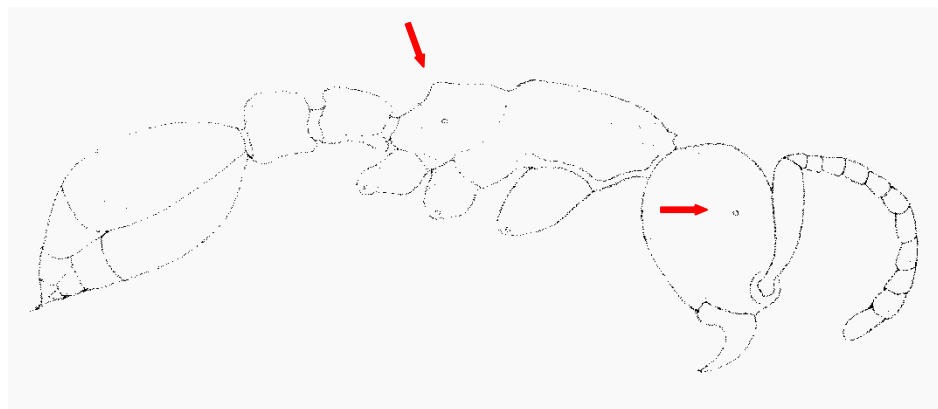


Figure 3.4 Single facet eyes; unarmed propodeum

3(1). Gaster without any constriction between the first and second segments; stinger vestigial

.....4

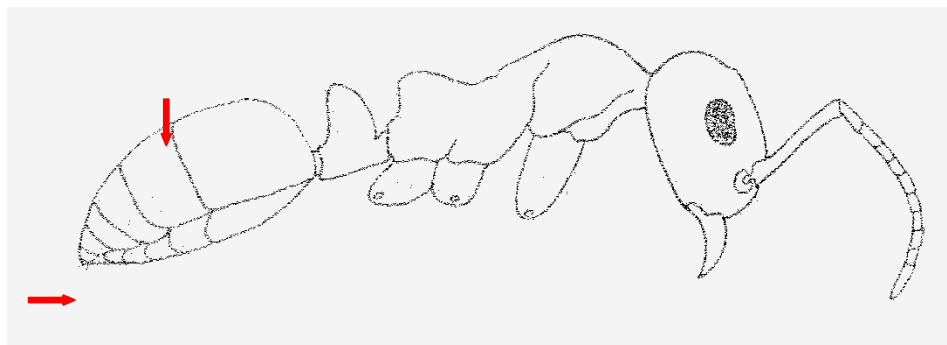


Figure 3.5 Gaster lacking constriction

Gaster with distinct constriction between the first and second segments; stinger present and well-developed..... **Ponerinae**

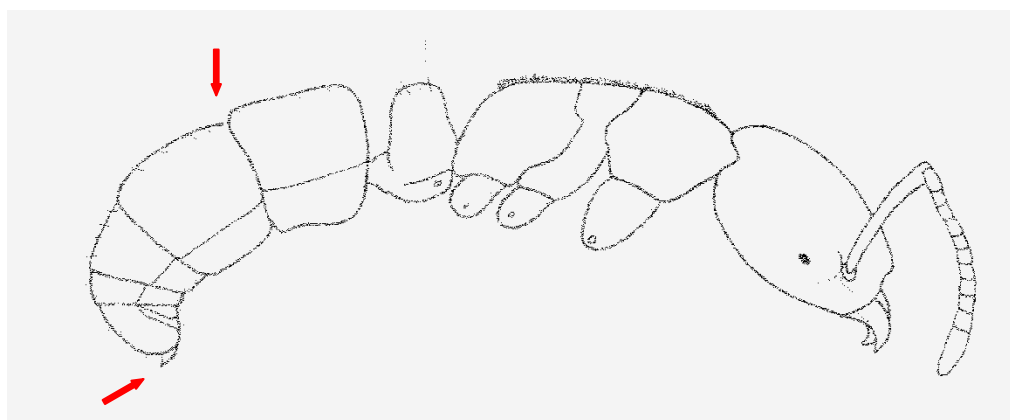


Figure 3.6 Gaster with constriction

- 4(3). Apex of gaster lacking an acidopore, opening (cloacal orifice) slit-like, often obscure, hairs, when present, not forming an encircling fringe.....**Dolichoderinae**



Figure 3.7 Apex of gaster slit-like

Apex of gaster projecting conically as a semicircular to circular opening (acidopore) formed from the hypopygium (last lower plate of the gaster), this nozzle-like structure usually with an encircling fringe of short, stiff setae (hairs) around the opening.....  
.....**Formicinae**

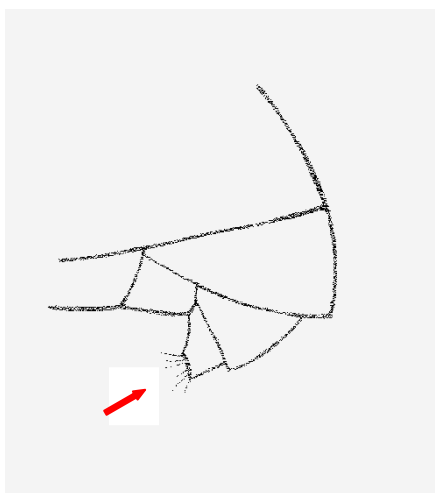


Figure 3.8 Gaster with a semicircular opening surrounded by hairs

### Keys to the Genera

#### Key to the Genera of Dolichoderinae in Indiana

1. Propodeum with a strong dorsal projection extending posteriorly and forming an overhang, thus strongly concave in side view, meeting the posterior face at a sharp angle; propodeum and often much of the remainder of the alitrunk heavily sculptured; integument thick, hard, and brittle; hypostoma on each side with a tooth-like projection adjacent to the ventral surface of mandibular insertion.....**Dolichoderus**



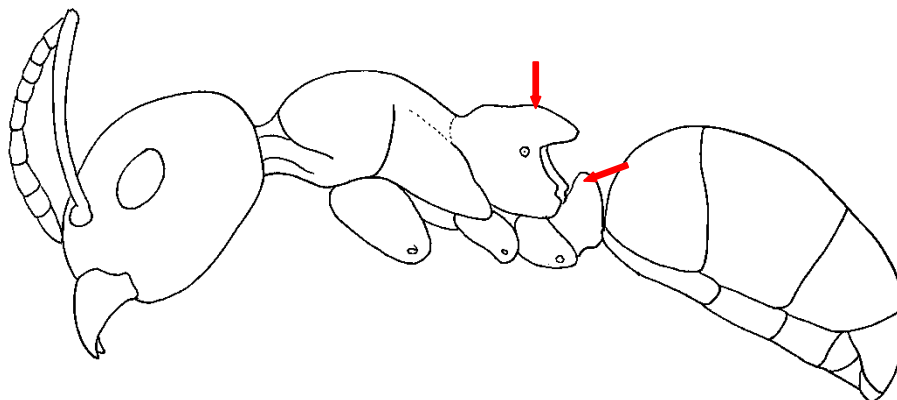


Figure 3.9 Strong dorsal projection on the propodeum

Propodeum convex, straight, or weakly concave, not meeting the posterior face at a sharp angle; propodeum and the rest of the body finely sculptured; integument thin and flexible; hypostoma lacking tooth-like projection..... 2

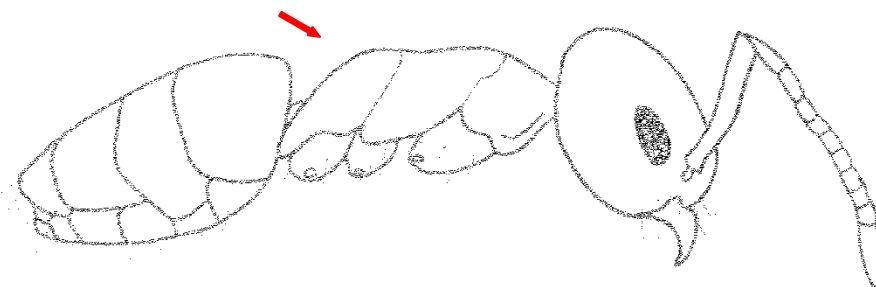


Figure 3.10 Convex propodeum

- 2(1). Propodeum with a prominent, sharp, conical or tubercular protuberance projecting vertically at juncture of the dorsal and posterior faces; gaster distinctly and strongly compressed laterally; maxillary palp with 3rd segment unusually elongate, commonly as long as or longer than the next 3 segments combined.....**Dorymyrmex**

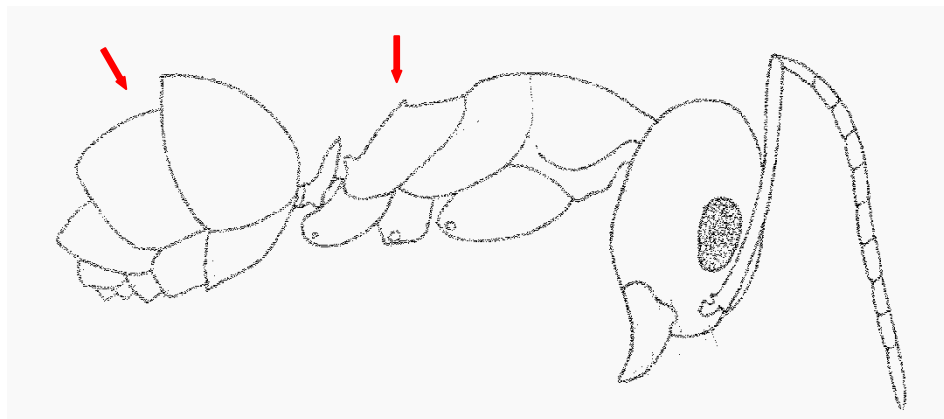


Figure 3.11 Sharp protuberance on the propodeum

Propodeum unarmed, evenly convex or angulate at juncture of dorsal and posterior faces; gaster normally inflated, not laterally compressed; maxillary palp with 3rd segment not unusually elongate, notably shorter than the next 3 segments combined.....3

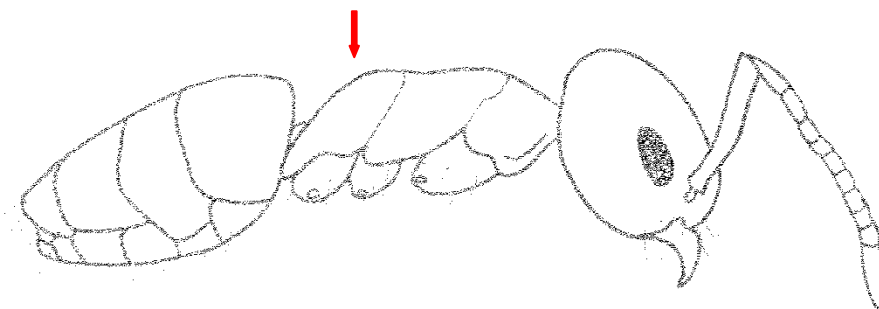


Figure 3.12 Propodeum lacking protuberance

- 3(2). Petiolar scale or node very small and indistinct, strongly inclined forward and fused to anterior peduncle; dorsal face of propodeum shorter than posterior face; without hairs on dorsum of alitrunk or head.....**Tapinoma**

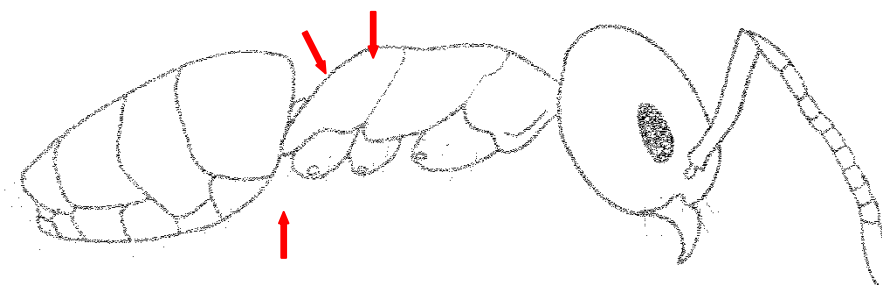


Figure 3.13 Small, indistinct petiolar node

- Petiolar scale or node distinct but small, erect or suberect; dorsal face of propodeum as long or longer than the posterior face; head and alitrunk with few coarse hairs.....4
- 4(3). Hairs on anterior border of clypeus straight and much shorter than the closed mandibles; gaster not compressed, round in cross-section; mandibles with several minute denticles between each of the larger teeth, except between apical and preapical..... **Linepithema**

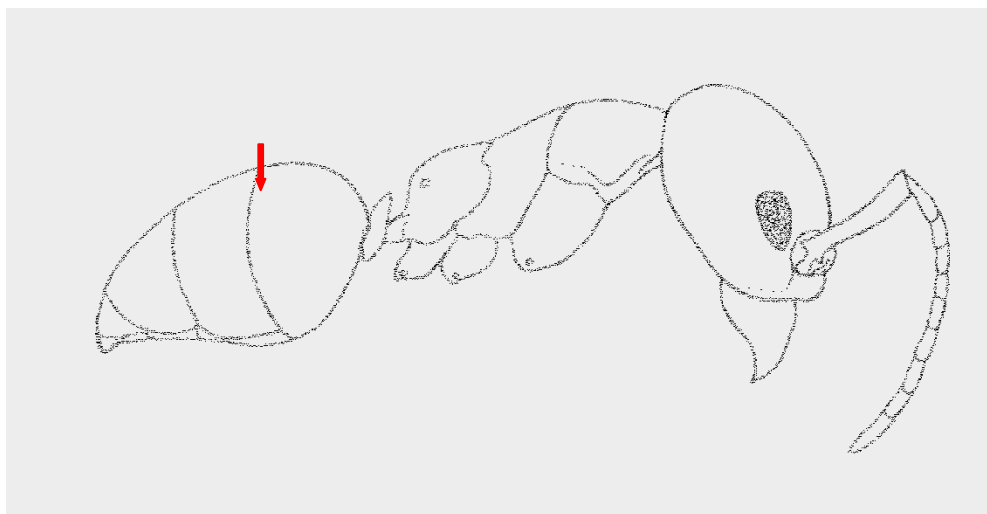


Figure 3.14 Inflated gaster; not compressed

Hairs on anterior border of clypeus curved and as long as the length of the closed mandibles; gaster compressed dorsoventrally; mandibles with denticles between basal and subbasal teeth only..... **Forelius**

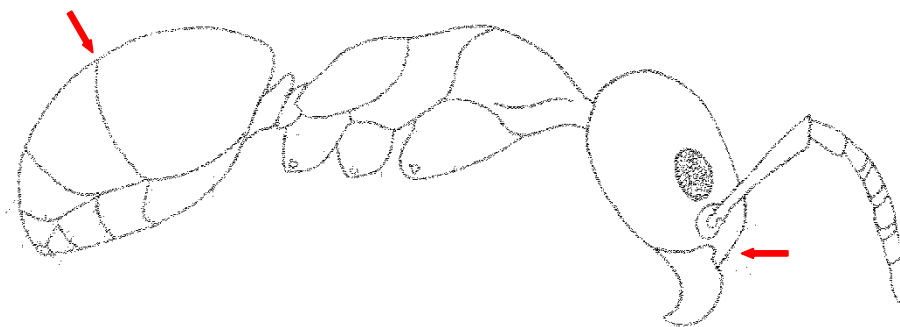


Figure 3.15 Compressed gaster; long curved hairs on the clypeus

Key to the Genera of Ecitoninae in Indiana

No key is necessary for this subfamily as it is represented by a single genus (*Nievamymex*) in Indiana.

Key to the Genera of Formicinae in Indiana

1. Antenna with 9 segments; petiolar scale or node inclined, usually concealed from above by the base of the gaster; propodeum with a very short dorsum and an unusually long declivity; small species (total length 1.2 to 1.4 mm)..... **Brachymymex**

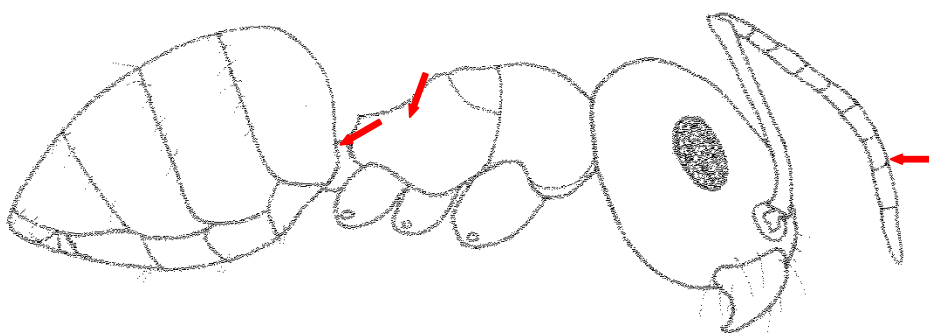


Figure 3.16 Inclined petiolar node; 9 segmented antennae

- Antenna with 12 segments; without above combination of characteristics; larger species (total length great 2.2 to 15 mm).....2

- 2(1). Mesopleuron with anteroventral edge formed as a sharp carinate ridge; dorsum of alitrunk in profile usually evenly convex and continuous, the propodeum not depressed below the level of the promesonotum, the metanotal suture usually unimpressed or very slightly impressed (Colobopsis); antennal sockets situated well behind the posterior margin of the clypeus; metapleural gland orifice absent, thus metapleural surface uninterrupted above the hind coxa, the orifice lacking guard setae; workers usually polymorphic or dimorphic .....3

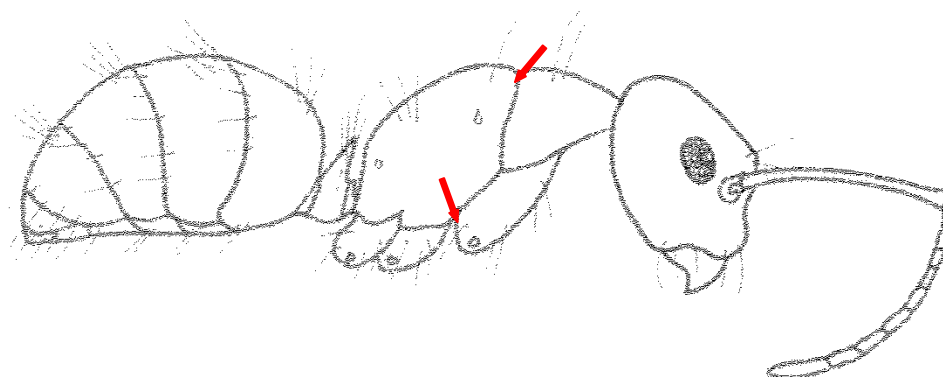


Figure 3.17 Sharp ridge on mesopleuron; evenly convex alitrunk

Mesopleuron with anteroventral edge rounded, not formed as a sharply carinate ridge; dorsum of alitrunk in profile clearly discontinuous, constricted to some degree and thus not evenly convex, the propodeum often distinctly depressed below the level of the promesonotum, the metanotal suture moderately to strongly impressed; antennal sockets situated close to posterior margin of clypeus; metapleuron with a distinct, wide orifice for the metapleural gland situated above the hind coxa; this orifice is usually protected by a line or tuft of conspicuous guard setae; workers usually monomorphic, sometimes weakly polymorphic.....4

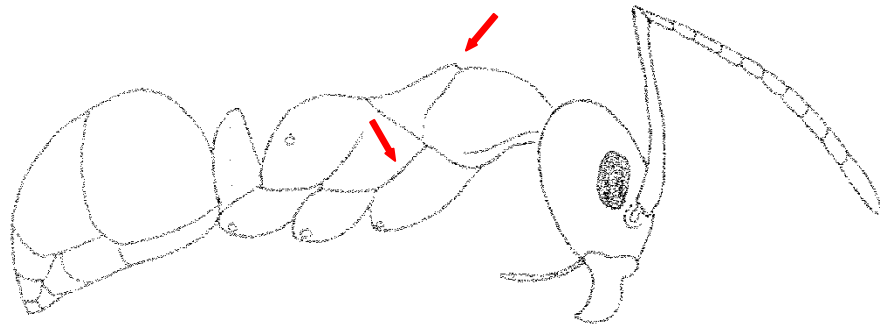


Figure 3.18 Rounded edge on the mesopleuron

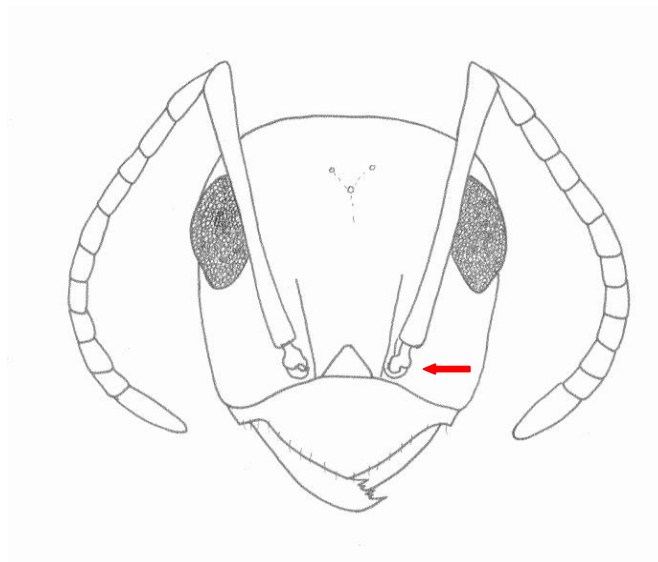


Figure 3.19 Antenna socket inserted at base of clypeus

- 3(2). Promesonotal and metanotal sutures present and usually distinctly impressed; head of major obliquely truncate in front with the borders of the truncated zone sharply marginate, forming a functional cork or plug; crest of petiole slightly to distinctly concave dorsally; workers completely dimorphic (2 distinct forms).....**Colobopsis**

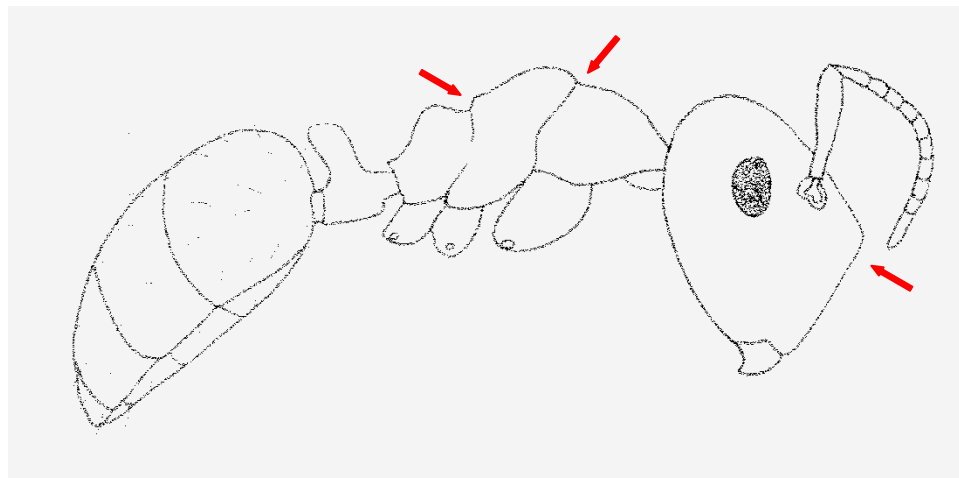


Figure 3.20 Distinctly impressed sutures on the thorax; truncate head

Promesonotal and metanotal sutures absent or very weakly impressed; head of major not distinctly obliquely truncate in front (if somewhat truncate, the truncated area is not sharply marginate); crest of petiole convex dorsally; workers continuously polymorphic (occurring in several different forms), rarely dimorphic.....**Camponotus**

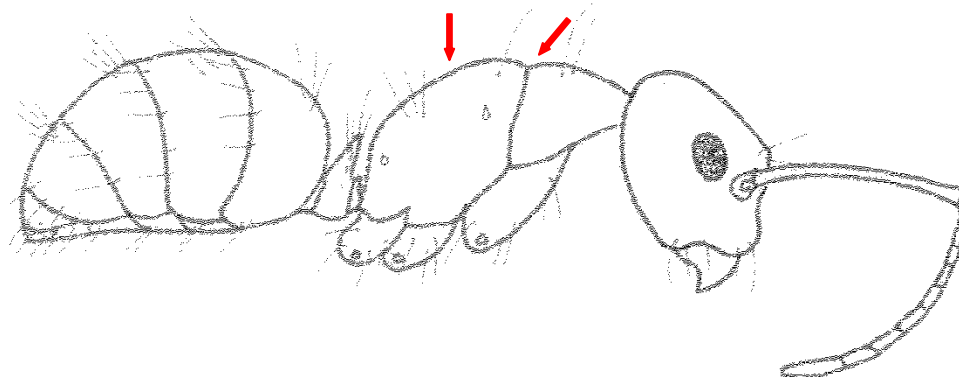


Figure 3.21 Thoracic sutures absent; head not truncate

- 4(2). Mandible narrow, and sickle-shaped, with pointed apex, internal border minutely serrated but lacking teeth; petiole with prominent, rounded node, not scale-like; maxillary palps 4 segmented, labial palps 2 segmented..... **Polyergus**

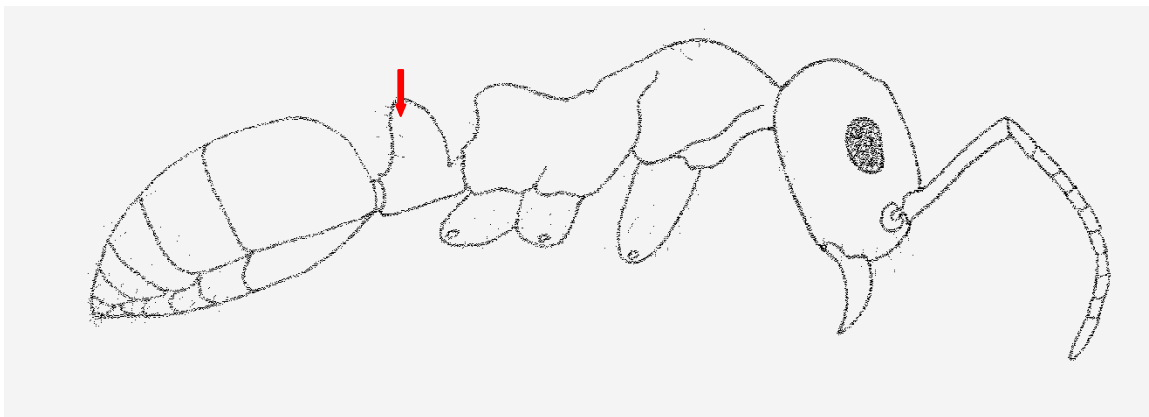


Figure 3.22 Petiolar node rounded and prominent

Mandible more or less triangular, masticatory margin with 5 to 12 distinct teeth; petiole usually scale-like, sometimes with a rounded node; palp formulas 6,4 or 3,3 but never 4,2  
 .....5

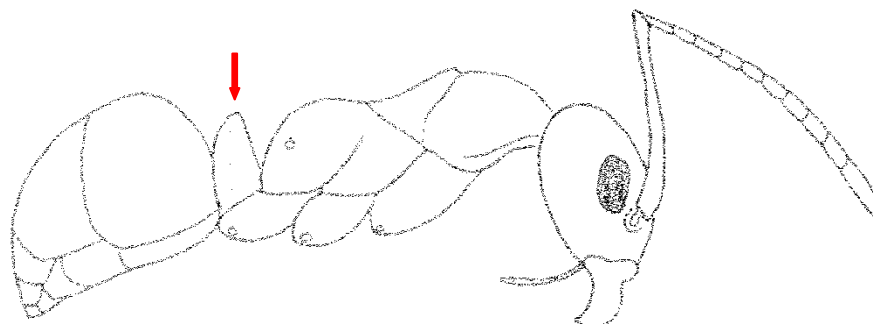


Figure 3.23 Petiolar node scale-like



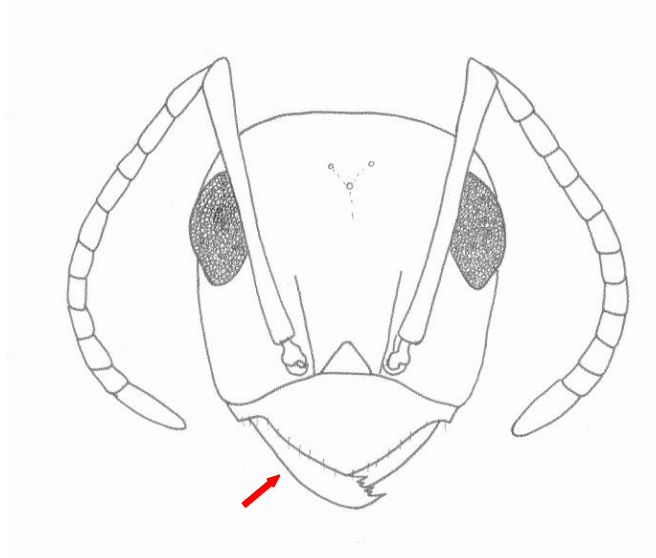


Figure 3.24 Triangular mandible

- 5(4). Petiolar node low and sloping anteriorly, forming a low anteriorly directed triangle; erect body hairs long, often coarse and brown or black in color; mandibles with 5 or 6 teeth... 6

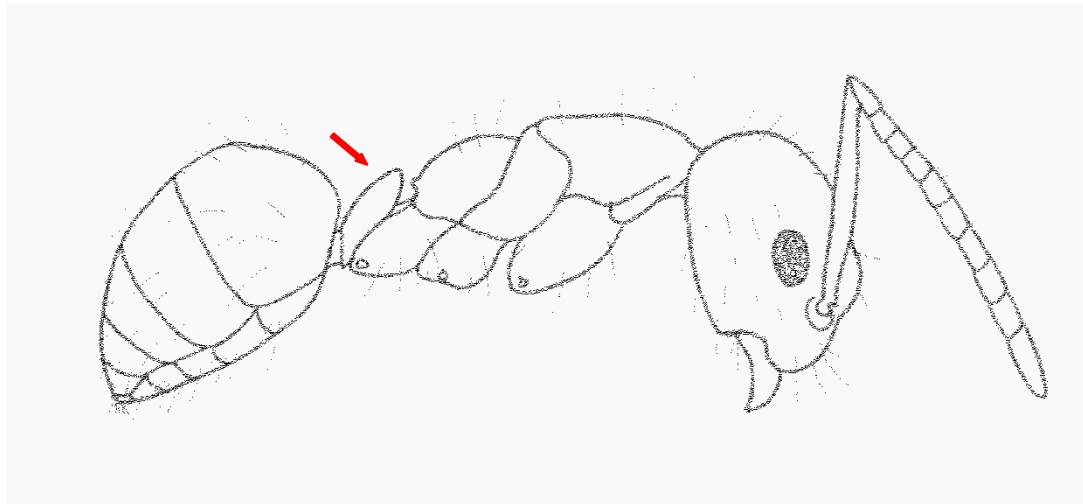


Figure 3.25 Low, sloping petiolar node

Petiolar node upright, forming a high triangle; erect body hairs short and pale, not coarse and dark in color; mandibles with 7 or more teeth.....7

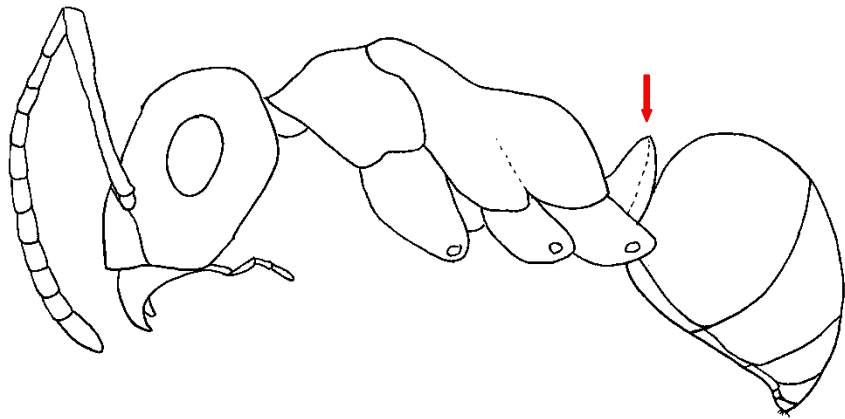


Figure 3.26 Petiolar node upright

6(5). Alitrunk strongly constricted and subcylindrical at mesothorax, swollen in front of and behind constriction, giving a distinctive hourglass shape when viewed from above; eyes situated above the middle of the head in full-face view; pilosity not conspicuously coarse or bristle-like; erect hairs mostly slender and golden or brownish, not distinctly paired; femora and tibiae without erect hairs.....**Prenolepis**

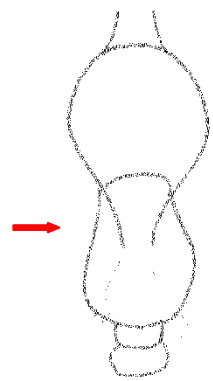


Figure 3.27 Alitrunk hourglass shaped

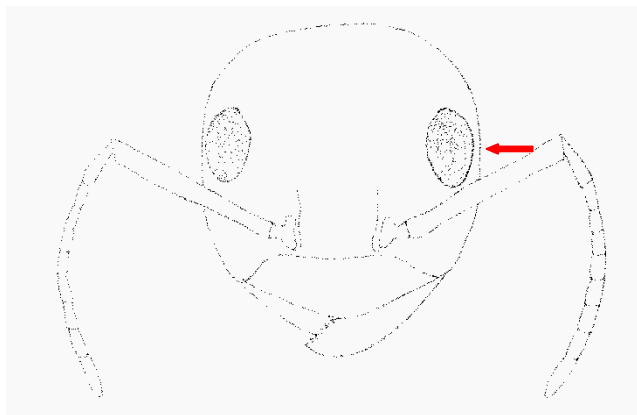


Figure 3.28 Eyes situated above the middle of the face

Alitrunk only slightly constricted at mesothorax, lacking obvious hourglass shape; eyes situated at or below the middle of the head in full-face view; pilosity coarse and bristle-like; erect hairs often dark brown or black and arranged in distinct pairs; femora and tibiae with erect hairs.....**Paratrechina**

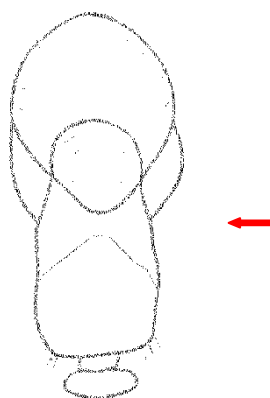


Figure 3.29 Alitrunk only slightly constricted

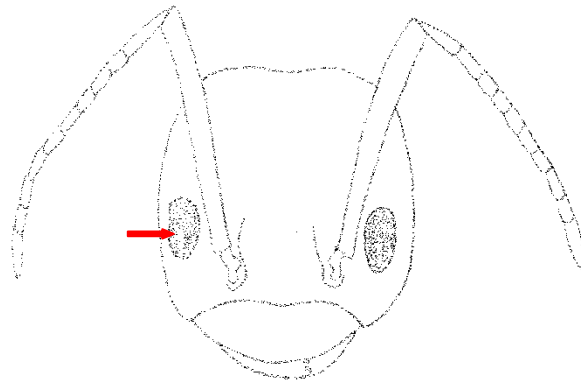


Figure 3.30 Eyes situated at or below the middle of the face

- 7(5). Clypeus broad and short, nearly 3X as wide as long; dorsum of propodeum somewhat angulate; propodeal spiracle circular to subcircular; ocelli indistinct or absent; frontal carinae indistinct or absent, if present, lateral margin rounded or nearly flat; smaller species (total length 2.2 to 5.2 mm)..... **Lasius**

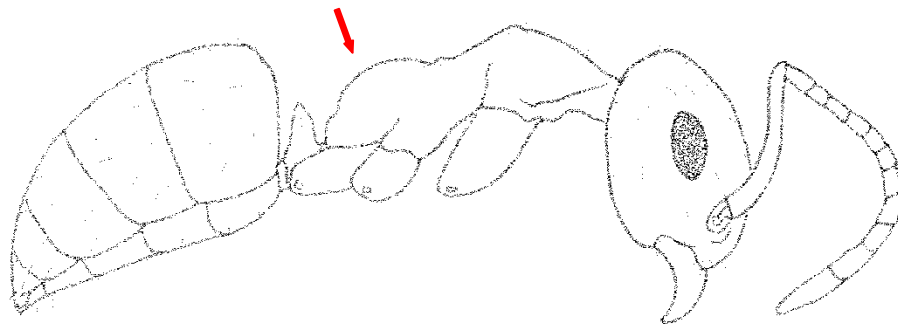


Figure 3.31 Dorsum of propodeum slightly angulate

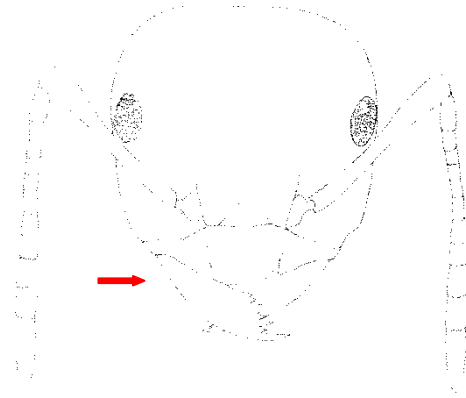


Figure 3.32 Clypeus broad and short; 3X as wide as long

Clypeus narrower and longer, slightly more than 2X as wide as long; dorsum or propodeum rounded; propodeal spiracle elliptical to broadly oval; ocelli conspicuous; frontal carinae short but distinct, each a small ridge with a moderately to sharply angulate summit that is sometimes slightly reflected upward; larger species (total length 3.5 to 9.0 mm)..... **Formica**

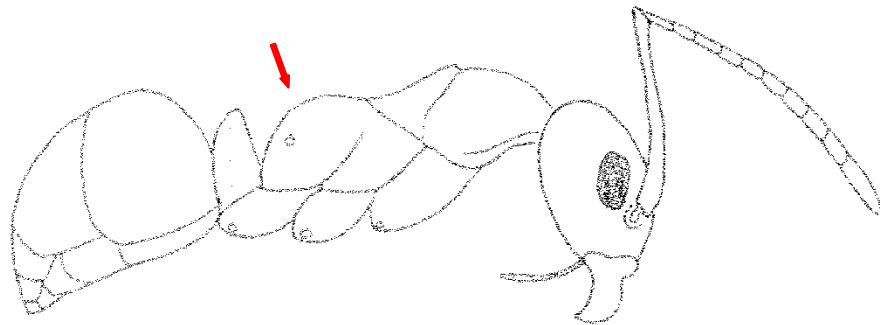


Figure 3.33 Dorsum of propodeum rounded

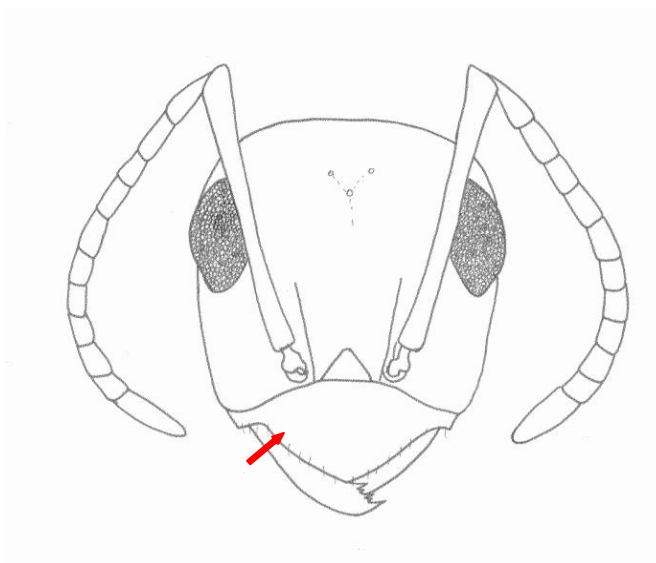


Figure 3.34 Clypeus long and narrow; 2X as wide as long

#### Key to the Genera of Myrmecinae in Indiana

1. Workers absent, strictly parasitic form; gaster of the female with a deep longitudinal furrow extending its full length dorsally.....**Anergates**  
Workers present (or females not as above).....2
- 2(1). Antenna with 6 segments; petiole and postpetiole with spongiform tissue present; body hairs usually clavate or spatulate; head wedge or heart shaped in full face view..... 3

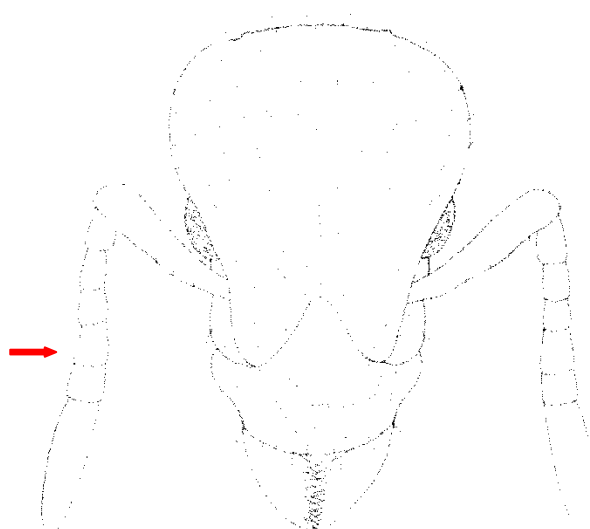


Figure 3.35 Antennae with 6 segments

Antenna with 10 to 12 segments; otherwise not as above.....4

- 3(2). Mandibles linear, long and slender, the apex of each with a fork of 2 spine-like teeth arranged one above the other, the remainder of the inner border unarmed except for a single, small, subapical tooth.....**Strumigenys (Pyramica)**

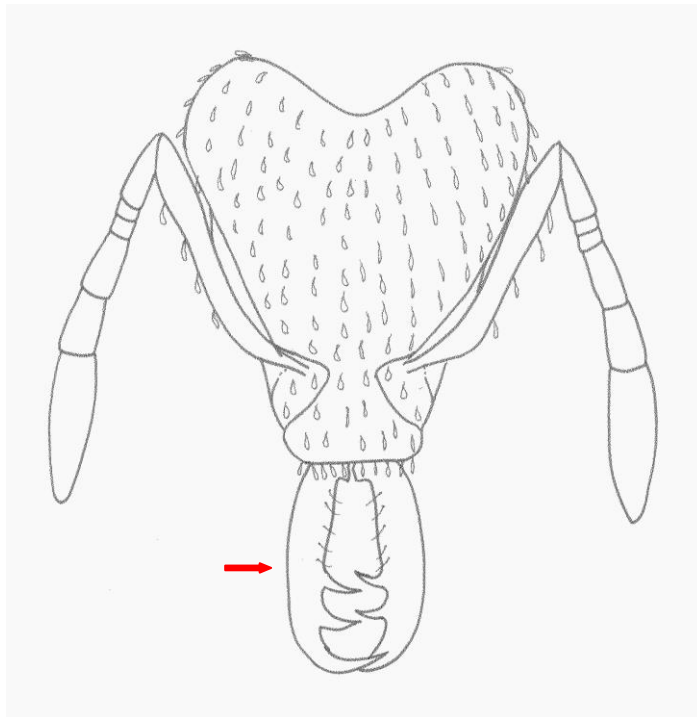


Figure 3.36 Long, slender mandibles with a fork of 2 spine-teeth at the end  
Mandibles somewhat curved, much shorter, triangular or subtriangular, the inner border armed with more than 2 teeth along its distal half and with a single, large triangular tooth at the base..... **Smithistruma (Pyramica)**

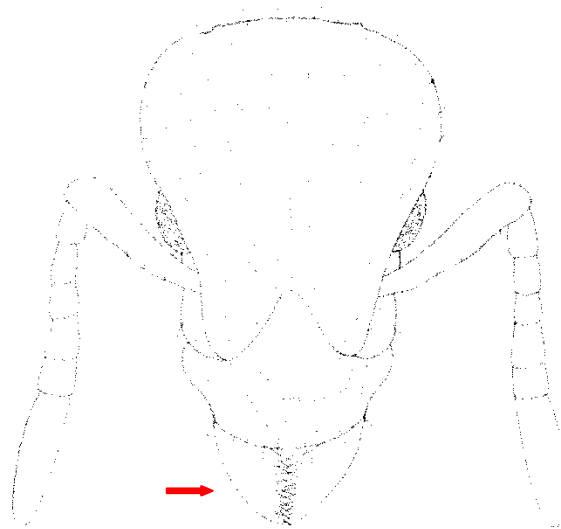


Figure 3.37 mandibles short, triangular, and somewhat curved

- 4(2). Antenna with 10 segments, the last two forming a very distinct club; propodeum (epinotum) unarmed, eyes very small, with 15 ommatidia or less.....**Solenopsis**

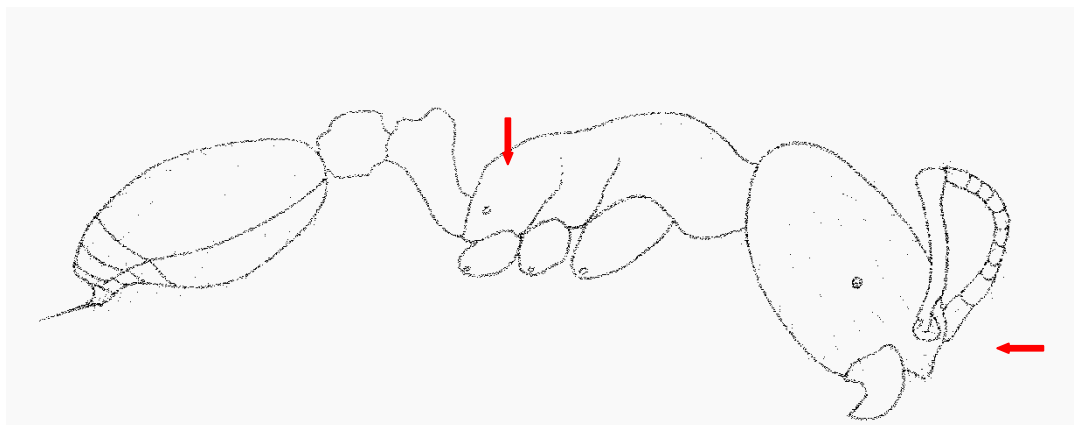


Figure 3.38 Antennae with 10 segments; the last 2 forming a distinct club

- Antenna with 11 or 12 segments; antennal club either undifferentiated or composed of 3 or more segments.....5
- 5(4). Antenna with 11 segments..... 6
- Antenna with 12 segments.....13
- 6(5). Postpetiole attached to dorsal surface of the base of the gaster; gaster subcordate, flattened dorsally, much more convex ventrally, acute apically, capable of bending forward over the alitrunk..... **Crematogaster**



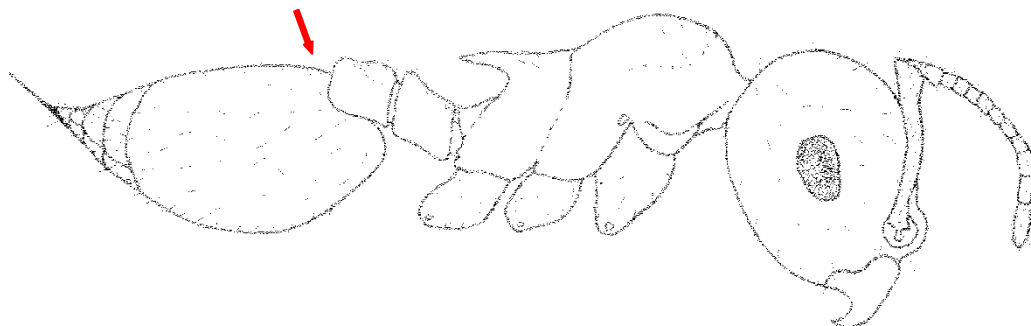


Figure 3.39 Postpetiole attached to the dorsal surface of the gaster

Postpetiole attached to the anterior end of the first gastral segment; gaster not subcordate, about equally convex above and below, not notably pointed apically, not capable of bending forward over the alitrunk.....7

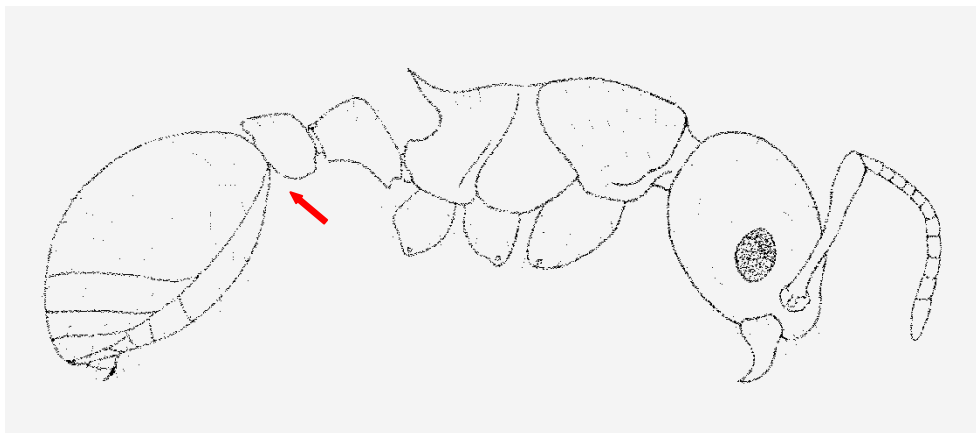


Figure 3.40 Postpetiole attached to the anterior end of the gaster, never the top

- 7(6). Promesonotal dorsum with 3 or more elongate, sharp spines or teeth; entire body, including the antennal scapes and the legs, covered with numerous small tubercles; frontal carinae conspicuous, extending almost to the posterior corners of the head  
 .....**Trachymyrmex**

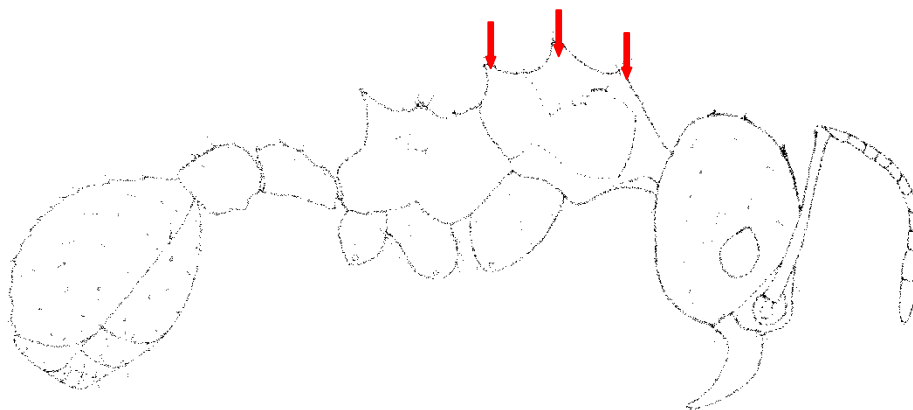


Figure 3.41 Dorsum of alitrunk with 3 or more spines or teeth

Promesonotal dorsum smooth to coarsely sculptured but not equipped with spines or teeth; otherwise not as above.....8

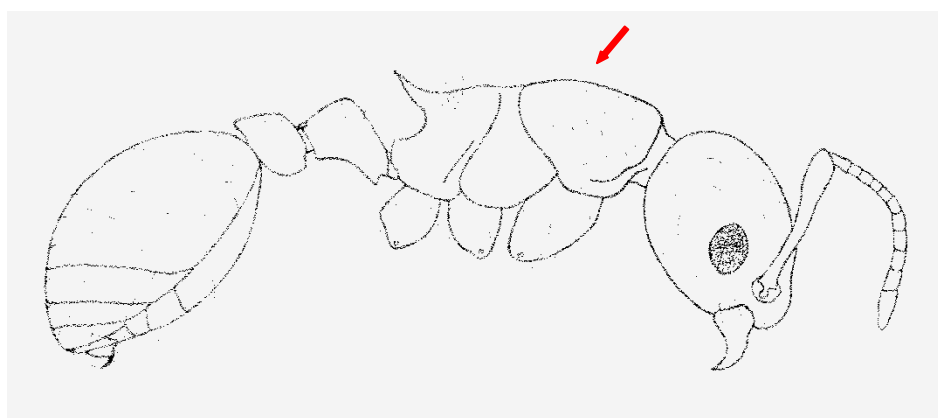


Figure 3.42 Dorsum of alitrunk lacking spines or teeth

- 8(7). Frontal carina short, not reaching the posterior border of the eye, lacking antennal scrobes.....9
- Frontal carina elongate, extending well beyond the posterior margin of the eye, forming a shallow scrobe for the reception of the antennal scape.....11

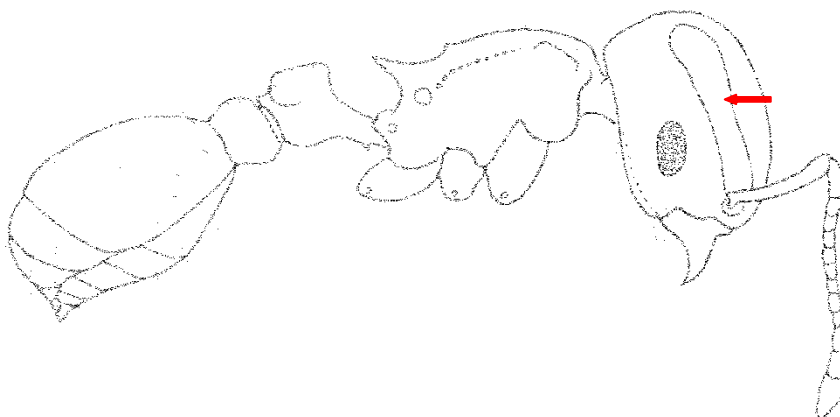


Figure 3.43 Elongate frontal carina that forms a shallow scrobe for the antennae

- 9(8). Eyes with conspicuous, short, erect hairs projecting between the ommatidia.....**Formicoxenus**  
 Eyes without these erect hairs projecting from the ommatidia.....10
- 10(9). Medial clypeal carina absent, transverse crest present on stipes of maxilla.....**Leptothorax**  
 Medial clypeal carina present, transverse crest absent on stipes of maxilla...**Temnothorax**
- 11(8). Species is minute, yellow; total length 1.5 - 2.0 mm; humeri (shoulders) distinctly angular; anterior border of clypeus convex; mandible with 5 teeth..... **Wasmannia**

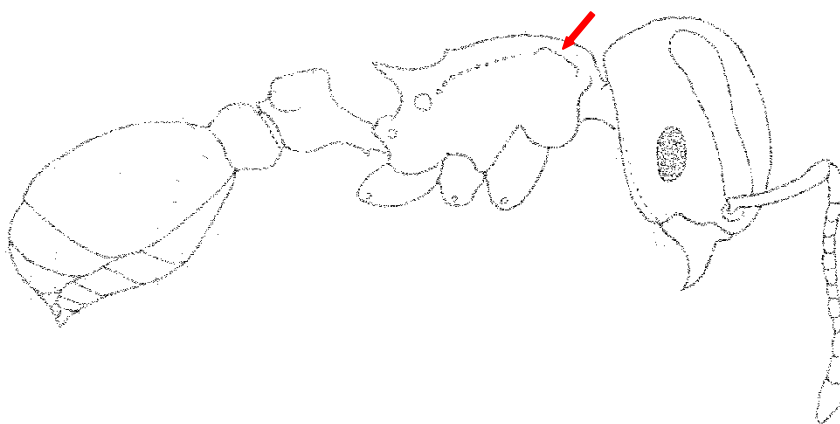


Figure 3.44 Humeri distinctly angular

Species larger, darker; total length 2.8 mm or longer; humeri rounded; anterior border of clypeus with a very distinct median emargination; mandible with 0-4 teeth..... 12

- 12(11). Mandibles lacking teeth and dorsal surface flattened; clypeus with narrow, deep median notch; front of the head with delicate longitudinal rugae..... **Harpagoxenus**  
 Mandibles bearing 4 teeth and dorsal surfaces strongly convex; clypeus with broad, very shallow median impression; front of the head finely punctate.....**Protomognathus**

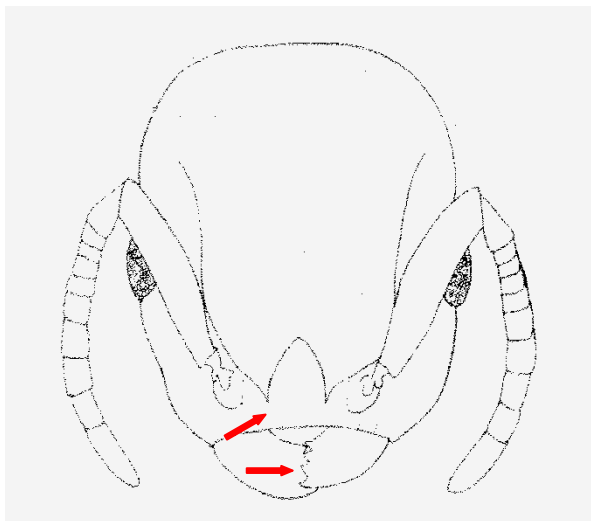


Figure 3.45 Mandibles with 4 teeth; clypeus with a narrow, deep, median notch

- 13(5). Petiole short and subcylindrical in profile, lacking an anterior peduncle, and with node absent or rudimentary; propodeum with 2 pairs of spines..... **Myrmecina**

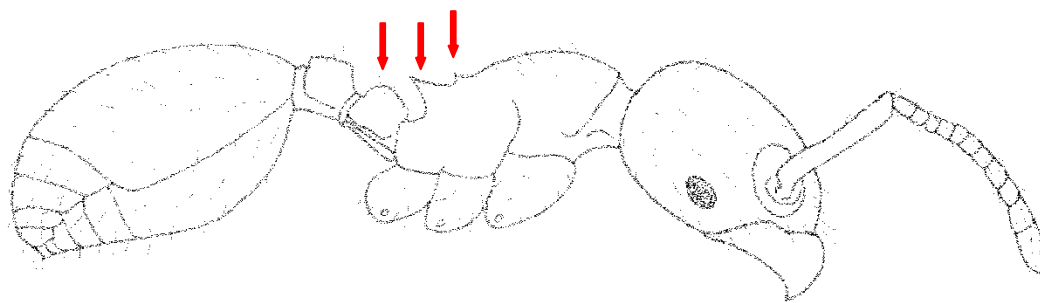


Figure 3.46 Propodeum with 2 pairs of spines; petiolar node absent

Petiole with a distinct node, the anterior peduncle distinct, although may be short; propodeum with a single pair of spines or unarmed (exclusive of the pair of sharp angles often present on the metasternum).....14

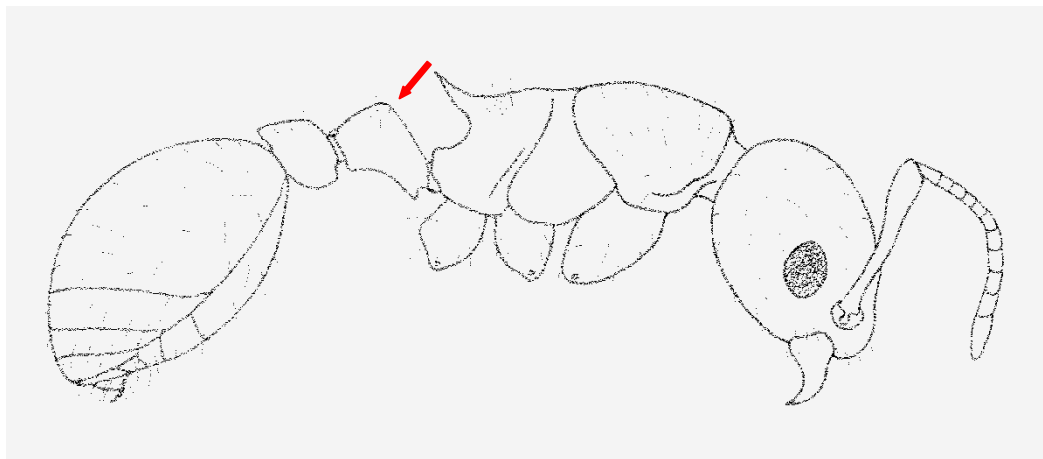


Figure 3.47 Petiole with a distinct node

- 14(13). Clypeus with the posterolateral portions raised into a sharp, narrow ridge or carina which forms an abrupt, semicircular boundary at the front of the antennal socket, creating the impression of a deep pit surrounding the socket; sting with a small, transparent triangular appendage at tip dorsally.....**Tetramorium**

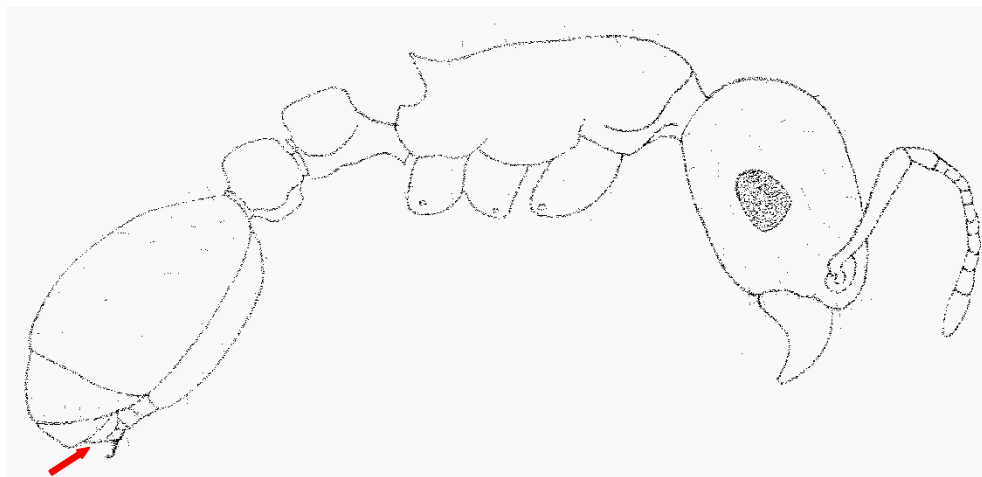


Figure 3.48 Stinger with a small, transparent triangular appendage at the dorsal tip



Figure 3.49 Clypeus with the posteriolateral portions raised into a sharp, narrow ridge (carina)

Clypeus not raised into a sharp, narrow ridge posterolaterally, thus antennal socket does not appear to be surrounded by a deep pit, especially anteriorly; sting simple, without an appendage at tip.....15

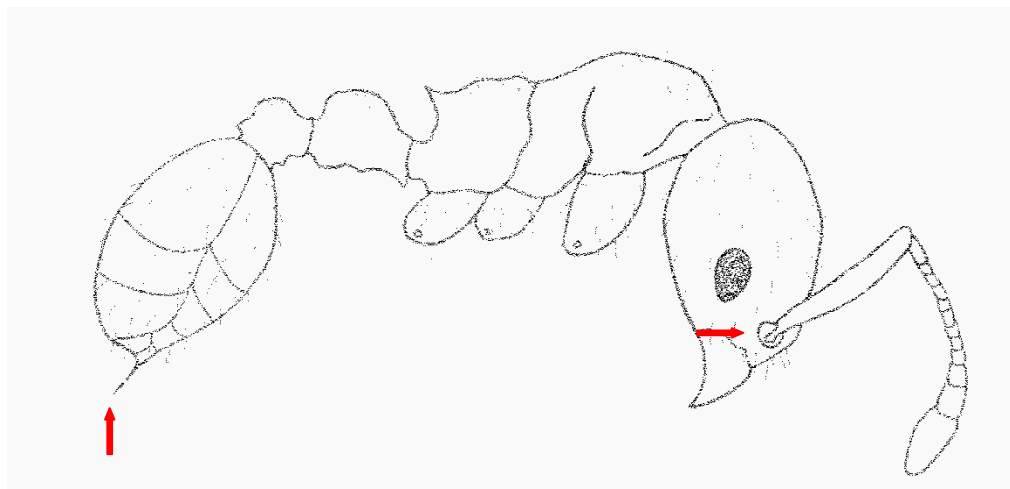


Figure 3.50 Stinger without triangular appendage

15(14). Spurs of the middle and hind tibiae very finely pectinate, the teeth regular but not often too small to be seen at magnifications of less than 100X; posterior border of clypeus with a distinct, semicircular, deep sharp impression; maxillary palp 6 segmented, labial palp 4 segmented.....**Myrmica**

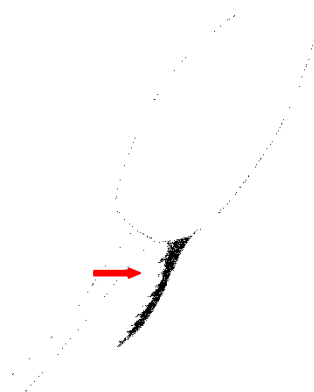


Figure 3.51 Tibial spurs finely pectinate or toothed

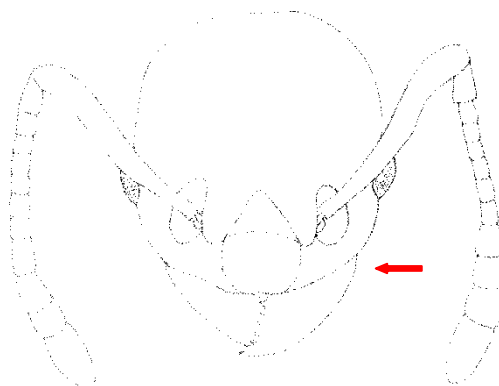


Figure 3.52 Clypeus with a distinct semicircular deep impression

- Spurs of the middle and hind tibiae simple or absent; posterior border of clypeus with a short, shallow depression or its margin merging smoothly into the rest of the head; maxillary palp 5 segmented or less, labial palp 3 segmented or less.....16
- 16(15). Propodeum unarmed, without spines or teeth; clypeus with a pair of longitudinal carinae which are extended on the anterior border as more or less distinct teeth; masticatory margin of mandible with 3 or 4 teeth or denticles in total; antennal club 3 segments  
.....**Monomorium**

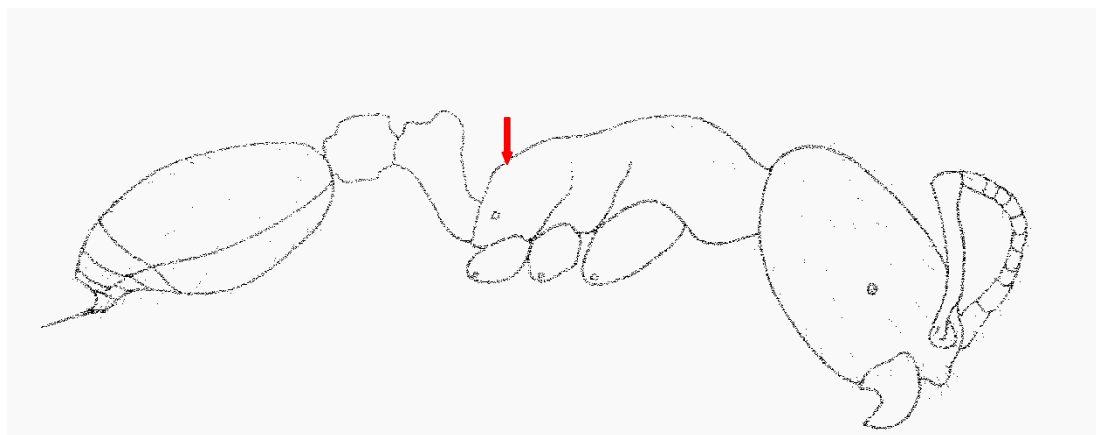


Figure 3.53 Unarmed propodeum

- Propodeum armed with a pair of teeth or spines; clypeus usually lacking longitudinal carinae, but if carinae present, not extended on the anterior border as teeth; masticatory margin of mandible usually with 5 or more teeth or denticles in total; antennal club indefinite or composed of 3 or 4 segments..... 17

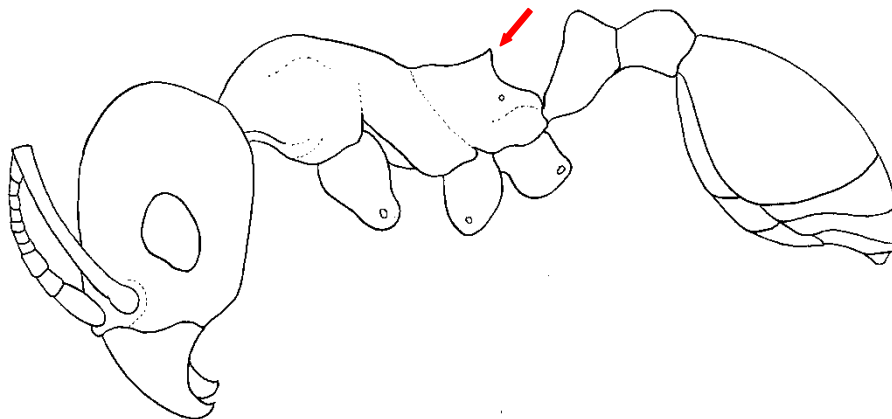


Figure 3.54 Propodeum armed with teeth or spines

- 17(16). Antenna with a distinct 3 segmented club.....18  
 Antenna with an indistinct or 4 segmented club.....20
- 18(17). Worker caste dimorphic (rarely polymorphic) with the head of the major  
 disproportionately large, and usually developed posteriorly into two prominent occipital  
 lobes; dorsum of alitrunk in profile interrupted by one or more sutural  
 impressions.....**Pheidole**

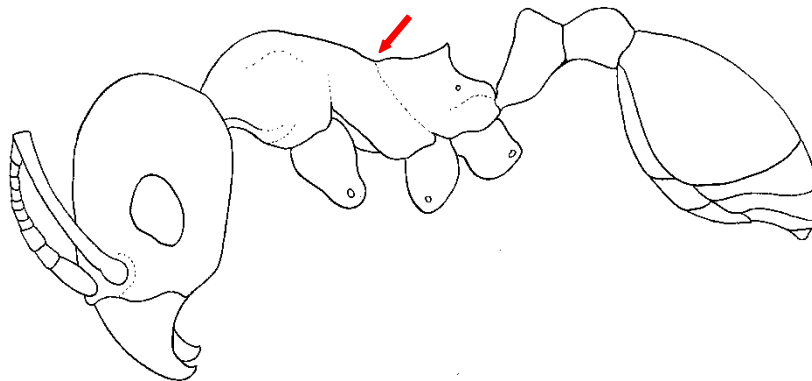


Figure 3.55 Minor pheidole worker



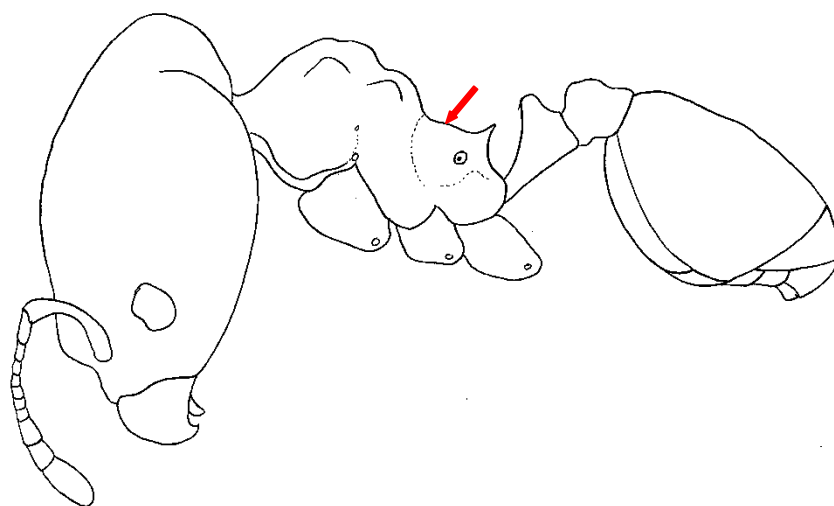


Figure 3.56 Major Pheidole worker

Worker caste not dimorphic, lacking major with a disproportionately large head; dorsum of alitrunk in profile flattened or convex, forming a continuous surface not interrupted by sutural impressions.....19

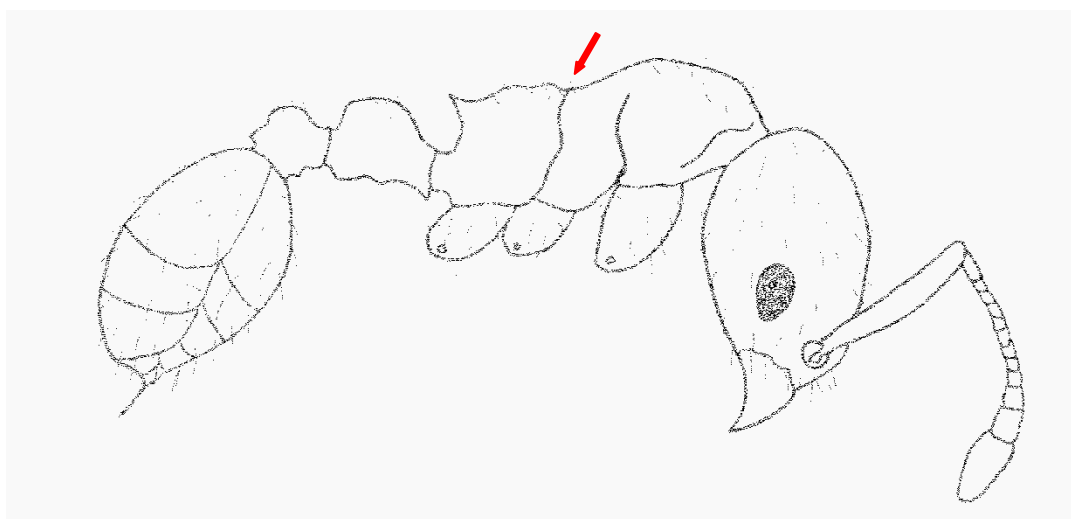


Figure 3.57 Worker caste not dimorphic, lacking distinct majors and minors

19(18). Medial clypeal carina absent, transverse crest present on stipes of maxilla.....**Leptothorax**

Medial clypeal carina present, transverse crest absent on stipes of maxilla...**Temnothorax**

20(17). Clypeus with a pair of fine longitudinal carinae which diverge anteriorly; antennal scapes short, not reaching the occipital border; eyes vestigial or small; antenna thickened distally to form an indistinct 4 segmented club; 2nd antennal segment as long as the next 2 or 3

combined; promesonotal suture indistinct or absent; small species, 2.5 to 4.3 mm in total

.....**Stenamma**

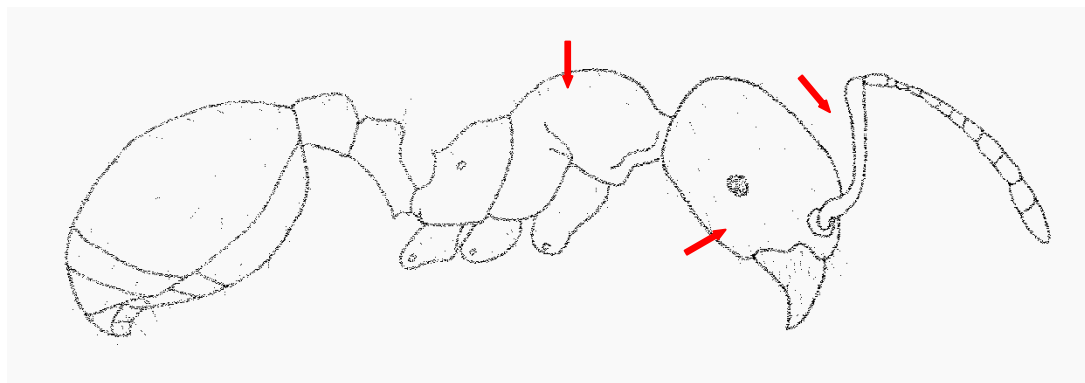


Figure 3.58 Short antennal scapes, small or vestigial eyes, promesonotal suture indistinct or absent

Clypeus without a pair of longitudinal carinae although may be rugulose or with a single median carina; antennal scapes long, distinctly surpassing the occipital border; eyes well developed, prominent; antenna not thickened distally to form a club, although last 4 segments may be differentiated in color; 2nd antennal segment not much longer than 3rd segment; promesonotal suture distinct; larger species, 4.0 to 7.6 mm in total length

.....**Aphaenogaster**

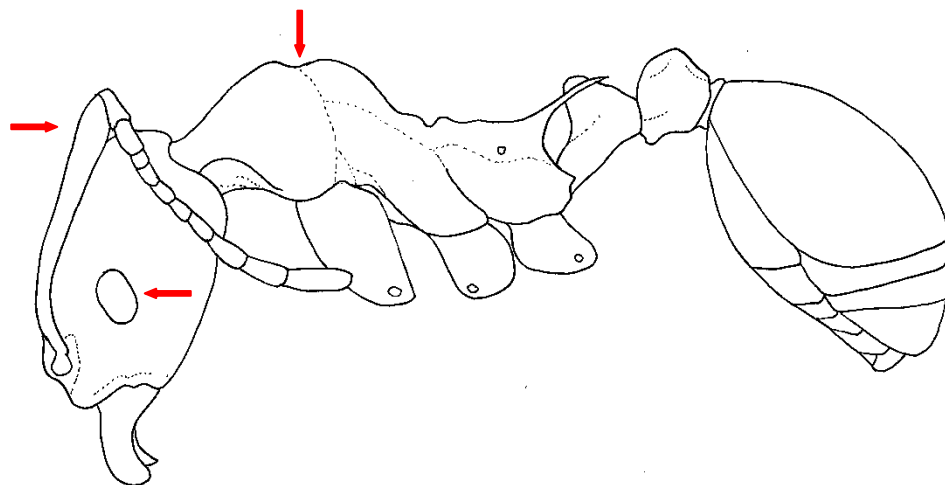


Figure 3.59 Longer antennal scapes, well developed eyes, and distinct promesonotal suture

#### Key to the Genera of Ponerinae in Indiana

1. Mandible with a row of coarse bidenticulate teeth, clypeus denticulate; petiole broadly

attached to the first gastral segment, the two separated dorsally and laterally only by a constriction.....**Amblyopone**

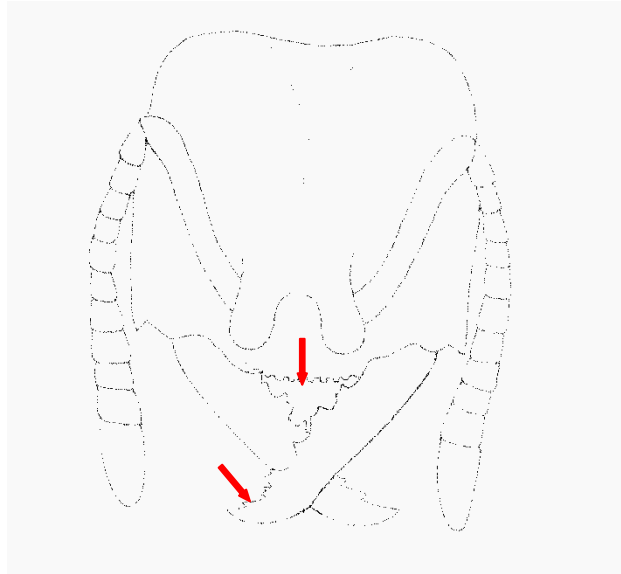


Figure 3.60 Mandible with bidentulate teeth; clypeus also denticulate

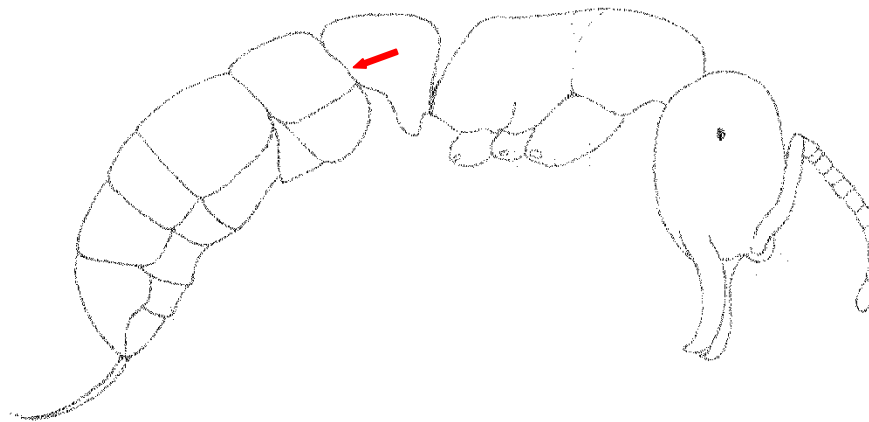


Figure 3.61 Petiole broadly attached to the first gastral segment

Mandible with teeth single (if present), clypeus not denticulate; petiole narrowly attached to the first gastral segment, the two joined by a slender articulatory junction..... 2

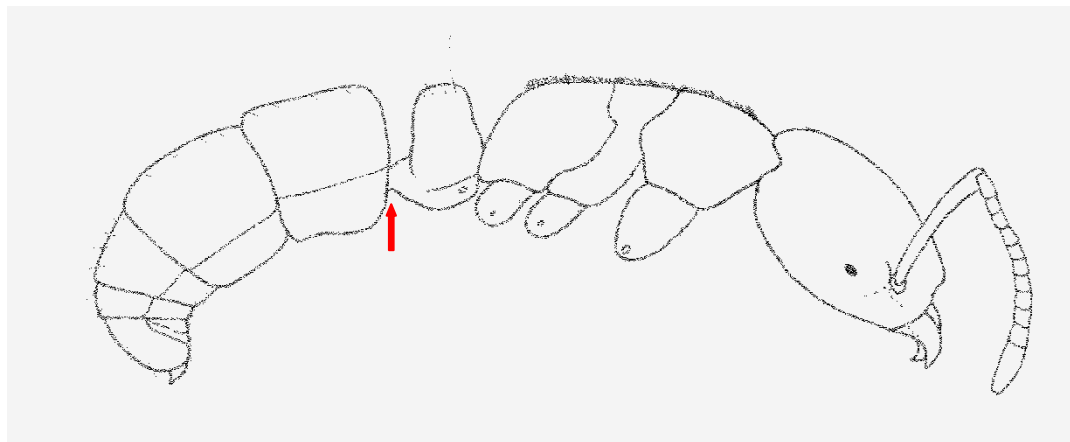


Figure 3.62 Petiole narrowly attached to the first gastral segment

- 2(1). Apex of gaster directed ventrally or anteroventrally; dorsal sutures of the alitrunk absent or vestigial, promesonotal suture always absent..... **Proceratium**

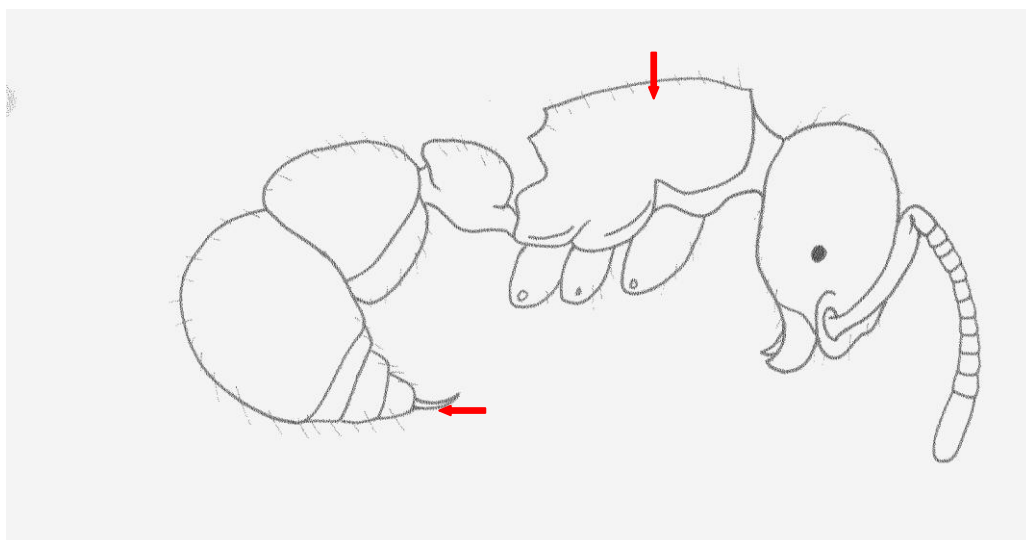


Figure 3.63 Apex of gaster directed ventrally/anteroventrally; dorsal alitrunk sutures absent

Apex of gaster not directed ventrally or anteroventrally; promesonotal suture always present, usually metanotal suture is also present..... 3

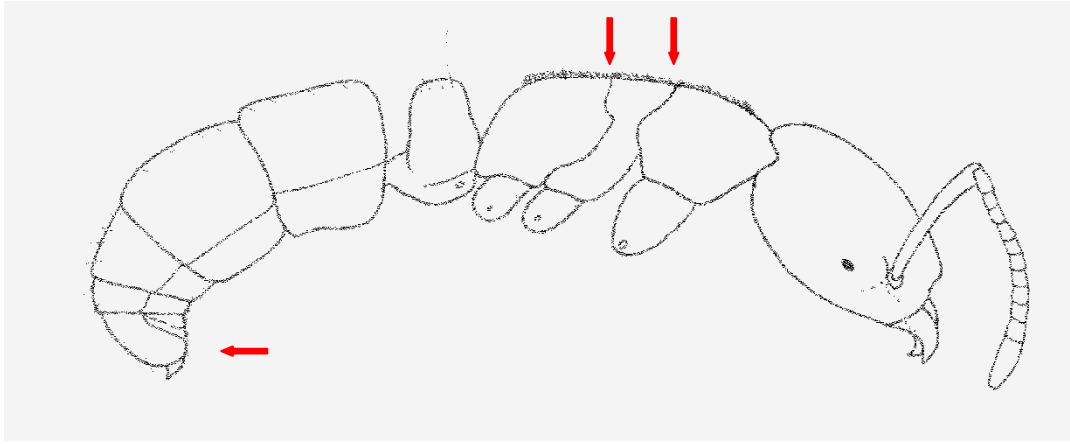


Figure 3.64 Apex of gaster not directed ventrally; dorsal alitrunk sutures present

3(2). Subpetiolar process a simple lobe without a fenestra or teeth; maxillary palps 1-segmented..... **Hypoponera**

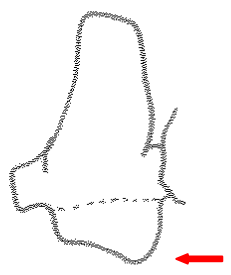


Figure 3.65 Subpetiolar process is a simple lobe lacking a fenestra or teeth

Subpetiolar process with anteroventral corner blunt or rounded and posterior bidentate, and with a circular or oval fenestra (thin area) anteriorly on each side evident when viewed by transmitted light; maxillary palps 2-segmented..... **Ponera**

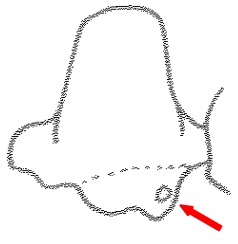


Figure 3.66 Subpetiolar process with a circular/oval fenestra or thin spot on each side

## Keys to Species from Genera

### Key to the Species of *Amblyopone* in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

### Key to the Species of *Anergates* in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

### Key to the Species of *Aphaenogaster* in Indiana

1. Alitrunk and gaster completely lacking long, erect hairs dorsally; gena lacking erect hairs; postpetiole (when viewed from above) broader than long; propodeal spines very long, as long or longer than distance between tips.....*A. tennesseensis*  
Alitrunk and gaster with abundant, conspicuous, long, erect hairs dorsally; genae with conspicuous erect hairs; postpetiole (when viewed from above) longer than broad; propodeal spines usually shorter than distance between tips.....2
- 2(1). First gastral tergite dorsally with long, distinct striae which radiate out from the base, striae as long as postpetiole; postpetiole (in side view) with distinct, strongly produced, carinate ridge ventrally, lacking erect hairs ventrally; propodeal spines long, as long or longer than distance between tips; head and alitrunk with coarse rugose sculpturing .....*A. mariae*  
First gastral tergite dorsally with basal striae greatly reduced or absent, if present, distinctly shorter than postpetiole length and weak; postpetiole (in side view) with smooth outline, lacking distinct, produced carinate ridge ventrally, and with at least a few erect hairs present ventrally; propodeal spines shorter than distance between tips; sculpturing finer.....3
- 3(2). Postpetiole very broad posteriorly, posterior end more than 1.5X width of anterior end; base of antennal scape broadly flared (directly above condyle), usually slightly to very strongly lobate, flared base at least as wide as maximum width of distal end of scape (if approximately equal in width, then with prominent, dorsally pointed accessory scale just below outer edge of frontal lobe)..... 4  
Postpetiole relatively narrow posteriorly, posterior end at most 1.5X width of anterior end; base of antennal scape only slightly flared at base (directly above condyle), never

- lobate, and flared base generally narrower than maximum width of distal end of scape (accessory scale, if present, very reduced and not pointed dorsally)..... 5
- 4(3). Base of antennal scape broadened into a distinct elongate lobe (with subparallel sides which extends distally at least 1/6 length of scape, then abruptly narrows, the outer edge of lobe truncate, with a flattened face.....*A. treatae treatae*  
Base of antennal scape flared only at base, not broadened into elongate lobe, gradually or abruptly narrowing on distal end, the outer edge thin and carinate, lacking flattened face on edge.....*A. lamellidens*
- 5(3). Head of the largest workers (mandibles excluded) not more than 1/6 longer than broad; head of the smaller workers approximately 1/5 longer than broad.....6  
Head of the worker, regardless of size, approximately 1/3 longer than broad  
.....*A. texana carolinensis*
- 6(5). Antenna unicolorous (individual segments may be darkened apically but last 4 segments not noticeably lighter and contrasting with basal segments); legs and coxae pale, not infuscated, and distinctly contrasting in color with alitrunk; propodeal spines shorter, about half as long as propodeal declivity; mesonotal protuberances (pair of angularities posterior to front edge, best seen in side view) very low, rounded, scarcely or not concave between, and lacking transverse carina between them.....*A. rudis Complex*  
Antenna with apical 4 segments paler in color and contrasting with darker basal segments; legs and usually fore coxa lightly to distinctly infuscated, at least fore coxae barely or not at all contrasting in color with alitrunk; propodeal spines longer, more than half as long as propodeal declivity; mesonotal protuberances prominent, sharply crested by transverse carina between them, concave between.....7
- 7(6). Katepisternum (and usually anterolateral face of fore coxa) fully sculptured, the surface relatively dull, lacking smoother, glossy area; mesonotal protuberances very prominent, distinctly extended above level of pronotum, with sharply crested corners; pronotum dorsally with faint to distinct but crowded transverse rugae, surface not smooth and glossy; propodeal spines longer, at least as long as propodeal declivity and usually strongly directed upwards; alitrunk reddish-brown..... *A. fulva*  
Katepisternum and anterolateral face of fore coxa usually with distinct, smooth, glossy area of reduced sculpturing; mesonotal protuberances moderately prominent, usually even with ro only slightly extended above level of pronotum, the corners rounded; pronotum dorsally with transverse rugae faint and sparse to absent, surface punctate,

often with smooth, glossy area of reduced sculpturing; propodeal spines shorter, about 2/3 as long as propodeal declivity and directed backward; alitrunk dark blackish-brown

.....*A. picea* Complex

### Key to the Species of *Brachymyrmex* in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

### Key to the Species of *Camponotus* in Indiana

#### Key to the Subgenera of *Camponotus* in Indiana

1. Ventral border of clpeus usually with a distinct median (often triangular) impression and narrow notch (best viewed from in front ad below; ma be absent in smaller workers; hind tibia wth at most a few, short, suberect bristles confined to apical 1/5 of ventral (flexor) surface; gena with short erect hairs in all but one species); smaler species, total length of major worker 8 mm or less.....**Camponotus (Myrmentoma)**
- Ventral border of clpeus lacking median impression and notch rarely obscurely notched); hind tibia with more numerous short, suberect bristles on apical 1/3 or more of ventral (flexor) surface; gena lacking short erect hairs; larger specis, total length of major worker usall more than 8 mm.....**Camponotus (Camponotus)**

#### Key to the Species of *Camponotus* (*Camponotus*) in Indiana

1. Appressed pubescence of dorsal surface of gaster inconspicuous, tiny and very sparse to mostly absent, individual hairs separated by several times their length or more; gaster and head dorsally very smooth and glossy, microsculpturing extremely minute; color of alitrunk and gaster yellowish- to brownish-orange, gaster sometimes lightly infuscated apically but neverr nearly black.....2
- Appressed pubescence of dorsal surface of gaster much more conspicuous, short to moderately long, and moderately sparse to dense, individual hairs separated by their length or less; gaster and especially head dorsally feebly glossy, satiny, or dull, microsculpturing fine but distinct; color of alitrnk dark reddish-brown to black, gaster mostly to completely black..... 3
- 2(1). Color Distinctly bicolored, head dark brown to black and strongly contrasting with remainder of body.....***C. americanus***
- Color Essentially unicolorous, head at mostlightly darker brownish-orange and not strongly contrasting with remainder of body.....***C. castaneus***



- 3(1). Appressed pubescence of dorsal surface of gaster relatively short and sparse, mostly individual hairs separated by their own length and not imparting a silky appearance; the posterior fringe of appressed pubescence on the 2nd to 4th gastral tergites falling short of the border; gaster comparatively glossy.....*C. noveboracensis*  
 Appressed pubescence of dorsal surface of gaster longer and denser, most individual hairs separated by 1/2 to 2/3 their length or less and usually imparting a silky appearance; the posterior fringe of appressed pubescence on the 2nd to 4th gastral tergites nearly reaching or surpassing the posterior border; gaster comparatively dull.....4
- 4(3). Appressed pubescence of dorsal surface of gaster relatively short (less than 1/4 as long as erect hairs), not extending over posterior borders of tergites.....*C. herculeanus*  
 Appressed pubescence of dorsal surface of gaster relatively long (1/4 to 1/2 as long as erect hairs), extending over posterior borders of tergites.....5
- 5(4). Appressed pubescence of gaster finer, white or very pale yellow-tinged, those on posterior border only extending beyond border by 1/4 their length or less; appressed pubescence of occiput short, no more than 1/2 as long as width of scape near base; color all dark, dark brownish-black to black.....*C. pennsylvanicus*  
 Appressed pubescence of gaster heavier, golden-colored, those on posterior border extending beyond border by 1/3 to 1/2 their length; appressed pubescence of occiput longer, 2/3 to nearly as long as width of scape near base; color of alitrunk and base of gaster usually dark reddish-brown and often distinctly contrasting with remainder of body (but may be all dark)     *C. chromaiodes*

#### Key to the Species of *Camponotus* (*Myrmentoma*) in Indiana

1. Gena ("cheek") lacking suberect to erect hairs but with minute appressed pubescence arising from finer punctures..... 2  
 Gena ("cheek") with numerous short but conspicuous suberect to erect hairs (best seen in full face view against dark background) arising from foreae (deeper, distinct punctures) in addition to minute appressed pubescence..... 3
- 2(1). Species uniformly brownish-black to black, occasionally with head and pronotum somewhat paler; numerous erect hairs on the clypeus.....*C. nearcticus*  
 Species distinctly bicolored, head and alitrunk orange to orangish-brown in color, gaster dark brown to black; few erect hairs on the clypeus..... *C. decipiens*
- 3(1). Clypeus with long erect hairs along and adjacent to margins and few (1 to 3) or none across disc, but no hairs as short as on gena; punctures on clypeus shallow, indistinct, and

- sparse, especially on disc; gaster dark brown with pale base or often pale yellowish-brown with brown bands.....*C. subbarbatus*
- Clypeus with long erect hairs along margins in addition to numerous short hairs across disc, many about equal in length to those on gena (best seen in side profile against dark background); foreae (each bearing a hair) on clypeus moderately to very abundant and distinct (especially in major workers); gaster usually entirely dark brown to black..... 4
- 4(3). Color Head, alitrunk, petiole, and legs uniformly orange to pale brownish-red, distinctly contrasting with dark gaster; erect hairs of clypeus distinctly either long or short, short hairs shorter than those on cheeks.....*C. discolor*
- Color usually very dark brown to black, some with slightly paler areas on legs and alitrunk but head always dark; erect hairs on clypeus of varying lengths, the shortest about as long as those on cheeks..... *C. caryae*

#### Key to the Species of Colobopsis in Indiana

1. Head enlarged and very distinctly truncated in front, the face flattened to concave: Majors and queens.....2  
Head of more normal size and shape:  
Minors.....3
2. The margin of the head (where the strongly truncated and weakly concave to flattened face meets the sides) bluntly angled but not produced as a sharply carinate flange; punctures of head much larger and coarser; the surface at least somewhat dulled.....*C. impressus*  
The margin of the head (where the strongly truncated and weakly concave to flattened face meets the sides) produced as a sharply carinate flange or rim; punctures of head comparatively smaller, especially on face, this surface semiglossy.....*C. mississippiensis*
3. The margin of the head (where the strongly truncated and distinctly concave anterior face meets the sides) bluntly angled but not produced as a sharply carinate flange; punctures of head much larger and coarser, the surface at least somewhat dulled; Profile (side view) of alitrunk distinctly uneven, interrupted by distinct and strongly impressed promesonotal and metanotal sutures, the metanotal suture particularly deep, often exposing the metanotum as a small bump within the deep suture; propodeum strongly and roundly angled, usually projecting upward as a rounded point with a slight concavity just before the projection..... *C. impressus*

The margin of the head (where the strongly truncated and distinctly concave anterior face meets the sides) produced as a sharply carinate flange or rim; punctures of head comparatively smaller, especially on face, this surface semiglossy; Profile (side view) of alitrunk a fairly even curve interrupted by weakly impressed promesonotal and metanotal sutures; propodeum strongly and roundly angled but not distinctly projecting upward

..... *C. mississippiensis*

#### Key to the Species of *Crematogaster* in Indiana

1. The postpetiole is suboval and entire, without a median sulcus; size minute; yellow to yellowish-brown in color..... *C. minutissima subsp. missouriensis*  
The postpetiole is divided by distinct median sulcus; size larger never minute; distinctly bicolored..... 2
- 2(1). Head (especially front) with pubescence (shorter hairs) mostly erect or suberect, not appressed; pleura (sides) of pronotum largely unsculptured, with a large, smooth, glossy area; dorsum of 1st gastral tergite with pubescence often largely erect or suberect  
..... *C. pilosa*  
Head with pubescence always closely appressed to surface; pleura of pronotum weakly to strongly sculptured over most of the surface, resulting in a roughened, often largely dull surface; dorsum of 1st gastral tergite with pubescence always closely appressed..... 3
- 3(2). Pronotum with continuous transverse band of moderately long erect hairs; mesonotum with rather abundant, scattered erect hairs; mesonotum with rather abundant, scattered erect hairs; 1st gastral tergite with a number of scattered long, erect hairs dorsally (besides those near posterior border)..... *C. lineolata*  
Pronotum with very long erect hairs confined to humeral angles, usually not more than 1 to 3 on each side and always lacking in the middle; mesonotum usually lacking erect hairs, at most a few (3 to 4) very short hairs present posteriorly; 1st gastral tergite with only 1 or 2 scattered long, erect hairs dorsally (besides those near posterior border).....  
..... *C. cerasi*

#### Key to the Species of *Dolichoderus* in Indiana

1. Pronotum with dorsal sculpturing coarse and equal to that of propodeum, dull; antennal scape usually with at least 10 erect hairs (often 20 or more); head with coarse, distinct, closely spaced foreolae (bordered pits) that form a reticulate pattern, this sculpturing equal to that of propodeum; pronotum usually with at least 10 erect hairs dorsally

- .....*D. plagiatus*  
 Pronotum with dorsal sculpturing distinctly weaker than that of propodeum, usually glossy; antennal scape usually lacking erect hairs (always less than 9 excluding a few at apex); head smooth and glossy to heavily punctate, but usually completely lacking coarse forveolae, this sculpturing normally finer than that of propodeum; pronotum usually lacking erect hairs, if present, less than 9..... 2
- 2(1). Propodeum with dorsal face subquadrate (less than 1.2X longer than broad) and usually wider posteriorly; propodeal concavity with fine vertical striae present; body usually colored uniformly black.....*D. taschenbergi*  
 Propodeum with dorsal face distinctly longer than broad (more than 1.4X longer than broad) and not wider posteriorly; propodeal concavity with vertical ridges present or absent.....3
- 3(2). Propodeum with posterodorsal carinate edge rounded in outline, the concavity below with fine vertical striae present; dorsum of propodeum and mesonotum at most weakly foveolate, usually only granulose or shagreened; semiglossy ordull; propodeal spiracle on prominent tubercle; body usually distinctly bicolored, with head and alitrunk reddish, gaster dark brown (at least apically).....*D. mariae*  
 Propodeum with posterodorsal carinate edge distinctly emarginate (shallow, rounded concavity), the concavity below smooth and glossy, lacking vertical striae; dorsum of propodeum and mesonotum with coarse, deep set foreolae forming a reticulate pattern; mesopleuron very smooth and glossy (except at extreme edges); propodeal spiracle little more prominent than adjacent forea; body usually uniformly dark brown, gaster dark brown.....*D. Pustulatus*

#### Key to the Species of *Dorymyrmex* in Indiana

1. Pronotal dorsum without erect hairs; front of head with extremely fine, minute appressed pubescence, the individual hairs so small they are difficult to discern..... *D. grandulus*  
 Pronotal dorsum with a pair of short erect hairs usually present; front of head with longer appressed pubescence (the individual hairs readily discerned); propodeal tubercle relatively prominent..... *D. Insanus*

#### Key to the Species of *Forelius* in Indiana

No key is necessary for this genus as it is represented by a single species in Indiana.

## Keys to the Species of *Formica* in Indiana

### Key to the *Formica* Species Groups

1. Clypeus with anterior border distinctly notched or emarginate medially as a narrow to broad and shallow, often subtriangular, concave impression; body surface dull to feebly glossy; appressed pubescence dense, at least on gaster; bicolored with the head and alitrunk being yellowish-red and the gaster being brown or black; propodeum short and distinctly angulate in profile (slave makers).....*sanguinea* Group
- Clypeus with anterior border not normally notched (if so, body is glossy with sparse pubescence) and other characters various.....2
- 2(1). Propodeum evenly rounded in profile, dorsum and posterior face (delevity) thus not strongly differentiated; surface generally glossy; slender species.....3

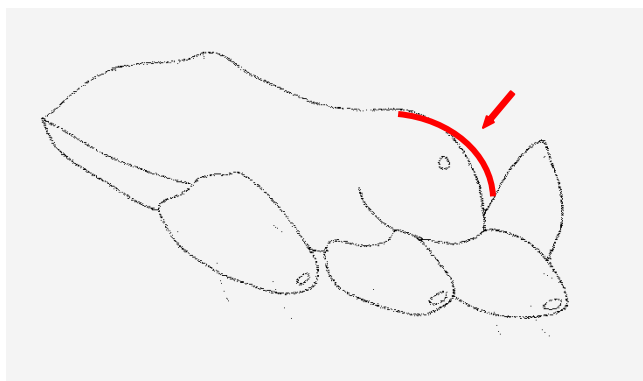


Figure 3.67 Evenly rounded propodeum

- Propodeum distinctly roundly angulate in profile, dorsum and delevity thus distinctly differentiated; surface usually dull; generally more robust species..... 4

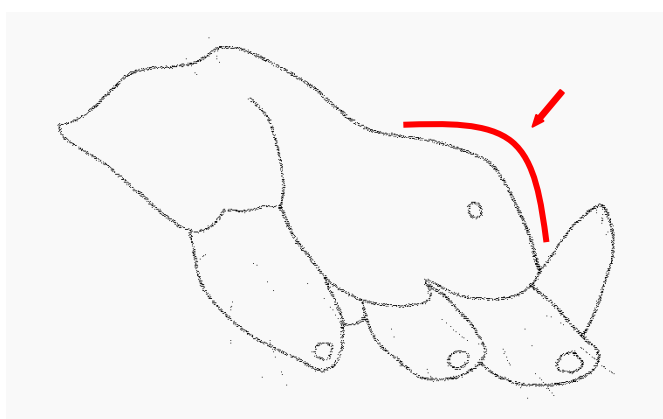


Figure 3.68 Roundly angulate propodeum

- 3(2). Antennal scapes shorter, less than 1.25 X the head length; 3rd and 4th funicular segments shorter, slightly less than 2 X as long as the width between them at the top, subparallel to slightly diverging; gula and propodeum with at least a few erect hairs; smaller species (body length 3.5 - 5.6 mm).....**neogagates Group**

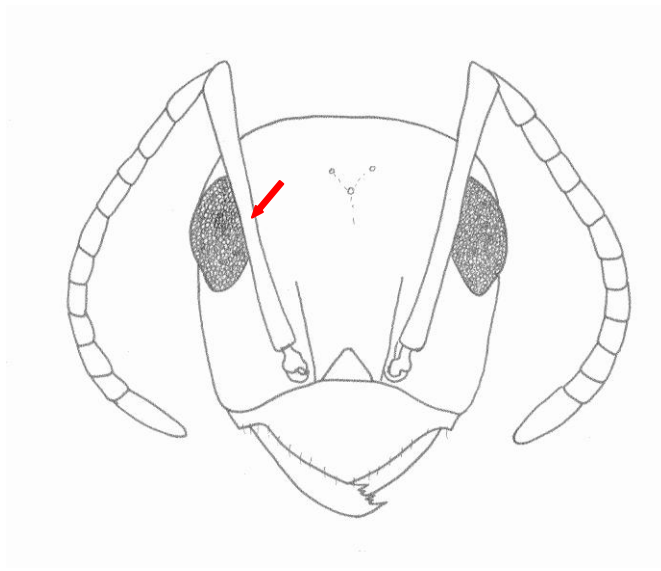


Figure 3.69 Short antennal scapes (less than 1.25X the head length)

- Antennal scapes longer, 1.25 to 1.33 X the length of the head; 3rd and 4th funicular segments longer, distinctly more than 2 X as long as wide, frontal carinae longer, usually longer than the width between them at the top, curved, often slightly converging at the top; gula and propodeum with or without erect hairs; larger species (body length 4.5 - 7.8 mm)..... **palidefulva Group**
- 4(2). Occipital border distinctly and usually strongly concave (when seen in full face view), especially in larger workers; pronotum roundly-angulate in profile..... **exsecta Group**  
 Occipital border usually flat or slightly convex, rarely very slightly concave pronotum evenly and gently convex in profile, not angulate..... 5
- 5(4). Body distinctly bicolored (head and alitrunk yellowish to brownish-red and gaster much darker), surface mostly dull; frontal carinae distinctly divergent above, gently angled from lower portions, frontal triangle distinctly glossy in contrast to surrounding area ..... **rufa and microgyna Groups**  
 Body usually concolorous blackish-brown to black (if bicolored, the upper part of the head is darker than the alitrunk and lighter areas are medium to yellowish-brown); surface often largely semi-glossy; frontal arinae weakly divergent to nearly parallel

above, strongly angled from lower portions, frontal triangle usually not distinctly glossy in contrast to surrounding area..... *fusca* Group

### Key to the Species of the Formica Exsecta Group

1. Erect hairs sparse or absent on the lower edge of the pronotum and on the anterior face of the fore coxa; dorsum of proesonotum usually lacking erect hairs (at most 1 or 2 small ones); erect hairs on the gaster confined to the posterior half..... *F. exsectoides*
- Erect hairs on the lower edge of the pronotum and on the anterior face of the fore coxa long and numerous; dorsum of promesonotum with numerous erect hairs erect hairs present throughout the dorsal surface of the gaster..... *F. ulkei*

### Key to the Species of the Formica Fusca Group

1. Gula with at least 2 erect hairs; abundant erect hairs on the pronotum, mesonotum, propodeum, dorsal edge of petiole, and at least a few on the mesopleuron; body at least partially brown in color and often bicolored..... *F. montana*
- Gula lacking erect hairs; a few erect hairs may be present on the pronotum, but all other mentioned areas lacking erect hairs; body usually concolorous brown to black (appendages often paler) (partially brown or bicolored in one species)..... 2
- 2(1). Appressed micropubescence on dorsum of gaster relatively dense, usually separated by no more than a hair's width, uniformly distributed on first 3 tergites and imparting a distinct sheen to gaster which obscures the underlying glossy black integument.....3
- Appressed micropubescence on dorsum of gaster sparser on 3rd tergite (especially medially), hairs distinctly separated by more than a hair's width (often by a hair's length medially) and distinctly sparser than on 1st tergite, the glossy black integument of at least the 3rd tergite not obscured by sheen from micropubescence..... *F. glacialis*
- 3(2). Gena lacking coarse, elongate punctures posteriorly and immediately below eyes, the surface finely, uniformly microsculptured; 4th tergite with appressed pubescence as dense as on 3rd; body brown to blackish-brown; appressed pubescence on gena and dorsum of 1st 4 gastral tergites dense to very dense, imparting a silvery sheen..... *F. argentea*
- Gena with surface interrupted by at least a few coarse, elongate punctures posteriorly and immediately below eye; 4th tergite with appressed pubescence sparser than on 3rd; body dark brownish-black to usually black appressed pubescence on gena and dorsum of first 3 gastral tergites comparatively not as dense, imparting a silky to silvery sheen  
..... *F. Subsericea*

### Key to the Species of the Formica Neogagates Group

1. Antennal scape bearing numerous short, very deliacte erect, whitish hairs (especially on the anterior face of the scape; best see against a black background).....*F. lasiodes*  
 Antennal scape without erect hairs except for a small group at the extreme tip.....2
- 2(1). Alitrunk usually paler than the gaster, often paler than the head appressed pubescence of the gaster is moderately long and dense, separated by a distance approximately equal to the length of the hair.....*F. vinculans*  
 Alitrunk dark and generally concolorous with the head and gaster; appressed pubescence of the gaster short and very sparse, separated by a distance distinctly greater than the length.....*F. Neogagates*

### Key to the Species of the Formica Pallidefulva Group

1. Short, appressed pubescence on gaster dorsally long and abundant, separated by distance subequal to approximately half the length of hair, giving gaster a silky appearance  
 .....*F. dolosa*  
 Short, appressed pubescence on gaster dorsally very short and sparse, separated by distance usually greater than the length of hair, giving the abdomen a glossy appearance.....2
- 2(1). Body clear golden yellow to orangish-yellow with the gaster being little to no darker than the alitrunk, its surface feebly glossy..... *F. pallidefulva*  
 Body with the head and alitrunk being reddish to yellowish-brown to piceous brown, the gaster distinctly darker, its surface moderately glossy..... *F. nitidiventris*

### Key to the Species of the Formica Rufa and Micrgyna Groups

1. Middle and hind tibiae with numerous erect hairs on all surfaces in addition to the usual double row on the ventral (flexor) surfaces; femora with at least some short erect hairs scattered on all surfaces; erect hairs present on head, pronotum, mesonotum, and propodeum.....2  
 Middle and hind tibiae lacking erect hairs except for the usual double row on the ventral surfaces; femora lacking erect hairs (rarely with a few ventrally); erect hairs variable on remaining structures, often lacking on one or more.....3
- 2(1). Erect hairs on dorsum of alitrunk (especially propodeum) relatively short, shorter than median thickness of antennal scape; majority of erect hairs on head distinctly longer than



- those on pronotum; middle of clypeus with abruptly descending slope to deep, pit-like clypeal fossa on each side..... *F. obscuriventris*
- Erect hairs on dorsum of alitrunk (especially propodeum) relatively long, as long or longer than median thickness of antennal scape; most erect hairs on head essentially the same length as those on pronotum (or slightly longer); middle of clypeus with evenly descending slope to indented but less pit-like clypeal fossa on each side.....*F. obscuripes*
- 3(1). Scale of petiole (viewed from behind) with the crest flat or broadly concave, the sides of the upper half parallel, tapering inward only on the lower half; erect hairs on pronotum short and sparse, absent on mesonotum, propodeum, and gula.....*F. dakotensis*
- Scale of petiole (viewed from behind) with the crest convex or angularly produced upward in the middle, the sides tapering, angled or curved, not parallel above; erect hairs variable, but often present on mesonotum, propodeum, and gula..... 4
- 4(3). Erect hairs absent on head and dorsum of alitrunk; erect hairs sparse to absent on disc of clypeus (usual fringe on ventral edge present); large, robust species with broad head, the vertex in full face view essentially flat.....*F. integra*
- Erect hairs present on at least pronotum, usually abundant on head and most of dorsum of alitrunk; at least a few erect hairs present on disc of clypeus; smaller, less robust species with vertex of head usually gently convex in full face view.....5
- 5(4). Erect hairs on head, dorsum of alitrunk, and gaster thin and microscopically pointed apically; scale of petiole low and thick, not extending above the level of the propodeal spiracle in full upright position, crest usually blunt..... *F. ferocula*
- Erect hairs on head, dorsum of alitrunk, and gaster somewhat thickened and microscopically blunt apically; scale of petiole tall and relatively thin, extending above the level of the propodeal spiracle in full upright position, crest usually sharply produced.....6
- 6(5). Front and vertex of the head usually lacking erect hairs, rarely 1 or 2 reduced ones present; erect hairs absent on mesonotum and propodeum.....*F. indianensis*
- Front and vertex of the head with at least a few erect hairs; erect hairs present on mesonotum and usually on propodeum.....7
- 7(6). Dorsum of propodeum lacking distinct, erect hairs (1 to 6 minute stubs may be present); crest and sides of the petiole usually lacking erect hairs; gula and occipital corners of head (above and behind eyes) with erect hairs (at least in larger workers).. *F. postoculata*

Dorsum of propodeum with at least a few short erect hairs; crest and sides of petiole with at least a few short erect hairs; gula and occipital corners with erect hairs present or absent.....*F. Querquentulana*

#### Key to the Species of Formicoxenus in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

#### Key to the Species of Harpagoxenus in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

#### Key to the Species of Hypoponera in Indiana

1. Scale of petiole (seen from side view) slender, subtriangular, distinctly narrower apically than at base; moderately to distinctly glossy, color varying from light brown to black  
.....*H. opacitor*
- Scale of petiole (seen from side view) broad, subrectangular, nearly as broad apically as at base; otherwise various.....2
- 2(1). Species smaller, total length 2.3 to 2.9 mm; head very finely punctate, glossy; eyes extremely small, with only 3 to 4 minute facets; color light brown to medium brownish-yellow.....*H. gleadowi*
- Species larger, total length over 3.0 mm; head with coarser punctures, thus semiglossy to dull; eyes small, but with more than 3 to 4 minute facets; color normally brownish-black to black..... *H. opaciceps*

#### Key to the Species of Lasius in Indiana

##### Key to the Subgenera of Lasius in Indiana

1. Maxillary palps 3 segmented and very short, eye width generally less than that of the last antennal segment; yellow or orange subterranean ants..... **Lasius (Acanthomyops)**
- Maxillary palps 6 segmented and moderately to exceptionally long; usually otherwise not as above..... 2
- 2(1). Eyes relatively large, height of gena 1.5 to 1.8 X eye height..... **Lasius (Lasius)**
- Eyes relatively small, height of gena 2 X eye height or more..... 3
- 3(2). Eyes very small, with fewer than 3 facets in total, and not more than 6 facets in greatest diameter, gena height 2.9 to 4.8 X eye height..... **Lasius (Cautolasius)**

Eyes larger, with 35 or more facets in total, and 10 to 12 facets in greatest diameter; gena height 2.0 to 2.7 X eye height (3.0 to 3.2 X eye height only in subumbratus)

.....**Lasius (Chthonolasius)**

### **Key to the Species of Lasius (Acanthomyops) in Indiana**

1. Erect hairs on dorsum of 2nd to 4th gastral tergites restricted to the posterior edges; appressed pubescence on gena relatively dense and crowded, separated by distance that is 1/2 the length of the hair; appressed pubescence of dorsum of gaster sparse, most hairs separated by distance equal to the length of hair; mandible usually with 1 or more denticles on basal margin; crest of petiole sharp and emarginate; larger species with relatively long scapes (0.89 mm or longer)..... **L. interjectus**  
 Erect hairs on dorsum of 2nd to 4th gastral tergites more evenly distributed; appressed pubescence on gena sparse to dense (if dense, then gastral pubescence is also dense); appressed pubescence on dorsum of gaster sparse to dense; mandible and crest of petiole variable; smaller species with relatively short scapes (0.91 mm or less).....2
- 2(1). When viewed from the side, gula with entire surface bearing numerous long, erect hairs numbering 20-40; crest of petiole moderately to very blunt, in anterior view the crest is straight to convex, not emarginate..... **L. latipes**  
 When viewed from the side, gula with hairs absent on at least the lower 1/4 to 1/2, total present distinctly less than 20; crest of petiole moderately to very sharp, in anterior view the crest is usually with distinct median emargination.....3
- 3(2). Appressed pubescence of gena and dorsum of gaster sparse to moderately dense, the hairs on gena separated by their length, those on the gaster by at least half their length; fore femora with many erect hairs on the posterior face numbering 6 or more..... **L. claviger**  
 Appressed pubescence of gena and dorsum of gaster moderately dense to dense, the hairs on gena separated by half their length, those on gaster by much less than half their length; fore femora with few or no erect hairs on the posterior surface numbering 5 or less  
 ..... **L. Subglaber**

### Key to the Species of *Lasius* (*Cautolasius*) in Indiana

1. Antennal scape longer, always surpassing the occipital border of the head; eyes very tiny, consisting of only 9 to 17 facets, usually flattened and flush with the surface of the head; gena height 4.3 to 4.8 X eye height; head subquadrate, very little narrowed below; scale of petiole usually convex on crest; terminal segment of the maxillary palp usually longer than the penultimate segment.....**L. (C.) nearcticus**
- Antennal scape shorter, at most reaching the occipital border of the head; eyes larger, consisting of 13 to 28 facets, usually normally convex and extended out from the surface of the head; gena height 2.8 to 3.0 X eye height; head subtriangular, distinctly narrowed below; scale of petiole usually emarginate on crest; terminal segment of the maxillary palp at most as long as the penultimate segment..... **L. (C.) flavus**

### Key to the Species of *Lasius* (*Chthonolasius*) in Indiana

1. 2nd gastral tergite almost completely devoid of appressed pubescence at least medially, and only a few scattered erect hairs present, the surface extremely smooth and very glossy.....**L. (Ch.) speculiventris**
- 2nd gastral tergite with uniform covering of moderately abundant to dense appressed pubescence and numerous erect hairs, the surface often at least somewhat dulled..... 2
- 2(1). 1st gastral tergite with abundant, long hairs, the longest hairs from the middle (excluding the longer posterior row) often as long or longer than the width of the hind tibia medially; 3rd gastral tergite with appressed pubescence dense, as dense as that on the 2nd tergite; eyes relatively large, height of gena 2.0 to 2.1 X eye height; very small species measuring 3.2 to 4.0 mm..... **L. (Ch.) minutus**
- 1st gastral tergite with somewhat shorter, often less abundant hairs, the longest hairs from the middle (excluding the longer posterior row) never as long as the width of the hind tibia medially; 3rd gastral tergite with appressed pubescence relatively sparse, often distinctly sparser than that on the 2nd tergite (or 2nd equally sparse); eyes are smaller, height of gena 2.4 to 3.2 X eye height; often a larger species but size is variable.....3
- 3(2). Eyes relatively small, height of gena 3.0 to 3.2 X eye height; scapes and tibiae usually with at least a few erect hairs; gula with erect hairs abundant; appressed pubescence of gaster sparse, not obscuring the glossy surface; color yellow often appearing clear .....**L. (Ch.) subumbratus**

- Eyes relatively large, height of gena 2.4 to 2.7 X eye height; scapes and tibiae lacking erect hairs; gula with erect hairs sparse to absent; appressed pubescence of gaster variable, usually dense and partially concealing glossy surface; color brownish-yellow..... 4
- 4(3). Scapes and tibiae with numerous suberect hairs..... **L. (Ch.) umbratus**  
 Scapes without hairs entirely; hind tibiae occasionally with one or two at most.....**L. (Ch.) mixtus**

#### Key to the Species of *Lasius* (*Lasius*) in Indiana

1. Hind femur with at most 1 to 2 ventrally-directed erect hairs, these found at the base; sides of propodeum above propodeal spiracle largely devoid of erect hairs (at most 3 just below the spiracle), usually only fine appressed pubescence present; tibiae, gula, antennal scapes, and gena posteriorly usually without erect hairs or with very few... **L. (L.) alienus**  
 Hind femur with more than 2 ventrally directed erect hairs, usually very numerous; sides of propodeum immediately above and below propodeal spiracle with numerous erect hairs that are usually contiguous with the upper patch; tibiae, gula, antennal scapes, and gena often with numerous erect hairs.....2
- 2(1). Mandible with 1 or more offset teeth at the basal angle of the masticatory border in larger workers and most smaller workers, this offset tooth set at a different angle and smaller than the adjacent tooth and often succeeded by 1 or 2 even smaller teeth on the basal border, resulting in the basal angle being somewhat rounded..... **L. (L.) pallitarsis**  
 Mandible with the posterior basal tooth aligned with the adjacent teeth of the masticatory border, the basal angle being sharply angular and never rounded.....**L. (L.) neoniger**

#### Key to the Species of *Leptothorax* in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

#### Key to the Species of *Linepithema* in Indiana

No key is necessary for this genus as it is represented by a single species in Indiana.

#### Key to the Species of *Monomorium* in Indiana

1. Color yellow to brownish-yellow or orangish-yellow; surface of head and alitrunk densely punctate, dull to very feebly glossy..... **M. pharaonis**  
 Color brownish-black to black; surface of head and alitrunk mostly to entirely smooth and very glossy..... 2

- 2(1). When viewed in profile, propodeum with dorsal face distinctly shorter than the posterior face (decleivity).....*M. emarginatum*  
 When viewed in profile, propodeum with dorsal face distinctly longer than the posterior face (decleivity)..... 3
- 3(2). Queens distinctly smaller measuring 2.2 to 2.5 mm; mandibles with 3 teeth; longer scapes which surpass the occipital border; the head is broadest at the occiput.....*M. pergandei*  
 Queens distinctly larger measuring 4.0 to 4.5 mm; mandibles with 4 teeth; shorter scapes that at most reach the occipital border..... *M. minimum*

#### Key to the Species of Myrmecina in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

#### Key to the Species of Myrmica in Indiana

1. Antennal scape gradually and evenly bent at the base and never forming a right angle at the bend; lamina at bend absent..... 2  
 Antennal scape suddenly bent at the base and forming a right angle or nearly so at the bend; a conspicuous lamina present at the bend (or at least a weak to distinct carina).....5
- 2(1). Gaster with hairs set in usual, fine punctures; dorsal face of the propodeum forming a descending slope with the dorsum of the mesonotum; frontal lobes lying flat in the same plane as the front and extending out over the bases of the antennae; frontal lobe with thickened edge angled toward head; propodeal spines shorter than the distance between, strongly directed posteriorly.....3  
 Gaster with hairs set in distinct, coarse punctures, especially basally; dorsal face of the propodeum abruptly depressed below the level of the mesonotum; otherwise various.....4
- 3(2). Sculpture fine, color reddish-brown over most of body and appendages.....*M. incompleta*  
 Sculpture of head and mesosoma coarse; color dark brownish-black to black, legs, mesosoma and antennae lighter..... *M. whymperi*
- 4(2). Propodeal spines about 1.5 X as long as the distance which separates their bases and slightly deflected downward; frontal lobes angled up at 30 degrees from the plane of the front; antennal scapes longer, surpassing the occipital margin by an amount equal to their greatest thickness; color dark to blackish-brown, coxae paler than alitrunk and contrasting in color; lateral face of fore coxa smooth and glossy, finely sculptured only basally; larger species measuring 4.4 to 5.5 mm..... *M. punctiventris*

- Propodeal spines only slightly longer than the distance high separates their bases and not deflected downward; frontal lobes lying flat, in same plane as the front; antennal scapes shorter, barely surpassing the occipital margin; color brownish-yellow, coxae concolorous with alitrunk; lateral face of fore coxa finely sculptured over most of the surface; smaller species measuring 3.5 to 4.4 mm.....*M. pinetorum*
- 5(1). Scapes with a large wide, thick, lobate lamina at the bend which extends distally along the posterobasal third of the scape; smaller species measuring 3.5 to 4.5 mm.....*M. nearctica*
- Scapes with a small transverse lamina at the bend or with a lamina that surrounds the bend like a collar and does not extend distally along the basal third of the scape; lamina mostly present basal to the bend; larger species measuring 3.9 to 6.2 mm.....6
- 6(5). Scape with distinct collar-like lamina encircling the top of the bend; flange below bend absent or very poorly developed and not a continuation of lamina; angle of bend of scape greater than 90 degrees.....7
- Scapes with transverse or oblique carina or lamina which continues as a distinct flange below the bend; angle of bend of scape various..... 8
- 7(6). Scape with low collar-like lamina encircling the top of the bend; face of the basal portion of the scape straight in profile; ventral surface of postpetiole flat or nearly so in profile, forming a rugose plate.....*M. americana*
- Scapes with prominent high collar-like lamina; face of basal portion of the scape angulate in profile due to prominent lamina; ventral surface of postpetiole convex, not forming a rugose plate.....*M. lobifrons*
- 8(6). Scape angled at bend, with a weak to distinct carina which continues basally as a narrow flange, usually slightly notched at bend; angle of bend between the flat face of the flange and the main part of the scape greater than 90 degrees; scape slightly curved just beyond the bend.....*M. fracticornis*
- Scapes truncated at bend by flange that projects above the bend and is flared behind on the lower part of the scape; angle of bend close to 90 degrees or less; scape straight just beyond the bend..... 9
- 9(8). Scape with lamina at bend very prominent, strongly projecting and overhanging bend, resulting in an acute angle at the bend; frontal lobes very reduced, leaving antennal insertion exposed.....*M. spatulata*
- Scapes with lamina at bend weaker, not strongly projectig, angle at bend essentially 90 degrees; frontal lobes not strogly reduced, partially covering the antennal insertion.....10

- 10(9). Postpetiole with smooth, glossy longitudinal stripe dorsally; pleural rugae narrower than the median thickness of the propodeal spine, more numerous, semiglossy; frontal lobes prominent, projecting upward at 45 degree angle to the plane of the front...*M. detritinodis*  
 Postpetiole strongly rugose dorsally, lacking smooth, glossy longitudinal stripe; pleural rugae as wide as the median thickness of the propodeal spine, fewer, distinctly duller than the interspaces; frontal lobes often very low and weakly projecting, greatly reduced above.....*M. latifrons*

#### Key to the Species of *Nievamymex* in Indiana

No key is necessary for this genus as it is represented by a single species in Indiana.

#### Key to the Species of *Paratrechina* in Indiana

1. Antennal scape extremely long, 2 X the length of the head; lacking erect hairs; legs unusually long; eyes very large, in full face view extending beyond sides of the head; body with bluish reflections.....**P. longicornis**  
 Antennal scape much shorter, distinctly less than 2 X the length of the head, often with erect hairs; legs not unusually long; eyes smaller, in full face view not extending beyond the sides of the head; body lacking bluish reflections..... 2
- 2(1). Body yellow with gaster infuscated posteriorly..... **P. arenivaga**  
 Body predominantly dark brown to brownish-black or very rarely bicolored with the head and gaster being darker..... 3
- 3(2). Antennal scape completely lacking erect hairs.....**P. parvula**  
 Antennal scape with at least 4 and usually 7 or more erect hairs..... 4
- 4(3). Alitrunk, legs, and antennae yellow; head averaging broader and with rounded sides; an introduced species.....**P. flavipes**  
 Uniformly brown to brownish-black in color or may have slightly paler head and alitrunk; head narrower and less convex sided; middle and hind coxae usually distinctly lighter than for coxa.....**P. faisonensis**

#### Key to the Species of *Pheidole* in Indiana

##### Key to the Morphs of *Pheidole* in Indiana

1. Head grossly enlarged and strongly, sharply concave dorsally; size larger overall...**Majors**  
 Head not enlarged; size distinctly smaller.....**Minors**



### Key to the Pheidole Majors in Indiana

1. Antennal scape with strong, compound bend near the base, bent both toward the head and laterally, the scape distinctly flattened and flared at the bend, nearly as wide at the bend as at the apical end; head with reduced sculpturing and very glossy dorsally  
..... *P. crassicornis*
- Antennal scape with a simple, not compound, bend near the base that is only bent toward the head, the scape not notably flared and usually not flattened at the bend, normally distinctly narrower at bend than at apical end; head variable dorsally, often fully sculptured  
.....2
- 2(1). Head fully and strongly sculptured and dull or weakly glossy dorsally, occipital lobes with strong reticulate sculpturing, not smooth and glossy..... *P. pilifera*  
Head with at least the tops and usually the front faces of the occipital lobes very weakly sculptured or completely smooth, with only fine punctures, and very glossy; if the head is only smooth posterodorsally, then the 1st tergite is dull in contrast to the remainder of the gaster.....3
- 3(2). Propleuron largely or entirely sculptured, surface dull or semiglossy, not largely smooth and glossy.....*P. bilimeki*  
Propleuron largely unsculptured, surface mostly smooth and glossy..... 4
- 4(3). Anterior (lower) clypeal margin bluntly bidentate, with deep median notch in between; ventral margin or lower rim of the head without teeth, although one pair is present above and in front of the rim.....*P. bicarinata*  
Anterior clypeal margin not bidentate and without median notch, but may have a wide, shallow median concavity; ventral margin of head with 2 or 3 distinct and usually sharp teeth or spines other than the pair above and in front of the rim.....5
- 5(4). Mesonotum without transverse, angular impression, the side profile forming a continuous, smooth curve with the pronotum; antennal scape short, barely reaching half way to occipital corner; compound eye smaller, about as wide as width of apical antennal segment; head elongate with nearly parallel sides.....*P. tysoni*  
Mesonotum with well developed, sharp, angular transverse impression, the side profile forming an angular, stepped outline with the pronotum; antennal scape long, reaching 3/4 or more to occipital corner; compound eye larger, distinctly wider than width of apical antennal segment; head broad with convex sides.....*P. morrisii*

### Key to the Pheidole Minors in Indiana

1. Head sculptured (punctate or striate) and mostly dull over nearly entire surface, or rarely with limited to an area of reduced sculpturing medially; propleuro fully sculptured, to same degree as remainder of side of alitrunk.....2  
 Head mostly devoid of sculpturing, except around the antennal insertion and below eyes, rarely very weakly sculptured medially, almost entirely smooth and very glossy; propleuron fully sculptured in only one species, thers with propleuron smooth and glossy .....4
- 2(1). Antennal scape long, surpassing the occipital border by length distinctly greater than length of first funicular segment; front of head with longitudinal median area of reduced sculpturing..... *P. crassicornis*  
 Antennal scape shorter, at most surpassing the occipital border by length less than length of first funicular segment; front of head almost entirely covered with sculpturing.....3
- 3(2). Larger species, measuring 2.3 mm or longer; eye larger, width at least as great as width of apical antennal segment; scale of petiole as seen from behind with the crest broad, flat to weakly concave.....*P. pilifera*  
 Smaller species, measuring 2.1 mm or less; eye smaller, width less than width of apical antennal segment; scale of petiole as seen from behind with crest narrow, usually rounded .....*P. bilimeki*
- 4(1). Antennal scape shorter, at most surpassing the occipital border by length less than length of 1st funicular segment; eye small to medium sized, width equal to or less than width of apical antennal segment..... 5  
 Antennal scape very long, surpassing the occipital border by length much greater than length of 1st funicular segment; eye large, width greater than width of apical antennal segment.....*P. morrisii*
- 5(4). Alitrunk almost entirely smooth and very glossy, almost completely devoid of sculpturing; color pale yellow eyes small, width less than width of apical antennal segment..... *P. tysoni*  
 Alitrunk with at least mesopleuron and side of propodeum distinctly sculptured and dull, contrasting with smooth, glossy propleuron; color medium to dark brown; eyes larger, width equal to idth of apial antennal segment..... *P. bicarinata*

### Key to the Species of *Polyergus* in Indiana

1. Gaster very glossy; minute appressed pubescence extremely fine and sparse dorsally; erect hairs on dorsum of gaster very sparse, usually nearly absent on 1st and 2nd tergites; scapes longer, reaching or surpassing the top of the head, gradually enlarged apically ..... **P. lucidus**
- Gaster with grayish sheen due to relatively dense appressed pubescence; erect hairs on dorsum of gaster very dense; scapes shorter, not reaching the top of the head, rather abruptly dilated apically..... **P. Breviceps**

### Key to the Species of *Ponera* in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

### Key to the Species of *Prenolepis* in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

### Key to the Species of *Protomognathus* in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

### Key to the Species of *Smithistruma* in Indiana

1. Mandibles long, nearly as long to longer than the clypeus, with a basal toothless area as long or longer than the length occupied by the apical series of teeth; basal tooth of mandible fully exposed when the mandibles are closed; scapes strongly bent at base ..... ***S. pergandei***
- Mandibles short, distinctly shorter than the clypeus; basal toothless area absent or much smaller; basal tooth of mandible partially or completely covered by the clypeus when the mandibles are closed; scapes not strongly bent at the base.....2
- 2(1). Clypeus with a group of 8 to 10 relatively long hairs with strongly bulbous apices radiating from a small anteromedial area plus a pair of 2 very long, curved, narrow erect hairs near the middle; remainder of clypeal surface bare and glossy posteromedially ..... ***S. ornata***
- Clypeus with hairs generally more evenly distributed, or otherwise not as above, usually a rather even covering of short, either fine or spatulate hairs..... 3

- 3(2). Clypeus with marginal hairs (those that extend over the outer edges) mostly distinctly J-shaped, curved posterolaterally; surface of clypeus minutely tuberculate, dull; mandibles relatively large, diastema very weakly developed and indistinct.....*S. ohioensis*  
 Clypeus with marginal hairs (those that extend over the outer edges) either distinctly enlarged apically or if fine, then not J-shaped; mandibles small or with a well-developed, distinct diastema.....4
- 4(3). Mandibles coarsely and continuously toothed, lacking a toothless diastema; anterior border of clypeus broadly truncate and often shallowly concave medially; hairs on clypeus, front, and occiput of head mostly spatulate and reclinate.....*S. rostrata*  
 Mandibles with a distinct toothless diastema; anterior border of clypeus narrower, rounded apically, at most weakly truncate, not emarginate; hairs on clypeus, front, and occiput of head often partially to mostly thin and erect..... 5
- 5(4). With 5 to 10 marginal clypeal hairs on each side (side of clypeus to base of mandible when closed); disc of clypeus rather evenly covered with spatulate hairs..... 6  
 With 2 to 4 marginal clypeal hairs on each side; disc of clypeus largely devoid of hairs posteromedially, or with a few scattered, greatly reduced hairs.....8
- 6(5). Marginal clypeal hairs thin and fine, not noticeably broadened at apices.....*S. filitalpa*  
 Marginal clypeal hairs spatulate, although sometimes narrowly so..... 7
- 7(6). Hairs on front and dorsal surfaces of head with weakly enlarged tips, not strongly and distinctly spatulate, many hairs long, fine; marginal clypeal hairs narrowly spatulate ..... *S. talpa*  
 Hairs on front and dorsal surfaces of head mostly or entirely spatulate, reclinate (bent forward with spoon shaped apices lying parallel to the surface), very uniform in height, forming a virtual secondary surface; marginal clypeal hairs broadly spatulate.....*S. abdita*
- 8(5). Marginal clypeal hairs mostly or entirely curved posteriorly.....*S. reflexa*  
 Marginal clypeal hairs curved anteriorly or anteromedially (at most 1 hair per side curved posteriorly)..... 10
- 10(9). Mandibles (seen in side view) thin (thickness at most equal to the height of the eye), the tip gradually tapered and only very slightly decurved at tip; occipital lobe normally with an unusually long, fine curved hair near the end of the antennal scrobe..... *S. pulchella*  
 Mandibles (seen in side view) thick (usually thicker than the height of the eye), the tip abruptly tapered and distinctly and abruptly decurved at tip; each occipital lobe lacking unusually long, curved hair..... *S. missouriensis*

Key to the Species of *Solenopsis* in Indiana

1. Coxae a different color than alitrunk (greenish-tinged yellow coxae and a clear yellow alitrunk); funicular segments 3, 4 and 5 notably broader than long; color pale yellow; head relatively narrow, without conspicuous punctures on head and without distinct non-punctate central stripe; gaster pinkish-orange in living specimens.....*S. texana*  
 Coxae concolorous with alitrunk; color golden yellow, often with darker infuscation; funicular segments 3, 4, and 5 only slightly broader than long; otherwise variable; gaster never pinkish-orange..... *S. molesta*

Key to the Species of *Stenamamma* in Indiana

1. Eye relatively large, gena height (distance between mandibular insertion and lower edge of eye) 2.1 X eye height or less; eye composed of 5 to 10 facets in greatest diameter..... 2  
 Eye relatively small, gena height 2.3X eye height or greater; eye composed of 3 to 6 facets in greatest diameter.....4
- 2(1). Eye large, gena height slightly greater than 1X eye height; larger species, total length 3.6 to 4.3 mm.....*S. meridionale*  
 Eye smaller, gena height 2.1 X eye height or less, but distinctly greater than 1X; medium sized ant; total length 2.5 to 3.9 mm..... 3
- 3(2). Species smaller, total length 2.5 to 3.0 mm; eye with 5 to 6 facets in greatest diameter; clypeus at most shallowly concave on front edge medially between longitudinal carinae; anterior angle of propodeum angulate but not raised above surface of propodeum ..... *S. impar*  
 Species larger, total length 3.0 to 3.9 mm; eye with 6 to 10 facets in greatest diameter; clypeus with distinct subtriangular notch on front edge medially between longitudinal carinae; anterior angle of propodeum usually raised as a transverse ridge or "welt" above the surface of the propodeum.....*S. brevicorne*
- 4(1). Surface of alitrunk (especially mesopleuron) dulled by micropunctures between rugae; postpetiole dorsally rugose, rarely smooth or noticeably glossy; facets of eye coarse and distinct..... *S. schmittii*  
 Surface of alitrunk glossy between rugae, not dulled by micropunctures; postpetiole usually smooth and rather strongly glossy; facets of eye usually partially fused and thus smooth and glossy..... *S. diecki*

### Key to the Species of *Strumigenys* in Indiana

No species of this genus is present in Indiana, but it is included for completeness.

### Key to the Species of *Tapinoma* in Indiana

No key is necessary for this genus as it is represented by a single species in Indiana.

### Key to the Species of *Temnothorax* in Indiana

1. Antenna composed of 11 segments (including scape)..... 2  
 Antenna composed of 12 segments (including scape)..... 7
- 2(1). Propodeal spines greatly reduced, short and dentiform, their length less than half the distance which separates their bases..... *T. schaumii*  
 Propodeal spines normally developed, long and spinose, their length greater than half the distance which separates their bases..... 3
- 3(2). Head with coarse, conspicuous, longitudinal rugae which are notably heavier than the intervening sculpture; top of petiolar scale blunt, usually somewhat flat-topped; distinctly larger species, total length 3.4 to 4.4 mm; color rather uniformly orangish-yellow ..... *T. smithi*  
 Head finely punctate or with fine longitudinal rugae, the intervening sculpture nearly as heavy; top of petiolar scale angulate or sharply crested; distinctly smaller species, total length less than 3.0 mm; color variable, uniformly black, if yellow, usually with darker markings on the gaster..... 4
- 4(3). Color uniformly dark, nearly black; head mostly smooth and glossy dorsally, the sculpturing sparse and reduced, consisting mostly of fine, scattered puncture. .... *T. longispinosus*  
 Color yellowish, often with dark infuscation; gaster usually bicolored..... 5
- 5(4). Gaster with abundant, scattered, short appressed pubescence dorsally in addition to erect hairs; head with very fine reticulate or punctate sculpturing, the surface dull; postpetiole very broad (when viewed from above), at least 2X as wide as long..... *T. duloticus*  
 Gaster usually completely lacking scattered, short appressed pubescence dorsally, may be present very sparsely; head with very fine longitudinal rugae and semiglossy to glossy dorsally; postpetiole variable..... 6
- 6(5). Postpetiole (viewed from above) subquadrate or only slightly broader than long; gaster with 1st tergite normally with a pair of distinct, darker infuscated spots present; propodeal spines set close together at the base..... *T. curvispinosus*

- Postpetiole (viewed from above) distinctly broader than long; gaster lacking a pair of darker spots; propodeal spines well separated at the base.....*T. ambiguus*
- 7(1). Alitrunk strongly convex in profile, the metanotal groove distinctly and strongly impressed; antennal scape long, surpassing the occipital border, with abundant, long, distinctly suberect to erect hairs; petiole (in side view) very long, 2X as long as high, with long, slender anterior stalk (peduncle)..... *T. pergandei*
- Alitrunk flat or very slightly convex in profile, metanotal groove at most very shallowly impressed dorsally; antennal scape short, at most reaching the occipital border, with only fine, appressed pubescence, lacking longer, erect or suberect hairs (with a few at the extreme apex); petiole (in side view) short, nearly as high as long..... *T. texanus*

#### Key to the Species of Tetramorium in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

#### Key to the Species of Trachymyrmex in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

#### Key to the Species of Wasmannia in Indiana

No key is necessary as this genus is represented by a single species in Indiana.

Key to the Pest Species in Indiana

This key was created for the pest control industry to quickly identify the main species encountered in the field.

1. Node is a single segment..... 2

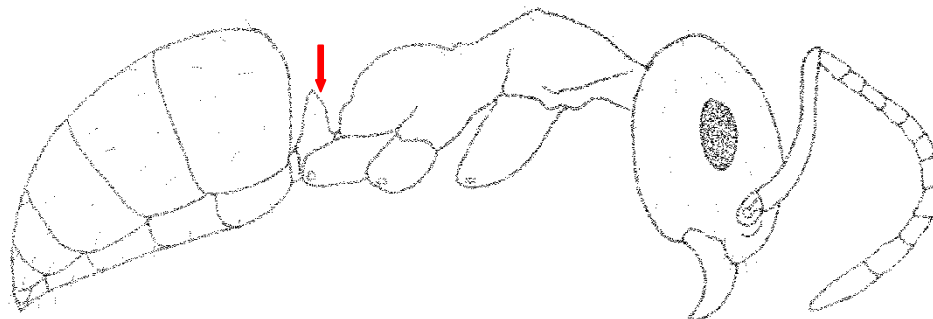


Figure 3.70 Single segmented node

- Node is 2 segments (petiole & post petiole).....8

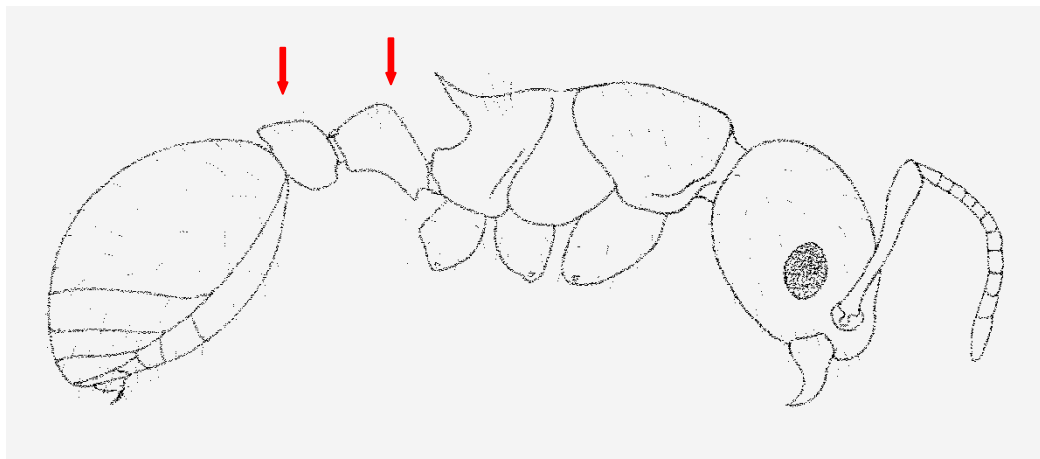


Figure 3.71 Node composed of 2 segments

- 2(1). Tip of abdomen ending in a circular opening surrounded by a fringe of hairs..... 3



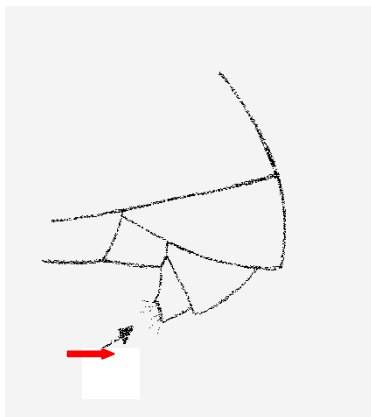


Figure 3.72 Tip of abdomen ending in a circular opening surrounded by hairs

Tip of abdomen ending in a slit-like opening never surrounded by a fringe of hairs..... 7



Figure 3.73 Tip of abdomen ending in a slit-like opening, lacking hairs

3(2). Thorax evenly rounded and continuous in profile.....4

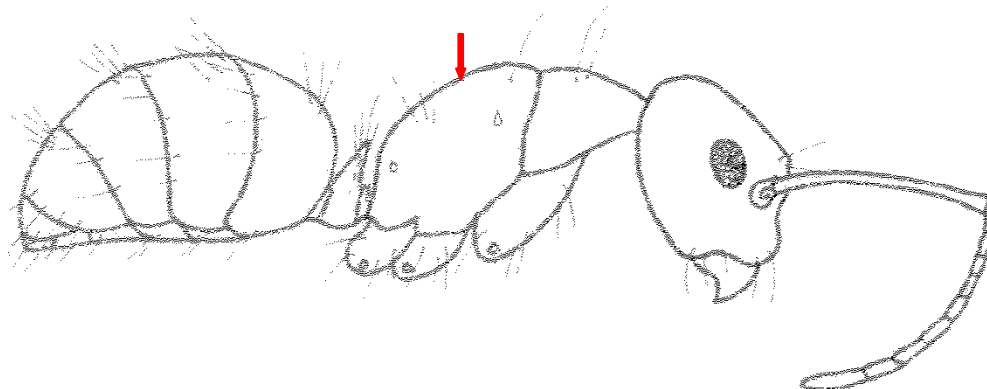


Figure 3.73 Evenly rounded thorax

Thorax uneven in profile, with obvious bumps and ridges..... 5

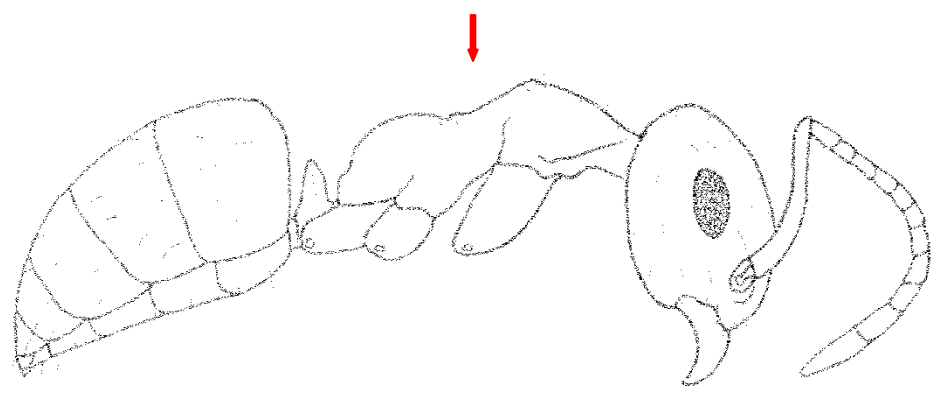


Figure 3.74 Uneven thorax with bumps and ridges

- 4(3). Color black, sometimes brownish-black or reddish-black but never orange  
 ..... **Camponotus pennsylvanicus**  
 Color orange to yellowish-orange to reddish-orange; head and abdomen may be slightly darker than thorax..... **Camponotus castaneus**
- 5(3). Thorax shaped like an hour glass when viewed from above; petiolar node low and sloping forward to form a low forward leaning triangle..... **Prenolepis imparis**



Figure 3.75 Thorax is hourglass shaped when viewed from above

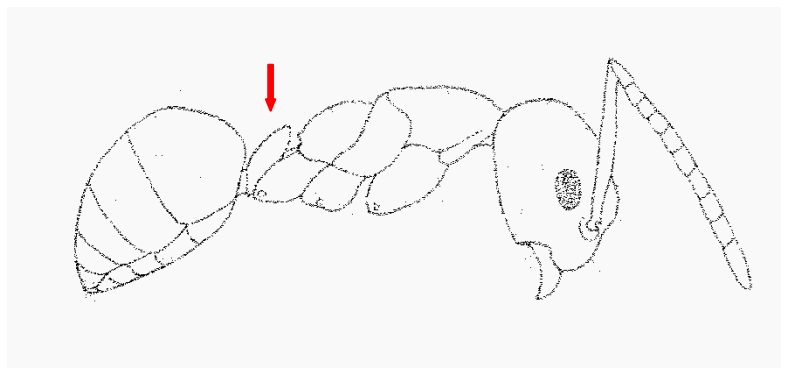


Figure 3.76 Petiolar node low and sloping forward

Thorax not hour glass shaped when viewed from above; petiolar node upright, forming a high triangle..... 6

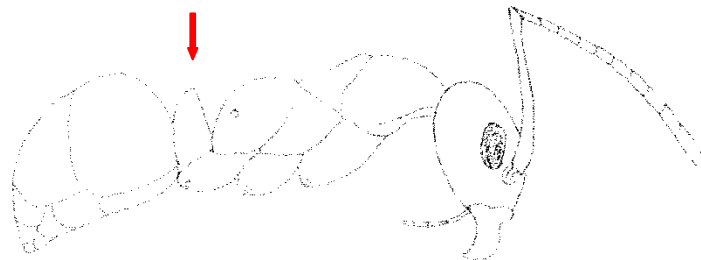


Figure 3.77 Petiolar node upright, forming a high triangle

6(5). Ocelli (simple eyes) absent; propodeum somewhat angulate, forming a peak; smaller, more robust species (2.2 - 5.2 mm) that is golden yellow or orange in color and very hairy..... **Lasius claviger**

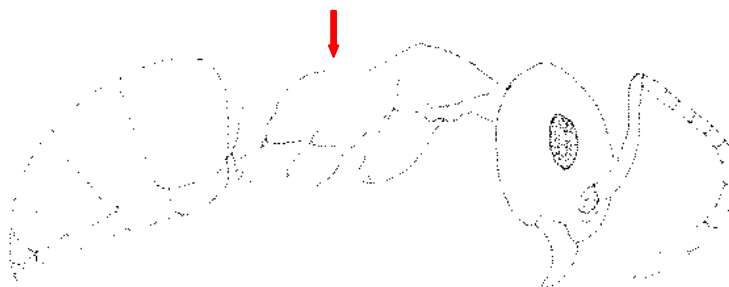


Figure 3.78 Propodeum somewhat angulate

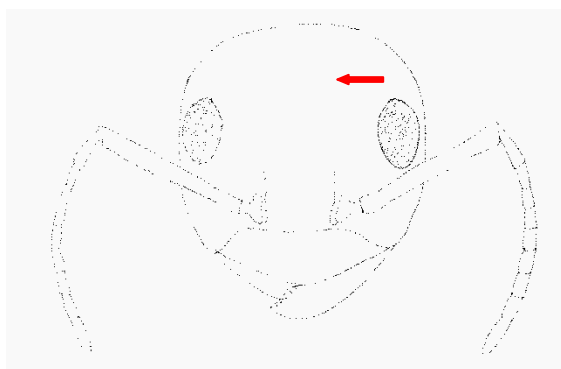


Figure 3.79 Lacking ocelli

Ocelli (simple eyes) present; propodeum rounded, never forming a peak; larger species (3.5 - 9.0 mm) that varies in color and is less hairy.....**Formica spp.**

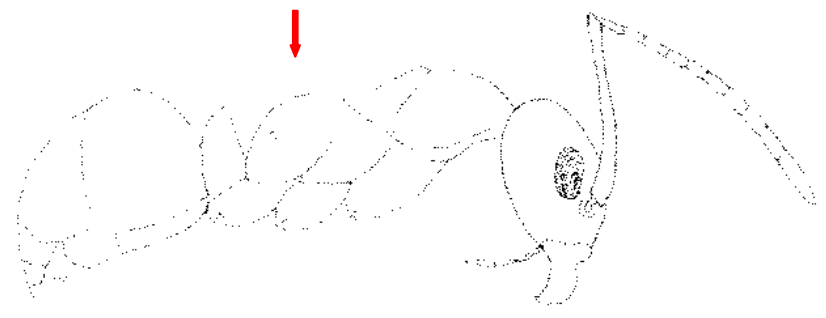


Figure 3.80 Rounded propodeum

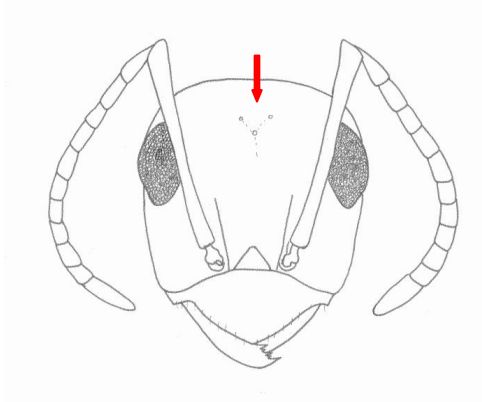


Figure 3.81 Ocelli present

7(2). Petiolar scale very small and indistinct, strongly inclined forward and fused to the node, often hidden..... **Tapinoma sessile**

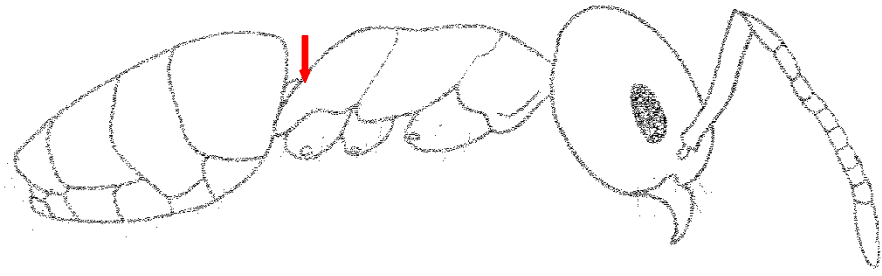


Figure 3.82 Small, indistinct petiolar scale that is strongly inclined forward and often fused to the node

Petiolar scale distinct but small, erect or sub-erect; never hidden or fused

.....**Linepithema humile**

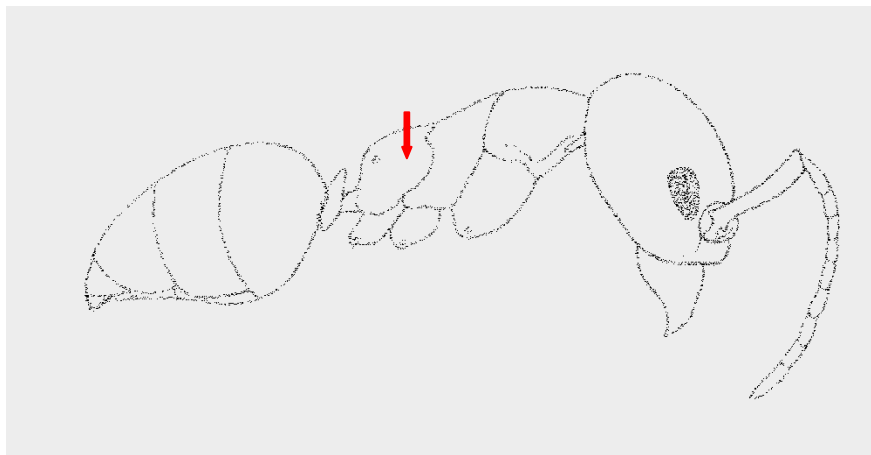


Figure 3.83 Petiolar node small but distinct; erect or suberect

8(1). Propodeum lacking spines (unarmed); color golden yellow/yellow/brownish-yellow..... 9

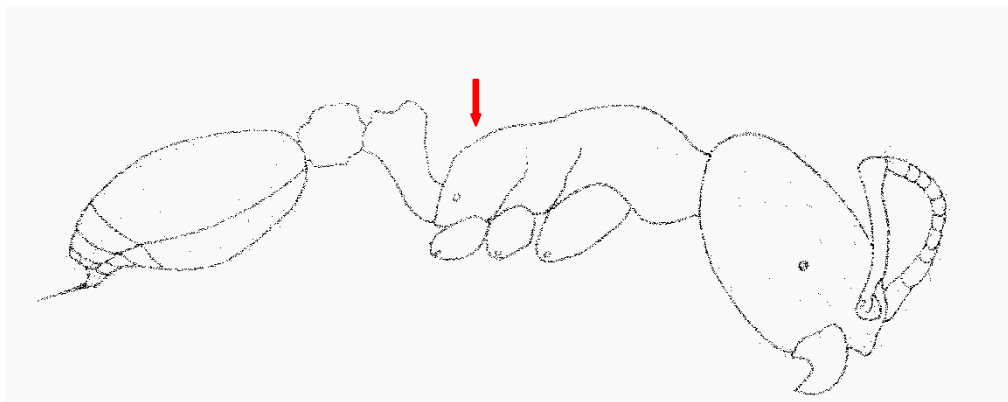


Figure 3.84 Propodeum lacking spines or teeth

Propodeum with spines (armed); color varied..... 10

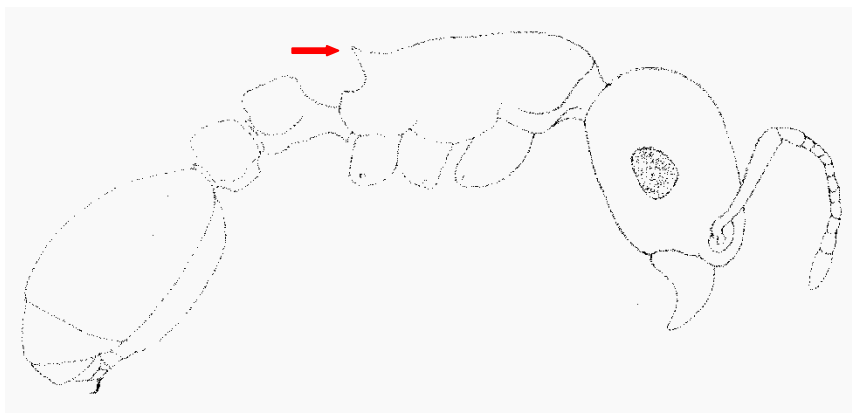


Figure 3.85 Propodeum with spines or teeth

- 9(8). Antennae with a distinct 2 segmented club; smaller species - total length 1.5 - 1.8 mm ..... *Solenopsis molesta*
- Antennae with a distinct 3 segmented club; larger species - total length 2.0 - 2.2 mm ..... **Monomorium pharaonis**
- 10(8). Post petiole (2nd node) attached to the dorsum (top) of the abdomen; head and thorax rough but lacking raised ridges ..... *Crematogaster* spp.



Figure 3.86 Post petiole attached to the dorsum of the abdomen

- Post petiole (2nd node) attached to the anterior (front end) of the abdomen, never the top; head and thorax with raised ridges that cause a striped appearance.....
- ..... **Tetramorium caespitum**

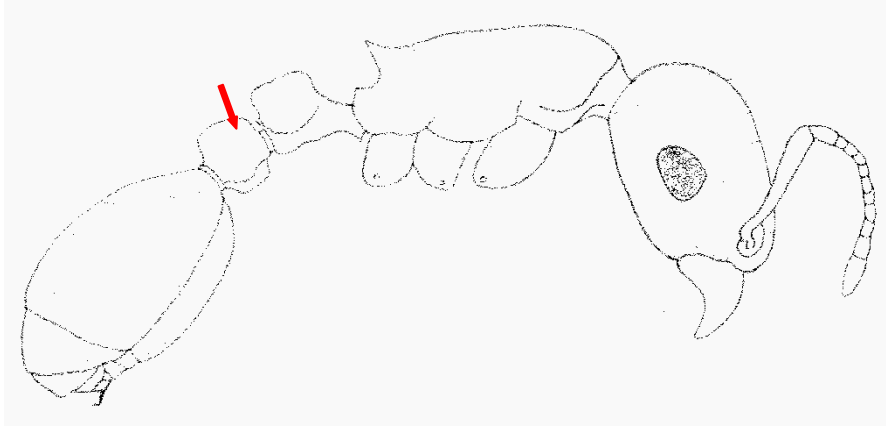


Figure 3.87 Postpetiole attached to the anterior of the abdomen, never the top

## CHAPTER 4: SPECIES PRESENT IN INDIANA

### A Revision of the Checklist of Indiana Ants

The last revision of the checklist of Indiana ants was completed in 1986 by Jansma, Munsee, and Schrock. Appendix A contains the most recently revised checklist of Indiana ants which consists of 137 species. Species previously found in the 1986 revision in regular type font, while new species added to the list are in bold type font. Species that were noted in the 1986 paper, but not found in collections data or in the field are underlined.

### Species Profiles for the Ants of Indiana

Below the species that are present in Indiana are listed in alphabetical order. Each species profile gives the general information for the species as well as taxonomic characteristics and behaviors.

#### *Amblyopone pallipes* (Haldeman)

##### **Previous Names and Synonyms**

*Typhlopone pallipes* Haldeman, 1844

*Stigmatomma pallipes* (Haldeman)

*Stigmatomma pallipes montigena* Creighton

*Stigmatomma pallipes* var. *wheeleri* Santschi

*Stigmatomma pallidipes* var. *wheeleri* Santschi

*Stigmatomma pallipes arizonense* Wheeler

*Stigmatomma pallipes* subsp. *montigena* Creighton



*Stigmatomma pallipes* ssubsp. *arizonense* Wheeler

*Stigmatomma pallidipes* var. *Wheeleri* Santschi

*Arotropus binodosus* Provancher

*Stigmatomma serratum* Roger

*Stigmatomma pallipes* subsp. *subterranea* Creighton

### **Taxonomy**

Earlier references place this species in the genus *Stigmatomma*, which is now synonymous with *Amblyopone* (Brown 1960).

### **Identification**

The body is 4.5-6.5 mm long. Color is usually brown to very dark reddish-brown, but can be variable. Mandibles, antennae, and legs are yellowish-brown; tentrals (incompletely pigmented adults) are common and usually paler with yellowish-brown mottling. The head and alitrunk are distinctly punctate (sculptured), the surface is very weakly glossy to usually dull, and the body has a covering of short, fine pubescence. This species is easily identifiable by the characteristics given for the genus as it is the only species present in this area.

### **Biology and Behavior**

These ants prefer mesic and dry-mesic wooded areas that are moist and shaded. Many nest along creeks where the soil is sandy and moist. Slow-moving workers can be found foraging throughout leaf litter, under logs, under rocks, or any other object that has been lying on the ground for some time. They are rarely ever found out in the open on the surface. The foundress may also forage for food when creating her nest. Centipedes are collected by stinging them, which paralyzes them. They are then transported back to the nest where they can be stored for a period of time (Holldobler & Wilson, 1990)

The main food source for the larvae of this species is centipedes, usually in the genus Lithobiidae or Geophilomorphidae (Brown, 1960).

### **Nests and Colony Structure**

Nests are commonly found under rocks and logs, or in ground leaf litter. The colony is small and variable; Traniello (1978) cites usually between 9-16 workers and one or more queens may be present while Holldobler & Wilson (1990) cite from 1-35 individuals present in a colony with as many as 6 dealated females.

Male alates are produced from late August to mid October while females are produced from early August to late October. Females attract males to them by releasing pheromones not far from the nest. After mating, the females usually return to the nest they flew from (Holldobler & Wilson, 1990).

**Range**

Ontario, Quebec south to Florida, west to Wisconsin, Iowa, Oklahoma, Colorado, Texas, Arizona

**Indiana Distribution**

Rare: Scattered throughout the state. Recorded from 6 counties.

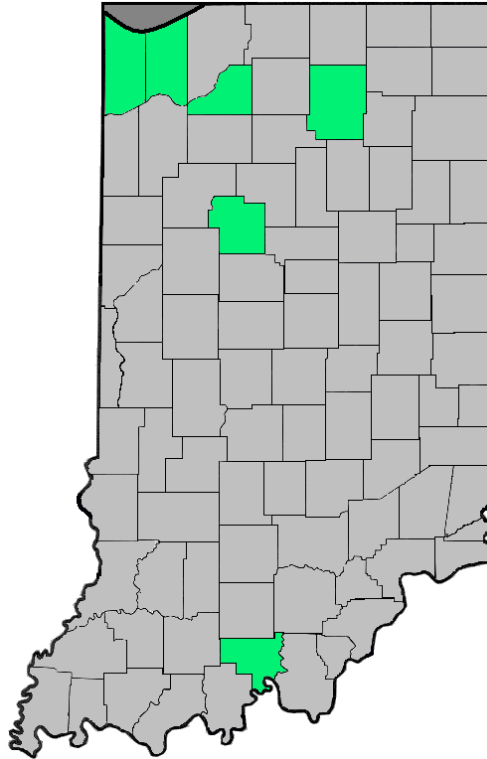


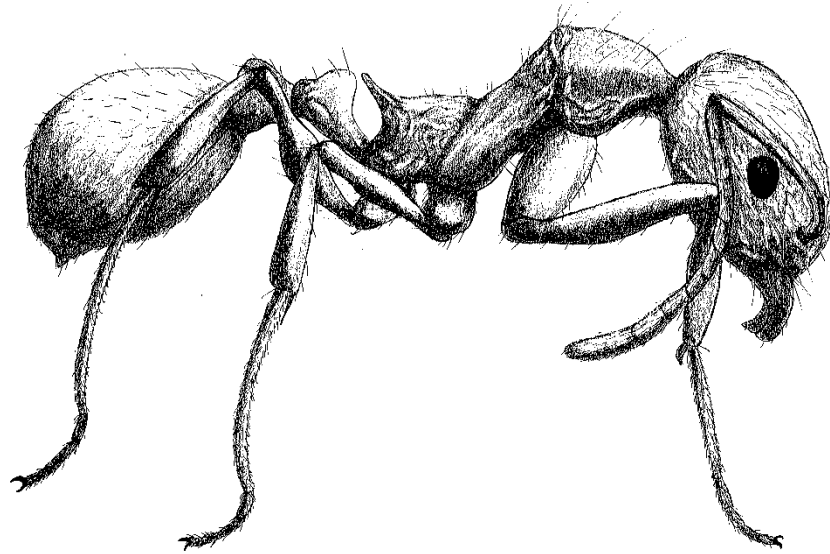
Figure 4.1 *A. pallipes* distribution

**Indiana References**

Lake and Porter counties (Gregg 1944), Crawford County (Wheeler 1916).

**Comments**

The bidentate jaws of this species are very distinct and make it easy to identify. One of our most primitive species in the state, they are entirely subterranean, or hypogaeic, and a rare find.

*Aphaenogaster fulva* RogerFigure 4.2 *Aphaenogaster fulva***Previous Names and Synonyms***Aphaenogaster fulva* Roger 1863*Aphaenogaster fulva* var. *rubida* Enzmann, 1947*Aphaenogaster rubida* Enzmann**Taxonomy**

*A. fulva* was long thought to have many subspecies, including *A. rudis* and *A. picea*.

**Identification**

The body is 4.4-6.7 mm long. These ants are medium to very dark reddish-brown, with slightly paler mandibles. Antennae are apically and legs are apically and basally paler. The head has rugose/reticulated sculpturing while the alitrunk is rugosely/punctately sculptured. They are moderately dull to weakly glossy. This species is part of the *fulva-rudis-picea* complex. The bicolored antennae, prominent propodeal spines, and coarser sculpturing are key in identifying this species. Unlike *A. rudis* and *A. picea*, the mesopleura is fully rugose rather than smooth and glossy.

**Biology and Behavior**

This species is found in dry to moist, open oak forests and beech/oak/maple savanna. Wesson & Wesson (1940) reported it most abundant in dry oak woods under stones. Workers of this species can be found foraging throughout the forest understory. This species is mainly carnivorous, feeding on living or dead insects (D. R. Smith, 1979). Culver & Beattie (1978)

reported this species also gathering myrmecochorous seeds of *Viola* sp. Duffield (1981) found this species to be the host of the myrmecophilous syrphid larvae *Microdon coarctatus*. These ants are also a temporary host for *A. tennesseensis* and possibly *A. mariae* (D.R. Smith, 1979).

### **Nest and Colony Structure**

Under rocks, bark of logs, stumps, and in decomposing wood. D.R. Smith (1979) found them to nest in rotting wood and in the soil under stones and other objects. Colonies collected from were found to contain between 50-215 individuals, with usually a single queen present. Male and female alates can be found flying from late July to late August. Headley (1943a) reported male and female alates from July 15 to September 25.

### **Range**

Vermont south to Florida, west to Michigan, Indiana, Nebraska, Missouri, Louisiana (D.R. Smith, 1979, & Umphrey, 1996).

### **Indiana Distribution**

Common. Statewide in Indiana. Recorded from 50 counties.

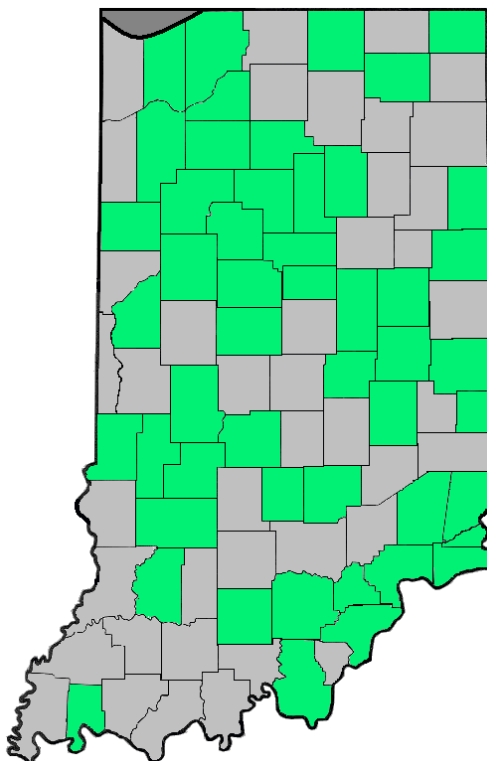


Figure 4.3 *A. fulva* distribution

### Indiana References

Scott, Tippecanoe, Washington counties (Morris, 1943), Dunes Acres and Tremont in Porter County (Gregg 1944), LaPorte County (Gregg 1944), Starke County (Rericha 2007), Indiana (Munsee & Jansma 1985)

### Comments

This species is fairly common throughout the state. The species name of “fulva,” refers to the reddish-yellow color of the ant.

*Aphaenogaster lamellidens* Mayr

### Previous Names and Synonyms

*Aphaenogaster lamellidens* Mayr, 1886

*Aphaenogaster lamellidens* var. *nigripes* Smith, 1923

*Aphaenogaster nigripes* Smith

*Aphaenogaster (Attomyrma) lamellidens* var. *nigripes* Smith

### Taxonomy

Var. *nigripes* Smith is now a synonym (Creighton, 1950).

### Identification

The body is 6.3-6.8 mm long. These ants are orange to reddish-brown in color, with the gaster somewhat paler. The mandibles and antennal funiculus are paler, and the legs are paler basally and apically. The head is sculptured (rugose/reticulate), the alitrunk is rugose/punctate. Head and alitrunk are dull to weakly glossy. The accessory scale on the frontal lobe of this species is key in identification. Other species have the scale present, but it is much larger and prominent in this species.

### Biology and Behavior

DuBois & LaBerge (1988) report finding this species in deciduous forests in Illinois. In Tennessee, Cole (1940b) reports it in moist, shaded woodlands. Workers were found foraging throughout leaf litter on the ground, on logs, and on tree trunks. This species feeds on both live and dead insects (D. R. Smith, 1979).

### Nest and Colony Structure

This species usually nests in logs and stumps on the soil. Rarely, passages from the nest will run into the soil (Creighton, 1950). The colony structure and alate flight periods are unknown for this species.

### Range

New York south to Florida, west to Illinois, Missouri, Texas (Covert, 2005).

### Indiana Distribution

Occasional. Recorded from 20 counties, generally in the southern portion of the state.

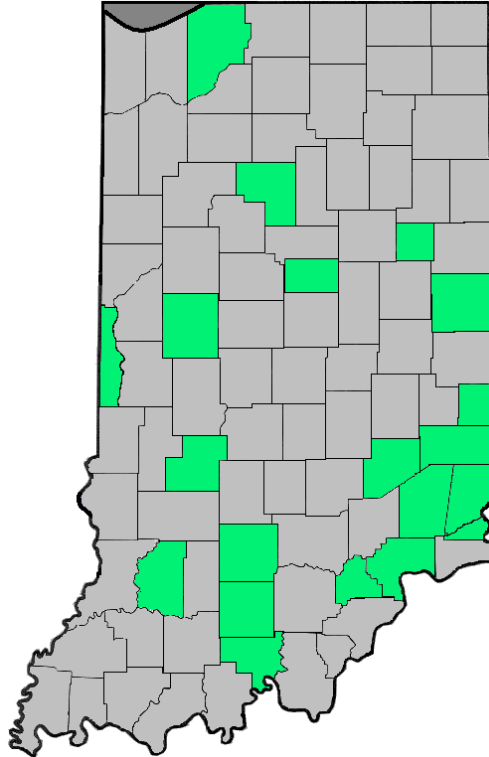


Figure 4.4 *A. lamellidens* distribution

### Indiana References

None.

### Comments

This species has a very distinct accessory scale on the frontal lobe. It is found predominantly in the southern portion of the state, although climate change may have shifted its range.

*Aphaenogaster mariae* Forel

### Previous Names and Synonyms

*Aphaenogaster mariae* Forel, 1886

### Taxonomy

This species is very distinct, and therefore has no major taxonomic problems.

**Identification**

The body is 5.0-5.6 mm long. This species is medium to dark reddish-brown. The base of the gaster, coxae, and tarsi are paler, and the mandibles and antennae are apically paler. The head and alitrunk have moderately coarse rugose/reticulate sculpturing, with the surface moderately glossy between the ridges. The base of the gaster has very distinctive striae that radiate out. This characteristic, along with the coarse sculpturing, make this species very distinct.

**Biology and Behavior**

Found in moist oak woodland, where native herbaceous ground cover is present (Rericha, 2007). Workers can be found foraging up and down tree trunks and occasionally in leaf litter. Their main source of food is unknown. This species is thought to be a social parasite on *A. fulva*, as it was found in association with this second species 3 times in Iowa (D.R. Smith, 1979, & Buren, 1944).

**Nest and Colony Structure**

Nests of this species are found in the crowns of oaks, decaying heartwood of diseased branches, or in trunks of large hardwood trees (Rericha, 2007). Covert (2005) recorded nests in rotten "stob" in white oak and boxelder. As reported by Wesson & Wesson (1940), "A member of the tree crown fauna, this species was taken frequently in oak trees, often high above the ground. It nests in small stobs or in rotten cavities under the bark." The colony organization is unknown, however Wesson & Wesson (1940) report alates found within a nest in mid July.

**Range**

New York south to Florida, west to Michigan, Iowa, Kansas (Covert, 2005).

**Indiana Distribution**

Extremely rare. Recorded from 2 counties in southern Indiana.

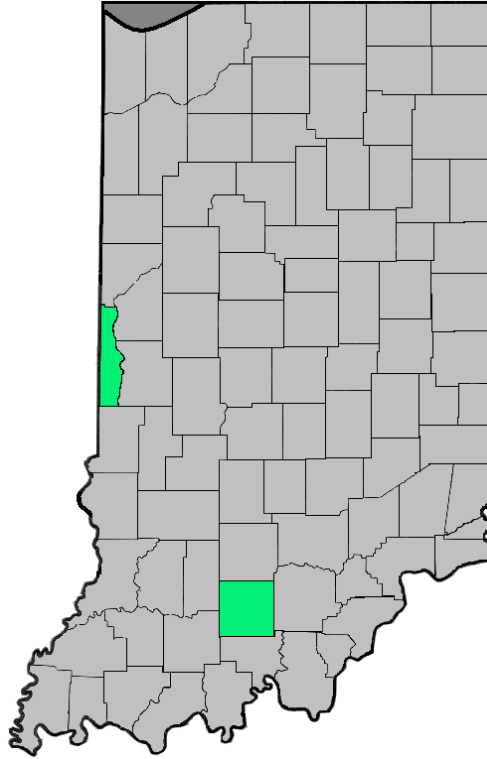


Figure 4.5 *A. mariae* distribution

#### Indiana References

Vermillion County (Munsee 1967), Munsee, Jansma, & Schrock (1986).

#### Comments

This very striking and easily identifiable species is very rare in the state. Munsee (1967) recorded a single worker collected in a pitfall trap from a west-facing spoil bank of a strip mine in Vermillion County. A single worker was collected in Orange County on the trunk of a white oak tree (Orange Q2).

#### *Aphaenogaster picea* (Wheeler) Complex

#### Previous Names and Synonyms

*Stenamma* (*Aphaenogaster*) *fulvum aquia* var. *piceum* Emery, 1895

*Stenamma* (*Aphaenogaster*) *fulvum* var. *piceum* Wheeler, 1908

*Aphaenogaster fulva aquia picea* Emery



### **Taxonomy**

See above discussion. Because Emery gave the species a quadrinomial name, which is taxonomically incorrect, W.M. Wheeler was credited with authorship in 1908 because he gave the species name in a trinomial (Bolton 1995).

### **Identification**

The body is 4.0-6.2 mm long. This species is dark reddish-brown to blackish-brown in color. The mandibles and apical four segments of the antennae are slightly paler, the legs often distinctly paler. The head has moderately fine rugose/reticulate sculpturing, and also be very finely punctate. The alitrunk has very faint rugae, but is mainly smooth and punctate. The katapisternum is overly smooth and has a distinct central glossy area. This species is another member of the *fulva-picea-rudis* complex. The pale ends of the antennae, dark coloration, and glossy area on the katapisternum are key characteristics. This species is most easily confused with *A. rudis*, which has concolorous antennae and paler legs and coxae that somewhat contrast the darker alitrunk.

### **Biology and Behavior**

Found in remnant oak and mixed wood forests. It favors mesic, remnant beech/oak/maple wooded forests that have well developed leaf-litter layers (Rericha 2007). Workers were found foraging on the ground and on tree trunks in wooded areas. On the edge of wooded lots, workers were also found feeding on nectar from wild hydrangea. Covert (2005) reported a cluster of 13 ants feeding at a fresh, half eaten acorn. Workers were observed carrying insect remnants and feeding on nectar from flowers (Steuben Q2). Probably also an active gatherer of myrmecochorous seeds (Covert 2005). This species is a temporary host of *A. tennesseensis* (D.R. Smith, 1979).

### **Nest and Colony Structure**

Most commonly found nesting under logs, or rocks. This species was also found nesting under the bark of logs. Covert (2005) notes this species nesting at the bases of trees and occasionally in acorns and hickory nut shells. The colonies are moderately large to large. Male and female alates are seen flying from mid July to late August.

### **Range**

Connecticut, Ontario, south to North Carolina, Georgia, west to Ohio, West Virginia, (Umphrey, 1996), Indiana.

### **Indiana Distribution**

Occasional. Recorded from 11 counties in Indiana.

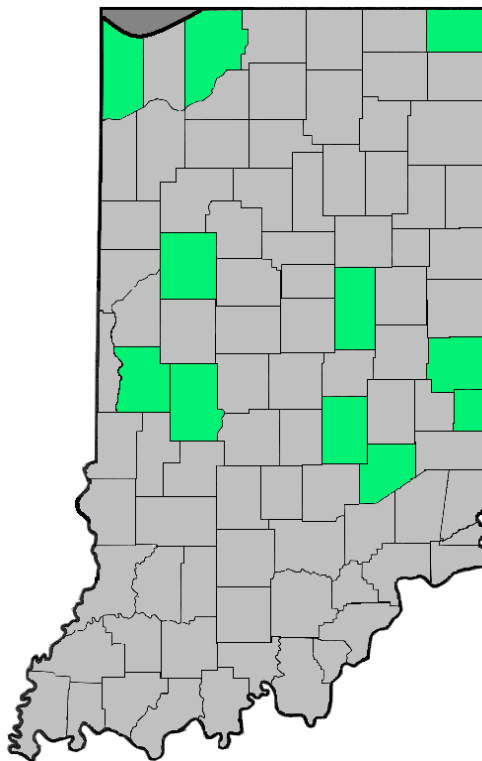


Figure 4.6 *A. picea* distribution

### Indiana References

Lake and LaPorte (Morris 1943), Ogden Dunes and Smith in LaPorte County (Gregg 1944).

### Comments

This species name “picea” means pitch-black or black with a slight red tinge. This is a key characteristic for this species, as it is much darker in color than *A. rudis*. A unique ant to find in Indiana.

### *Aphaenogaster rudis* (Enzmann) Complex

#### Previous Names and Synonyms

*Stenamma (Aphaenogaster) fulva aquia* var. *rude* Emery, 1985

*Aphaenogaster fulva aquia* (Buckley) of authors

*Aphaenogaster fulva* var. *rudis* Enzmann, 1947

#### Taxonomy

See above discussion on the *picea-rudis* complexes.

### Identification

The body is 4.1-6.2 mm long. This species is medium brown to dark orangish/reddish brown in color. The alitrunk, mandibles, antennae, coxae, and legs are slightly paler in color. The head has fine rugose/reticulate sculpturing plus finely punctate sculpturing. The surface is moderately dull to weakly glossy, with the alitrunk having a smooth punctate sculpturing that is dull to weakly glossy. The katepisternum is normally punctate. This species is identified by its concolorous antennae and paler legs and coxae that contrast the slightly darker alitrunk. *A. rudis* is often confused with *A. picea*, however *A. picea* has bicolored antennae and legs that are slightly infuscated. They also possess longer porpodeal spines and more prominent mesonotal protuberances.

### Biology and Behavior

This species is commonly found in dry-mesic and mesic wood forests throughout the state. Workers can be found foraging on the ground, leaf litter, in wooded areas, or near the forest edge in an open prairie. They are also known to use bits of twigs, leaves, or other debris as a tool to gather soft food sources (Fellers & Fellers, 1976). The food source for this species consists of dead or live insects, seeds, and pollen (D.R. Smith, 1979). Coover (2005) observed some workers collecting live termites and others feeding on decaying gilled fungus. They are also known to be predacious on Virginia pine sawfly larva (*Neodiprion p. pratti*) (Bobb, 1965). Beattie & Culber (1981) list the myrmecochorous plants that these ants collect seeds from. *Limulodes parki* Seevers & Dybas, a myrmecophilous beetle, is described being found living within nests of this species where they feed on the skin exudations of both brood and adult ants (Park, 1933). This species is also a temporary host to *A. tennesseensis* (D.R. Smith, 1979.)

### Nest and Colony Structure

This species commonly nests in leaf litter, under rocks, under logs, in the roots of sedges, and inside wood that is in the later stages of decay. Wesson & Wesson (1940) reported a colony found in a moist rotten oak branch about 2.5 meters above the ground. Nests are regularly moved and relocated every 19-37 days (Holldobler & Wilson, 1990). The average colony size of *A. rudis* is between 280-325 workers with a maximum of 2079 workers, with usually a single queen but more than one queen is not unlikely (Headlye, 1949; Talbot, 1951). Talbot (1951) also reported up to 15 queens in a single colony.

Male alates can be seen flying from early June to late August. Female alates were observed from Early June to late July (Coover, 2005).

**Range**

Ontario south to New Jersey, North Carolina, Alabama, west to Ohio, Indiana, Missouri (Umphrey, 1996), Illinois, Wisconsin, Iowa (Rericha, 2007).

**Indiana Distribution**

Common. Recorded from 56 counties in Indiana.

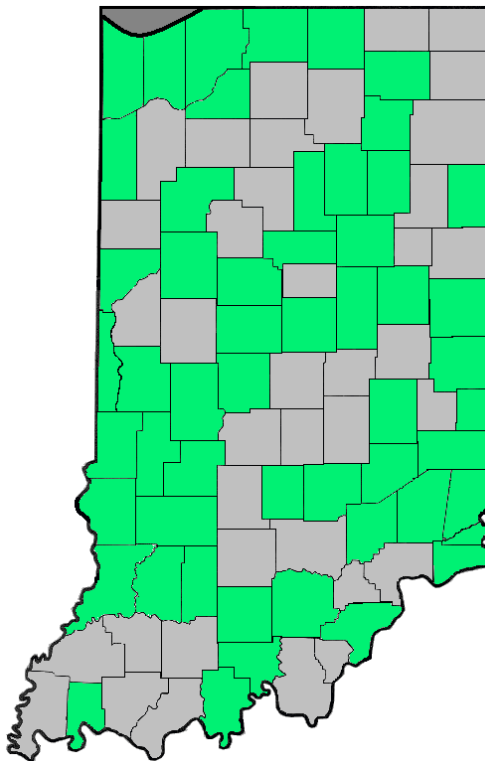


Figure 4.7 *A. rudis* distribution

**Indiana References**

Crawford, Knox (Wheeler, 1916), Adams, Boone, Clark, Delaware, Lake, Scott, Tippecanoe, Washington (Morris, 1943), Chesterton Indiana, Smith Indiana (Gregg 1944), Vermillion (Munsee & Schrock, 1983), Perry, Hoosier National Forest (Umphrey, 1996).

**Comments**

A common species in Indiana. This complex consists of 3 sibling species that are differentiated by a chromosome number. Two of these sibling species are found in Indiana. One is medium brown in color with long propodeal spines, while the other is more yellowish in color with shorter propodeal spines. Because of its sculpturing, the name, “rudis,” meaning rough in reference to the sculpturing, was given to this species.

*Aphaenogaster tennesseensis* (Mayr)

**Previous Names and Previous Names and Synonyms**

*Atta tennesensis* Mayr, 1862

*Atta laevis* Mayr, 1862

*Stenamamma tennesseensis* var. *ecalcarata* Emery

*Stenamamma (Aphaenogaster) tennesseensis* var. *ecalcaratum* Emery

*Stenamamma (Aphaenogaster) tennesseensis* var. *ecalcarata* Emery

*Aphaenogaster levis* Roger

*Myrmica subrubra* Buckley

**Taxonomy**

This species is closely related to *A. mariae*. Both species possess long propodeal spines, their post-petioles are produced below, lack erect hairs on the ventral surface of the post-petiole, and they possess similarly shaped post-petioles.

**Identification**

The body is 4.5-7.2 mm long. This species is medium to dark reddish-brown in color. The gaster is slightly paler, with mandibles and tarsi also usually slightly paler. The head and alitrunk are rugose/punctate, moderately dull to weakly glossy, and the alitrunk and gaster are completely void of long, erect hairs dorsally. The complete lack of hairs on the alitrunk and gaster is key in identifying this species, and is easily seen with a hand lens in the field.

**Biology and Behavior**

This species is commonly found in remnant oak and oak/beechness wood forests. They can also be found at the edge of forested areas and in semi-open areas. Workers were collected foraging in leaf litter, on tree trunks, and various logs and stones in wooded areas, often found in association with workers of other *Aphaenogaster* species. Workers were found foraging for seeds in the field (Madison Q2) and observed with live and dead insects. Beatie & Culver (1981) reported the myrmecochorous plant *Carex laxiculmis* as one they collect seeds from. Coover (2005) reported collecting this species on fruit bait as well as on polypore fungus.

During the early stages of colony development, it is thought that *A. tennesensis* is a temporary social parasite of other ground dwelling *Aphaenogaster* species. Queens of this species have been found in the ground nests of *A. picea*, *A. rudis*, and *A. fulva* (D.R. Smith, 1979). Due to the very few reports of mixed species nests, it is unknown if *A. tennesseensis* is truly a social parasite to other *Aphaenogaster*.

### Nest and Colony Structure

This species nests in wood that is in the early to mid stages of decomposition. It can also be found in standing dead trees, or rarely the rotting heartwood of living oaks (Rericha, 2007). Nests are often found in stumps, logs, and branches. Rericha (2007) reported this species nesting in fallen branches or trees of *Populus deltoides* and *Quercus velutina*. Colonies range in size but are usually large.

Male alates can be seen flying from late July to late August. Female Alates can be found from early July to late August. The female alates are unusually small. Their size, smooth appearance, and large propodeal spines make them easily identifiable.

### Range

Quebec, Ontario south to Florida, west to Minnesota, South Dakota, Nebraska, Kansas, Oklahoma.

### Indiana Distribution

Occasional. This species is recorded from 45 counties in Indiana and can be found throughout the state.

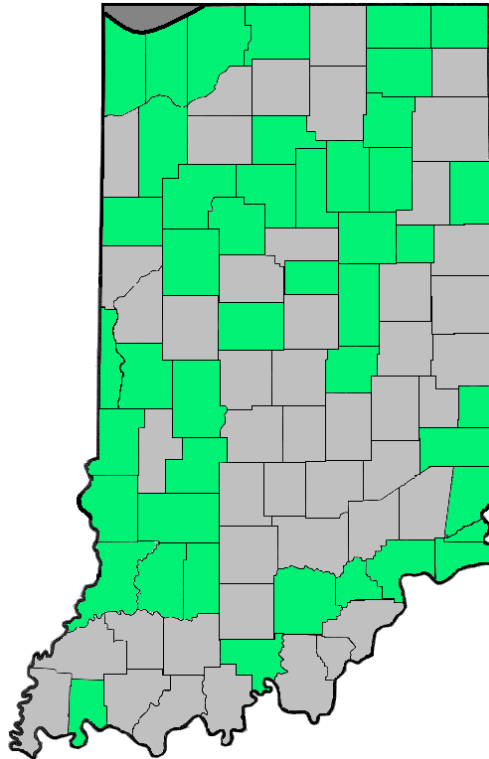


Figure 4.8 *A. tenneseensis* distribution

### **Indiana References**

Shoals Indiana, Vincennes Indiana, Crawford (Wheeler 1916), Scott, Tippecanoe, Washington (Morris 1943), Lake, Porter (Gregg 1944).

### **Comments**

The bright red color and glossy gaster make this species easy to identify in the field. It is by far one of the most beautiful species of ants in the state.

*Aphaenogaster texana carolinensis* Creighton

### **Previous Names and Synonyms**

*Aphaenogaster texana* subsp. *carolinensis* Creighton 1950

### **Taxonomy**

*A. texana carolinensis* is a variant of *A. texana*. See Creighton (1950).

### **Identification**

The body is 4.0-5.5 mm long. This species is reddish brown to brown in color, with the dorsal surface of the head, thorax, gaster, and pedicel ranging from pale brown to dark brown. The tip of the gaster is slightly paler and legs are yellow. The sculpturing on the head is very pronounced, and propodeal spines are moderately long, semi-erect and directed backward.

### **Biology and Behavior**

This species is found in open and semi-open wooded areas. In North Carolina it was collected in open woods (Wheeler, 1915). Workers were found foraging throughout leaf litter. The main food source of this species is unknown.

### **Nest and Colony Structure**

This species was found to nest under rocks and stones in North Carolina (Wheeler, 1915). Colonies were relatively small.

### **Range**

North Carolina west to Indiana.

### **Indiana Distribution**

Rare. This species is recorded from 2 counties in Indiana.

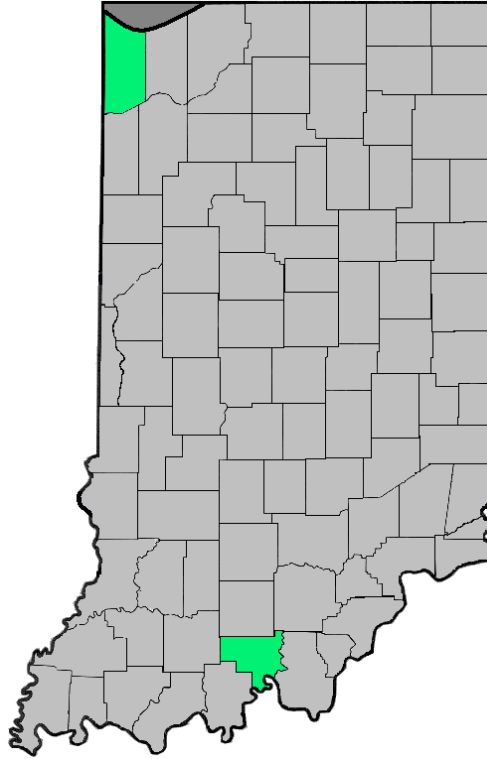


Figure 4.9 *A. texana* distribution

#### Indiana References

None.

#### Comments

This species was once thought to be a subspecies of *A. texana*. Because it was only collected from two counties in Indiana, it is assumed to be rare, however, the rarity of this species may be due to misidentification.

*Aphaenogaster treatae treatae* Forel

#### Previous Names and Synonyms

*Aphaenogaster treatae* Forel, 1886

*Aphaenogaster treatae pluteicornis*

*Aphaenogaster treatae wheeleri* Mann

*Aphaenogaster treatae subsp. wheeleri* Mann

#### Taxonomy

*A. treatae pluteicornis* is a variant of *A. t. treatae*. See Creighton (1950).



### **Identification**

The body is 5.0-7.6 mm long. This species is dark orange/brown to dark red/brown in color, or occasionally reddish-black. The gaster is usually dark yellowish-brown basally, and fading darker to black apically. The mandibles, antennae, and legs are slightly paler, and the head has moderately fine rugose/reticulate and very fine punctate sculpturing. The surface is moderately dull to weakly glossy. The large lobe at the base of the scape is very distinctive and is a key characteristic for this species. This species is not to be confused with *A. ashmeadi*, which occurs farther to the south and has a smaller thinner lobe at the base of the scape.

### **Biology and Behavior**

This species is found in dry and dry-mesic sand prairies and older sandy lots. It has also been collected in semi-open to open grassy prairies and fields. “Common everywhere in dry fields and the open well-drained woods.” (Wesson & Wesson, 1940). Workers forage in fields and prairies (Coovert, 2005). Most foraging activity occurs in the mornings and late afternoons (Talbot, 1954). This species feeds primarily on living or dead insects, including other ant species. Talbot (1954) reported this species collecting grass seeds in Michigan.

### **Nest and Colony Structure**

This species nests in the sandy soil, in the roots of bunch forming plants such as sedges and grasses. Rericha (2007) reported a preference of nesting in *Schizachyrium scoparium* by this species. Nests form a small, irregular mound outside of the entrance (Wesson & Wesson, 1940). Nests were also reported beneath stones and in stumps (Cole, 1940b, & Dennis (1938). Colonies are relatively large, with an average of 682 workers and a maximum of 1662 workers to a single queen (Talbot, 1954).

Male and female alates can be seen flying from late June to late July in Michigan (Talbot, 1966). Talbot (1966) also reports that nuptial flights occur on warm days when the sky is overcast.

### **Range**

Ontario south to Florida, west to Michigan, Ohio, Illinois, Alabama.

### **Indiana Distribution**

Rare to occasional. Recorded from 6 counties in the northern portion of the state, however they are thought to be more widespread.

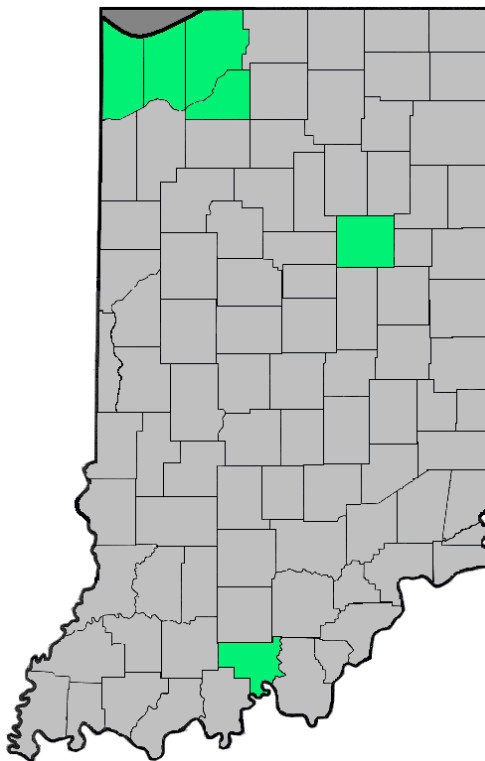


Figure 4.10 *A. treatae treatae* distribution

#### Indiana References

Dunes Acres in Porter, Miller in Lake (Gregg, 1944), LaPorte, Starke (Rericha, 2007).

#### Comments

This species is fairly uncommon in the state, but is thought to be more widespread in the northwest. This species should be sought after in prairies and open fields.

#### *Brachymyrmex depilis* Emery

#### Previous Names and Synonyms

*Brachymyrmex heeri depilis* Emery, 1893

*Brachymyrmex (Brachymyrmex) nanellus* Wheeler

*Brachymyrmex depilis flavescens* Grundmann

*Brachymyrmex nanellus* Wheeler

*Brachymyrmex depilis subsp. flavescens* Grundmann

#### Taxonomy

This species was once considered a subspecies of *B. heeri*, a European species (Creighton, 1950).

**Identification**

The body is 1.0-1.4 mm long. This species is brownish-yellow to yellow in color. The alitrunk is paler ventrally, while the gaster is slightly darker apically. The antennae and legs are slightly paler. The head and alitrunk are glossy, and the gaster is less glossy due to the micropubescent hairs covering it. This species is easily identified by the 9 segmented antennae and tiny size.

**Biology and Behavior**

This species is found in wooded areas, at the edge of wooded areas, and in meadows and fields. Covert (2005) found that workers would actively forage on baits above ground, indicating that they are not entirely subterranean. Their primary source of food is honeydew collected from root feeding aphids. Covert (2005) reported collecting them at bread bait.

A colony was discovered under a rock with a herd of root aphids (Covert, 2005).

**Nest and Colony Structure**

Nests can be found in a variety of locations, including shallow soil nests, within the roots of plants, under moss, under rocks and other debris, under the bark of logs, within decaying wood, and in leaf litter. Headley (1952) gives detailed descriptions of *B. depilis* ground nests. Shallow soil nests were found in active soil mounds of *Formica montana*, *F. glacialis*, and *F. subsericea* (Rericha, 2007). Colonies are small in size, with generally less than 50 workers.

Male and female alates can be found from late August to late September.

**Range**

Nova Scotia south to Florida, west to British Columbia, California, central Mexico.

**Indiana Distribution**

Occasional to widespread. This species is recorded from 35 counties in Indiana but is thought to be throughout the state.

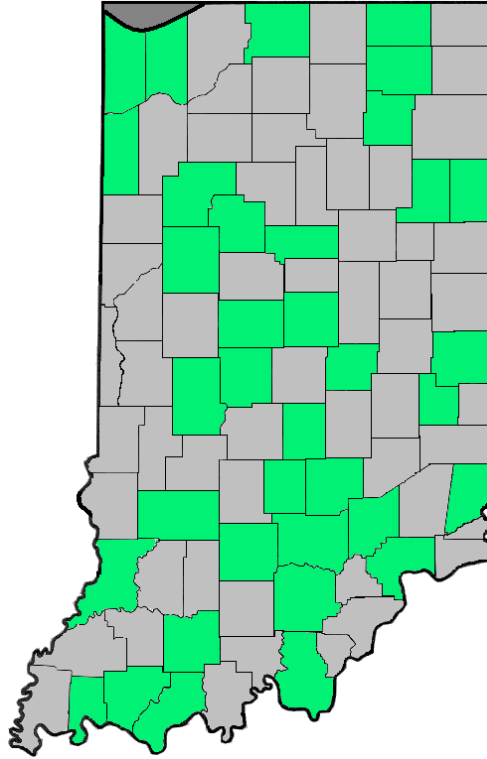


Figure 4.11 *B. dipilis* distribution

#### Indiana References

Knox (Wheeler, 1916), Washington (Morris, 1943), Porter (Gregg, 1944), Lake (Rericha, 2007).

#### Comments

These tiny yellow ants spend a majority of their time underground where they feed on honeydew produced by root feeding hemipterans. This is the smallest species of ant in Indiana.

#### *Camponotus (C.) americanus* Mayr

#### Previous Names and Synonyms

*Camponotus americanus* Mayr, 1862

*Camponotus castaneus americanus* Mayr

*Camponotus (Camponotus) rufinasis* Santschi

*Camponotus castaneus subsp. rufinasis* Santschi

*Camponotus (Camponotus) castaneus st. rufinasis* Santschi

### **Taxonomy**

This species was thought to be a subspecies of *C. castaneus* for a very long time (Creighton, 1950). Its coloration and the broadness of the major worker's head help to distinguish it as a separate species.

### **Identification**

The body is 7.1-12.0 mm long. This species is brownish-yellow to brownish-orange in color. The head is distinctly darker and usually black to reddish-black in color with the clypeus usually paler. The alitrunk is sometimes mottled in color and the gaster is sometimes darker apically. Legs are darker apically. The entire body has minute microsculpturing and the surface is smooth and glossy. The very few gastral hairs and the dark head coloration help distinguish this species.

### **Biology and Behavior**

This species is often found at the edge of wooded areas, specifically those with large oaks. "Often found in open, well-drained woods." (Wesson & Wesson, 1940). It is also present in dry prairie and field areas. This species was found carrying live and dead insects (Miami Q2, Washington Q1). Workers were found foraging on the forest floor in leaf litter, on tree trunks, and on various debris found on the forest floor. Few specimens were collected in open grassy areas (Dearborn Q2). When threatened, individuals of this species lift their bodies up using their legs as stilts, and bring their abdomen forward between their posterior legs in a position that allows them the ability to spray formic acid (Holldobler & Wilson, 1990). Although they assume this position, formic acid is rarely sprayed.

### **Nest and Colony Structure**

This species has been found to nest deep in the soil under an object, such as stones, logs, and tree trunks. The preference to nest in the soil rather than a wooden object or structure is very rare for this genus. Colonies seem to be large, but the actual number of workers present was difficult to determine due to the location of the nest.

Alates of males and females were observed in late May (Miami Q2) and early June (Wayne Q1). In Tennessee, alates were found in October, March, April, and May, suggesting that they may overwinter (Cole, 1940b). Data collected by Buren (1944) supports this theory.

### **Range**

Ontario south to Florida, west to Michigan, Iowa, Missouri, Oklahoma, Texas.

### **Indiana Distribution**

Occasional to widespread. This species is recorded from 21 counties in Indiana, but is thought to be throughout the state.

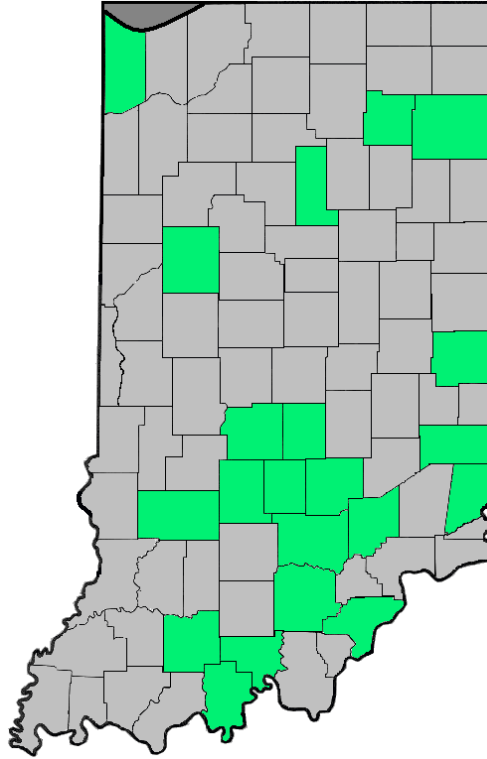


Figure 4.12 *C. americanus* distribution

### Indiana References

Indiana (Munsee 1967), Indiana (Munsee, Jansma, & Schrock 1986)

### Comments

This species is distinguished from *C. castaneus* by its dark colored head. It is fairly common throughout the state but difficult to find at times.

### *Camponotus (M.) caryae* (Fitch)

#### Previous Names and Synonyms

*Formica caryae* Fitch, 1855

*Camponotus marginatus discolor* var. *cnemidatus* Emery, 1893

*Camponotus caryae discolor cnemidatus* Emery

#### Taxonomy

Once thought of as a subspecies to *C. discolor*, *C. caryae* has been split off into its own separate species.

**Identification**

The body is 4.0-7.8 mm long. This species is usually wholly brownish-black to black in color, but some individuals may have reddish-brown mottling on the lower part of the head and the alitrunk. The head has elongate, coarse punctures on the clypeus and genae and is glossy on the sides. The alitrunk and gaster appear smooth and glossy. The evenly dark coloration distinguishes this species from *C. subbarbatus* and the presence of erect hairs on the gena separate it from *C. nearcticus*.

**Biology and Behavior**

This species is found in dry oak savanna (Rericha, 2007), in wooded areas, and at the edge of wooded areas. Creighton (1950) states that this species is usually found in association with old hickory stands. Individuals were collected feeding on the pollen or nectar of various flowers (Franklin Q2). Workers were usually collected moving up and down tree trunks. When disturbed, this species would drop from the tree trunk and remain motionless for a period of time on the ground below. This would be a very effective defensive behavior for predators of this species.

**Nest and Colony Structure**

According to Rericha (2007), this species nests in twigs, bark, and plant cavities, occasionally in wood that is in the early to mid stages of decomposition. Wesson & Wesson (1940) reported similar findings. Colonies are usually small in size. Male and female alates can be found from August to late September (Coover, 2005).

**Range**

Quebec, New York south to Florida, west to Michigan, Ohio, Indiana, Illinois.

**Indiana Distribution**

Occasional. This species is recorded from 31 counties in Indiana.

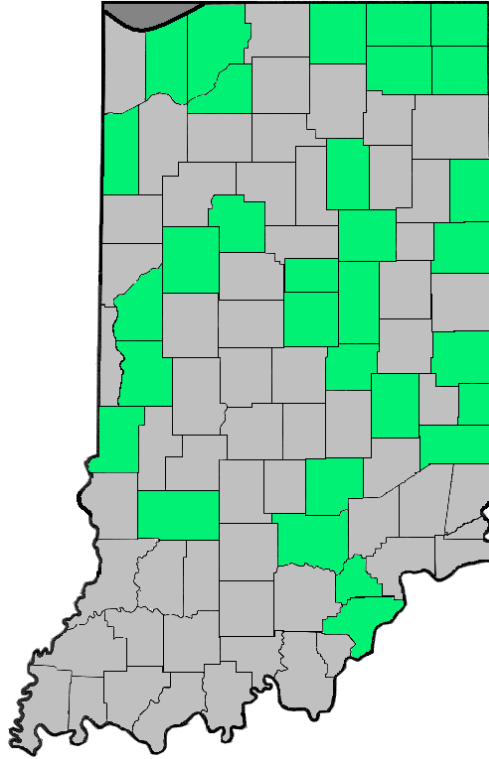


Figure 4.13 *C. caryae* distribution

#### Indiana References

Porter (Gregg, 1944).

#### Comments

Although once thought to be rare for the state, this species proves to be more widespread and common.

#### *Camponotus (C.) castaneus* (Latreille)

#### Previous Names and Synonyms

*Formica castanea* Latreille, 1802

*Formica mellea* Say

*Formica mellea* Say

*Camponotus clarus* Mayr

#### Taxonomy

Creighton (1950) provided the difference in head coloration and the broadness of the head that helped distinguish *C. americanus* and *C. castaneus* as two separate species. He also noted the presence of a carina and the flattened base of the antennal scape as the basis for



placing this species into the subgenus *Tanaemyrmex*. The placement of this species into a separate subgenera is highly doubtful. *C. americanus* and *C. castaneus* are clearly separate species, but *C. castaneus* does not belong in a separate subgenera.

### **Identification**

The body is 8.6-11.0mm long. This species is pale brownish-yellow to orangeish-brown. The alitrunk is usually slightly paler than the head and gaster, while the mandibles and antennae are often darker than the head. The body possesses minute microsculpturing and the entire surface is smooth and glossy. The very few hairs on the gaster and concolorous head help to identify this species.

### **Biology and Behavior**

This species is commonly found in oak forests. Rericha (2007) note them “occurring in dry and dry-mesic sand prairie, dry-mesic oak savanna, very rarely in old fields.” However, Dubois & LaBerge (1988) report finding them in open fields in Illinois, and Gregg (1944) reports finding them in black oak dunes. Workers were collected foraging on tree trunks, grassy areas, and the forest floor. As noted by Wheeler (1910a) “workers are very timid and probably nocturnal.” When approached, individuals tended to scatter and hide. Covert (2005) reported this species foraging on fruits of *Campsis radicans*. Individuals were noted carrying dead insects (Franklin Q1).

This species has been known to tend members of membracidae (Wood 1982). Covert (2005) found them nesting in the vicinity of *Aphaenogaster rudis* and *C. castaneus*.

### **Nest and Colony Structure**

Like *C. americanus*, this species tends to nest deep in the soil beneath stones, logs, and stumps. D.R. Smith (1979) reported this species nesting in rotting logs and stumps and in soil under objects. This species occasionally nests under structures and can be seen foraging within them. The colonies are somewhat large, but difficult to determine due to the location of the nests. A nest of 200 workers plus alates was found in Tennessee (Cole 1940b).

Alates of both males and females were found in nests in early June (Sullivan Q5), and again in mid August (Ohio Q3). Covert (2005) reported alates in May and June, and Cole (1940b) reported alates in early April. The scattered presence of alates suggests that they may overwinter, much like *C. americanus*.

### **Range**

New York south to Florida, west to Illinois, Indiana, Iowa, Oklahoma, Texas.

### Indiana Distribution

Occasional to widespread. This species was collected in 32 counties in Indiana, however, it is thought to be present throughout the state.

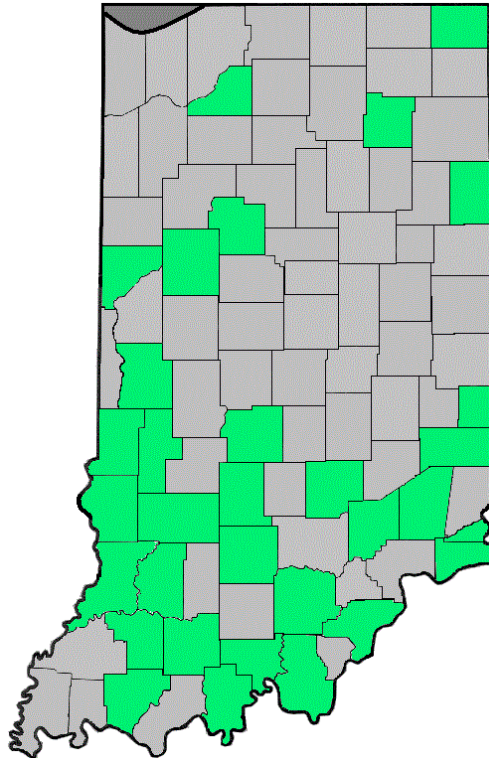


Figure 4.14 *C. castaneus* distribution

### Indiana References

Indiana (Munsee 1967), Indiana (Munsee & Schrock, 1983), Indiana (Munsee, Jansma, & Schrock, 1986).

### Comments

This large orange colored ant is easily identifiable in the field and fairly common in Indiana. Named by the French entomologist, Pierre Andre Latreille, this species is often described as handsome and beautiful. Truly an amazing species for the state.

*Camponotus (M.) chromaiodes* Bolton

### Previous Names and Synonyms

*Formica ferruginea* Fabricius, 1789

*Camponotus chromaiodes* Bolton, 1995

*Camponotus herculeanus pennsylvanicus ferrugineus* (Fabricius)

### **Taxonomy**

Unable to find a difference other than the red coloration, Creighton (1950) listed this species as a subspecies of *C. pennsylvanicus*. Brown (1950) listed the two as completely separate species, with color being the sole difference. Coovert (2005) reported gaster characteristics that help to easily distinguish the two separate species.

### **Identification**

The body is 5.3-13.4 mm long. This species has a reddish-brown to yellowish-brown alitrunk, with black head, gaster, and legs. Legs may be reddish-brown basally. The base of the gaster can be basally reddish-brown, and the pronotum may be black fading to reddish-brown. The body is covered with minute microsculpturing, and the surface appears dull to satiny and weakly glossy in areas. The appressed pubescence on the gaster is long, dense, and golden colored.

### **Biology and Behavior**

This species is found in predominately oak forests. Workers were found foraging throughout leaf litter on the forest floor, on tree trunks, and on various woody plants and shrubs. Individuals were found tending aphids for honeydew (Blackford Q1). Coovert (2005) reported finding individuals feeding on honeydew and on the blooms of *Aster* sp. This supports the finding of this species feeding on extrafloral nectaries of bigtooth aspen (Davis & Bequaert 1922).

Workers were found tending aphids on honeysuckle in Blackford County ( Q1). Coovert (2005) also reports this species tending aphids and membracids (*Entylia bactriana*).

### **Nest and Colony Structure**

This species has been known to nest in rotting logs and stumps, under the bark of logs, and in the decaying heartwood of larger oak trees. Rericha (2007) reported them nesting deep in the soil around stumps or decaying wood. D.R. Smith (1979) provided that this species nests in rotting stumps with galleries that often extend into the soil. Colonies are often large, with multiple nest sites and queens. Holldobler & Wilson (1990) discuss the hierarchy of multiple founding queens in this species.

### **Range**

New York south to Georgia, west to Michigan, Illinois, Nebraska, Kansas.

### **Indiana Distribution**

Occasional to Common. This species is recorded from 51 counties in Indiana but is thought to be fairly common and widespread.

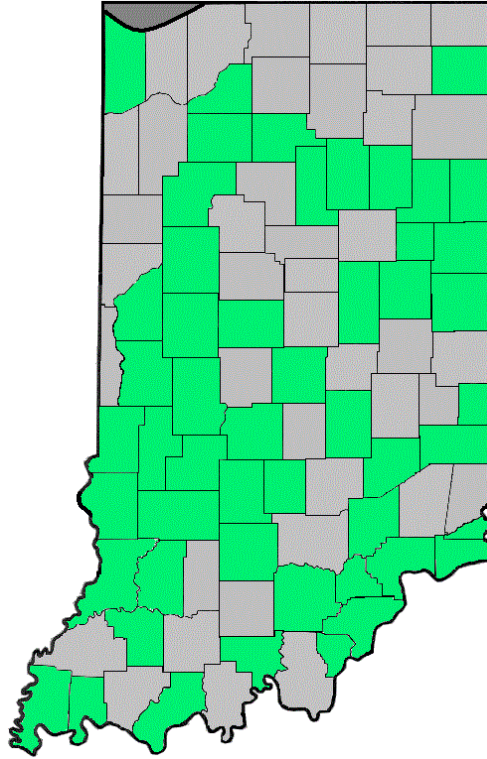


Figure 4.15 *C. chromaiodes* distribution

### Indiana References

Indiana (Munsee, 1967), Indiana (Munsee, Jansma, & Schrock, 1986).

### Comments

This common species can be found throughout the state. Its large size and red/black coloration make it a beautiful and easy to identify species.

### *Camponotus decipiens* Emery

#### Previous Names and Synonyms

*Camponotus marginatus* var. *decipiens* Emery 1893

*Camponotus caryae rasilis* Wheeler

*Camponotus (Myrmentoma) rasilis* Wheeler

*Camponotus rasilis* Wheeler

*Camponotus fallax rasilis* Wheeler

*Camponotus fallax* subsp. *rasilis* Wheeler

*Camponotus caryae* var. *rasilis* Wheeler

*Camponotus caryae* subsp. *rasilis* Wheeler

*Camponotus (Myrmentoma) caryae subsp. rasilis* Wheeler

*Camponotus caryae decipiens*

### **Taxonomy**

See Creighton, 1950.

### **Identification**

The body is 3.5-7.5 mm long. This species is reddish in color with a black gaster. It lacks erect hairs on the genae, and has scarce erect hairs on the clypeus.

### **Biology and Behavior**

This species can be found in wooded areas. Workers can be found foraging on tree trunks, logs, stumps, and throughout the leaf litter. The food source for this species is unknown.

### **Nest and Colony Structure**

This species is known to nest in galleries created by other insects in the twigs and branches of trees. It has also been found nesting in insect galls, in cavities in the stalks of plants, large seed pods, under bark, logs, stumps, and occasionally structures. Colonies are small, with less than 100 workers to 200 workers at most. Alates can be found in both the fall and spring, suggesting that they overwinter.

### **Range**

Georgia and Florida west to Texas and eastern Mexico, north to North Dakota.

### **Indiana Distribution**

This species was cited from Indiana but no specimens were found to exist.

### **Indiana References**

Emery (1963) cited this species as being found in Indiana. Wheeler (1910) studied a minor worker of this species from Emery's collection. The collection data is lacking, but it most likely was found in the southern portion of the state.

*Camponotus (M.) discolor* (Buckley)

### **Previous Names and Synonyms**

*Formica discolor* Buckley

*Camponotus caryae discolor* Emery

### **Taxonomy**

This species was once thought of as a subspecies of *C. caryae* (Snelling, 1988).

### **Identification**

The body is 4.6-7.6 mm long. This species has a pale orangish-brown head, alitrunk, and appendages. In majors the head is much darker, the gaster is brownish-black/black and the

mandibles are somewhat darker. The genae and clypeus have scattered punctures, and the remainder of the head is weakly glossy on the sides and satiny dorsally. The alitrunk and gaster are smooth and glossy. The identifying characteristics for this species are the erect hairs on the genae and the orange/redish-brown coloration that contrasts the much darker gaster.

### **Biology and Behavior**

This species can be found in oak savanna (Rericha, 2007) and in sand praries. This species is most commonly associated with stands of old oak trees, but can be found on hickory, willow, and cottonwood (Snelling, 1988). Workers were found foraging on tree trunks, logs, and throughout the leaf litter (Deleware Q2). They were found carrying dead insects (Delaware Q2). They have also been recorded to feed on the vesicular hairs on the petioles of *Helianthus grosseserratus* (Rericha, 2007).

### **Nest and Colony Structure**

Wesson and Wesson (1940) found a colony in a living branch of a red oak tree. This species commonly nests in hollow cavities within trees, in logs, under bark, and is an occasional structural pest. Smith (1979) reported this species nesting in cavities in rotting or faulty wood in a house.

### **Range**

Ohio, South Carolina, Florida west to North Dakota, Iowa, Kansas, Texas.

### **Indiana Distribution**

Rare to occasional. This species is reported from 16 counties in Indiana.

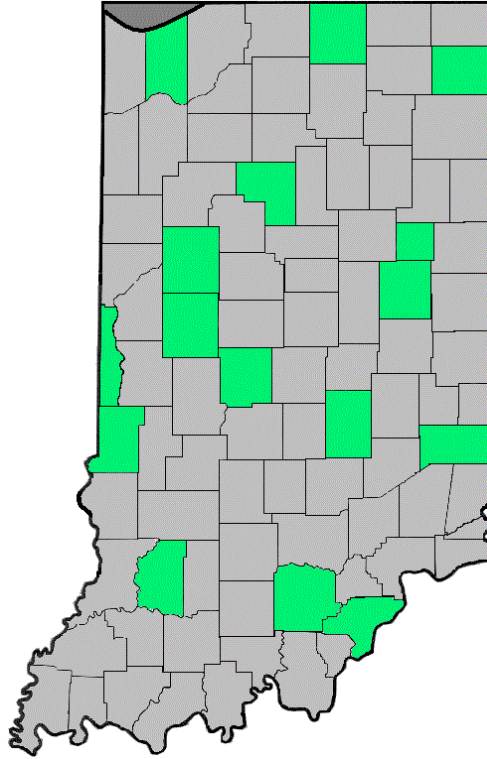


Figure 4.16 *C. discolor* distribution

#### Indiana References

Porter County (Morris, 1943), Poplar dunes along Lake Michigan (Talbot, 1934).

#### Comments

This species is commonly found in sandy areas in Indiana.

#### *Camponotus herculeanus* (Linnaeus)

##### Previous Names and Synonyms

*Formica herculeana* Linnaeus, 1758

*Camponotus shitkowi* Ruzsky

*Camponotus herculeanus* var. *whymperi* Forel

*Formica castanea* Lepeletier

*Camponotus vagusherculeanus* Nadig

*Camponotus whymperi* Forel

*Camponotus herculeanus* var. *Whymperi* Forel

*Camponotus herculeanus* var. *eudokiae* Ruzsky

*Camponotus montanus* Ruzsky

*Camponotus herculeanus whymperi* Forel  
*Camponotus eudokiae* Ruzsky  
*Camponotus nadigi* Menozzi  
*Camponotus herculeanus* var. *Nadigi* Menozzi  
*Camponotus vagus* var. *vagus-herculeanus* Nadig  
*Camponotus herculeanus* subsp. *shitkowi* var. *intermedius* Ruzsky  
*Camponotus herculeanus* var. *shitkowi* Ruzsky  
*Camponotus herculeanus* subsp. *caucasicus* Arnol'di  
*Camponotus herculeanus caucasicus* Arnol'di  
*Camponotus herculeanus* var. *montanus* Ruzsky  
*Camponotus herculeanus* var. *shitkowi* Ruzsky  
*Camponotus herculeanus* var. *whymperi* Forel  
*Camponotus herculeanus eudokiae* Ruzsky  
*Camponotus herculeanus* subsp. *pennsylvanicus* var. *whymperi* Forel  
*Formica atra* Zetterstedt  
*Formica intermedia* Zetterstedt  
*Camponotus herculeanus* var. *montana* Ruzsky  
*Camponotus herculeanus* var. *nadigi* Menozzi  
*Camponotus (Camponotus) vagusherculeanus* Nadig  
*Camponotus herculeanus herculeanus* var. *whymperi* Forel  
*Camponotus herculeanus caucasicus* Arnol'di  
*Camponotus vagus-herculeanus* Nadig  
*Camponotus (Camponotus) herculeanus* subsp. *shitkowi* var. *intermedius* Ruzsky  
*Camponotus herculeanus* var. *shitkovi* Ruzsky

### **Taxonomy**

See Creighton (1950)

### **Identification**

The body is 5.9-12.3 mm long. This species is dark reddish-black/black in color, with the propodeum, petiole, and sometimes ventral areas of the alitrunk and legs reddish brown. The mandibles and antennae are slightly paler than the head. The entire body is covered in minute microsculpturing and the surface is satiny to dull. The appressed pubescence of the gaster is moderately short, sparse, and slightly golden in color; it does not overhang the posterior borders of the gastral tergites but is longer and denser than in *C. noveboracensis*. The antennal scape is shorter than found in *C. pennsylvanicus* and *C. chromaiodes*.



**Biology and Behavior**

This species is found in forested areas in the northern portion of North America. Sanders (1970) reports that this species feeds on honeydew, plant tissue juice, and animal matter, particularly that of insects. Sanders (1970) describes the foraging tunnels of this species in great detail.

This species is known to tend aphids and other assorted Homopterans (Sanders, 1970; Duffield, 1981).

**Nest and Colony Structure**

This species is known to nest in rotting logs, stumps, and decaying trees (Smith, 1979). The colonies are large and can number greater than 13,000 with multiple queens spread throughout the nest sites (Holldobler & Wilson, 1990). Male and female alates can be seen flying from late May to early June in Ontario (Sanders, 1970).

**Range**

Across Canada and the northern states from Newfoundland west to Alaska, with southern extensions into the mountains of New York and Pennsylvania, and the Rocky Mountains to Arizona and New Mexico.

**Indiana Distribution**

Rare. This species is recorded from two counties in Indiana.



Figure 4.17 *C. herculeanus* distribution

#### Indiana References

None.

#### Comments

This species is dominant in the boreal and alpine regions of North America. It can be found in Pennsylvania and northern Michigan.

#### *Camponotus nearcticus* Emery

#### Previous Names and Synonyms

*Camponotus (Camponotus) marginatus* var. *nearcticus* Emery 1893

*Camponotus fallax fallax* var. *pardus* Wheeler 1910

*Camponotus (Myrmentoma) minutus* Emery

*Camponotus tanquaryi* Wheeler

*Camponotus tanguaryi* Wheeler

*Camponotus fallax fallax* var. *minutus* Emery

*Camponotus pardus* Wheeler

*Camponotus fallax* var. *pardus* Wheeler

*Camponotus fallax* var. *tanguaryi* Wheeler  
*Camponotus caryae* var. *minuta* Emery  
*Camponotus caryae* var. *pardus* Wheeler  
*Camponotus marginatus marginatus* var. *minuta* Emery  
*Camponotus fallax* var. *minutus* Emery  
*Camponotus (Myrmentoma) caryae* var. *tanquaryi* Wheeler  
*Campanotus fallax minutus* Emery  
*Camponotus (Myrmentoma) caryae* var. *minuta* Emery  
*Camponotus (Myrmentoma) caryae* var. *pardus* Wheeler  
*Camponotus fallax fallax* var. *tanquaryi* Wheeler  
*Campanotus fallax tanquaryi* Wheeler  
*Camponotus caryae* var. *minutus* Emery  
*Camponotus marginatus* var. *minutus* Emery  
*Camponotus caryae* var. *tanquaryi* Wheeler  
*Camponotus fallax* var. *tanquaryi* Wheeler

### **Taxonomy**

See Snelling (1988).

### **Identification**

The body is 3.7-6.8 mm long. This species is usually brownish-black/black in color, sometimes with the ventral portion of the head and alitrunk paler. Mandibles are dark reddish-brown, antennae medium brown, legs usually concolorous but paler distally. The body is smooth and glossy with the head being less glossy dorsally. The notched clypeus and the absence of erect hairs on the genae are characteristic for this species.

### **Biology and Behavior**

This species can be found in oak savanna and dry mesic prairies. It is an occasional structural pest. Workers can be found foraging on the ground throughout the leaf litter, on logs, trunks of trees, and foliage. The main food source of this species is currently unknown.

### **Nest and Colony Structure**

This species is a tree crown species and prefers to nest in decaying or diseased wood of the trunk and upper branches. It can rarely be found nesting in decaying, fallen ranches, stumps, and trunks. Colonies are usually small with less than 100 workers (Van Pelt, 1958). Male and female alates can be found from early may to mid June, as well as early August to early October. Their presence in spring and fall suggests that the alates overwinter.

**Range**

Quebec, Ontario south to Florida, west to British Columbia, Washington, Nevada, Utah; California.

**Indiana Distribution**

Throughout the state. This species is recorded from 64 counties in Indiana.

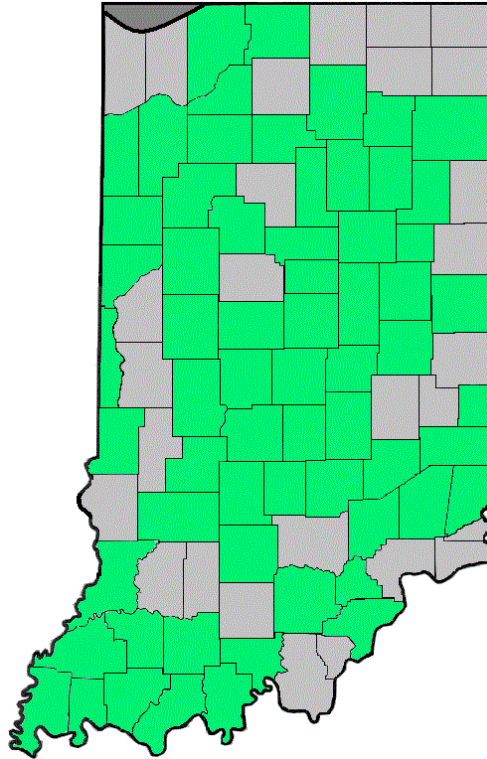


Figure 4.18 *C. nearcticus* distribution

**Indiana References**

None.

**Comments**

This is the only species of *Myrmentoma* present in Indiana that lacks the erect hairs on the genae.

*Camponotus novaeboracensis* (Fitch)

**Previous Names and Synonyms**

*Formica noveboracensis* Fitch 1855

*Camponotus herculeanus ligniperdus noveboracensis* (Fitch)

*Camponotus herculeanus* r. *ligniperdus* var. *pictus* Forel

*Camponotus herculeanus* var. *pictus* Forel  
*Camponotus rubens* Emery  
*Camponotus herculeanus ligniperdus* var. *pictus* Forel  
*Camponotus herculeanus* subsp. *ligniperda* var. *pictus* Forel  
*Camponotus herculeanus* subsp. *ligniperda* var. *rubens* Wheeler  
*Camponotus herculeanus* r. *pictus* Forel  
*Camponotus herculeanus ligniperdus* var. *rubens* Wheeler  
*Camponotus ligniperda* var. *pictus* Forel  
*Camponotus herculeanus* var. *rubens* Emery  
*Camponotus herculeanus ligniperda* var. *rubens* Wheeler  
*Camponotus (Camponotus) herculeanus* var. *rubens* Emery  
*Camponotus herculaneus* var. *pictus* Forel  
*Camponotus herculeanus* subsp. *ligniperdus* var. *pictus* Forel  
*Camponotus herculeanus* subsp. *ligniperdus* var. *rubens* Wheeler  
*Camponotus ligniperdus* var. *pictus* Forel  
*Camponotus herculeanus ligniperda* var. *picta* Forel

### **Taxonomy**

See Creighton (1950).

### **Identification**

The body is 4.9-11.5 mm long. This species has a reddish-black head and gaster, with the alitrunk and petiole being orangish-brown to reddish-brown. The mandibles and antennae are concolorous with the head, and legs are darker distally. The body is covered in minute microsculpturing and the surface is smooth and weakly glossy. The head is dull dorsally. The short, sparse, gastral pubescence is characteristic for this species.

### **Biology and Behavior**

This species can be found in wetlands, swamps, bogs, and wet wooded areas. Rericha (2007) also reports this species occurring in mesic black oak savanna. Workers of this species can be found foraging on foliate and bushes (Covert, 2005). Covert (2005) reported this species feeding on blooms of *Solidago* sp. and on smashed apples. Sanders (1970) reports this species feeding on honeydew, plant juices, and animal matter.

This species is known to tend aphids and membracids. It is the host to a variety of myrmecophagous insects, including staphylinid beetles (*Anomognathus cuspidatus* and *Xenodusa reflexa*) and larval syrphids (*Microdon cothurnatus* and *Microdon tristis*) (Burrill & Smith, 1919; Wheeler & Wheeler, 1963; Sanders, 1970); Duffield, 1981).

### **Nest and Colony Structure**

This species nests in decaying wood such as logs, stumps, and branches. Colonies can be large, with up to 10,800 workers (Holldobler & Wilson, 1990). Female alates can be found from mid May to late July. Sanders (1970) observed mating flights from the end of June throughout July in Ontario, with alates overwintering.

### **Range**

Nova Scotia, Quebec south to Virginia, west to British Columbia, Oregon, Utah, Colorado.

### **Indiana Distribution**

Rare. This species is recorded from 7 counties in Indiana.

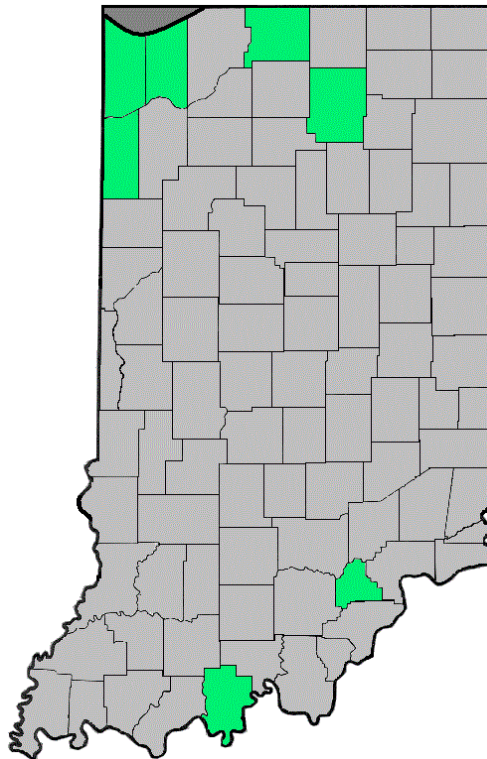


Figure 4.19 *C. novaeboracensis* distribution

### **Indiana References**

Kosciusko, Lake, & St. Joseph (Wheeler, 1916), Porter & Newton (Gregg, 1944).

### **Comments**

This species was described by Asa Fitch (1809-1879), one of the most important early American entomologists. It is found in Indiana in the northern portion of the state where bogs, marshes, and swamps are more common.

*Camponotus pennsylvanicus* De Geer

**Previous Names and Synonyms**

*Formica pensylvanica* De Geer 1773

*Camponotus herculeanus herculeanus herculeano-pennsylvanicus* Forel 1879

*Camponotus herculeanus pennsylvanicus* (De Geer)

*Camponotus herculeanus pennsylvanicus* var. *mahican* Wheeler

*Camponotus herculeanus* var. *herculeano-pennsylvanicus* Forel

*Camponotus herculeanus* var. *herculeanopennsylvanicus* Forel

*Camponotus herculeanus* var. *mahican* Emery

*Formica semipunctata* Kirby

*Camponotus Herculeano-pennsylvanicus* Forel

*Camponotus herculeanus* var. *mohican* Emery

*Camponotus mahican* Emery

*Camponotus herculeano-pennsylvanicus* Forel

**Taxonomy**

See Creighton (1950)

**Identification**

The body is 5.2-15.0 mm long. This species is black in color, with the antennal funiculus dark brown. The legs are black but may be partially reddish-brown, and slightly paler distally. The body is covered in minute microsculpturing with the surface being mostly satiny or dull. The alitrunk and sides of the head may be weakly glossy. The appressed pubescence on the gaster is long, dense, and silvery to white in color. The long length of the appressed pubescence on the gaster which overhangs the posterior borders of the tergites and the solidly black color is characteristic for this species.

**Biology and Behavior**

This species is found in wooded areas, the edges of forests, and open wooded areas. It is a common structural pest and can cause extensive damage. Workers of this species can be found foraging on the ground and tree trunks near the nest site. The majority of foraging activity occurs at night. This species feeds on nectar and honeydew. Its diet also consists mainly of dead and live insects.

This species is known to tend membracids (*Entylia bactriana*, *Thelia bimaculata*, and *Enchenopa binotata*) (Covert, 2005; Bequaert, 1922; Wood, 1982). It is also parasitized by phorid flies (*Apocephalus pergandei*) (Feener, 1981) and is host to myrmecophilous syrphid flies (*Microdon cothernatus* and *Microdon tristis*) (Duffield, 1981).

### **Nest and Colony Structure**

This species nests in a variety of areas, including diseased wood of trees, rotten logs, under bark, in living trees, stumps, and structures. Colonies can be large, with up to 2,500 workers (Holldobler & Wilson, 1990). Colonies may also span out into multiple nests in clusters of trees. Alates of this species can be found from March to October.

### **Range**

New Brunswick, Quebec south to Florida, west to North Dakota, Texas.

### **Indiana Distribution**

Common. This species is recorded from 88 counties in Indiana and is thought to be present in all 92 counties.

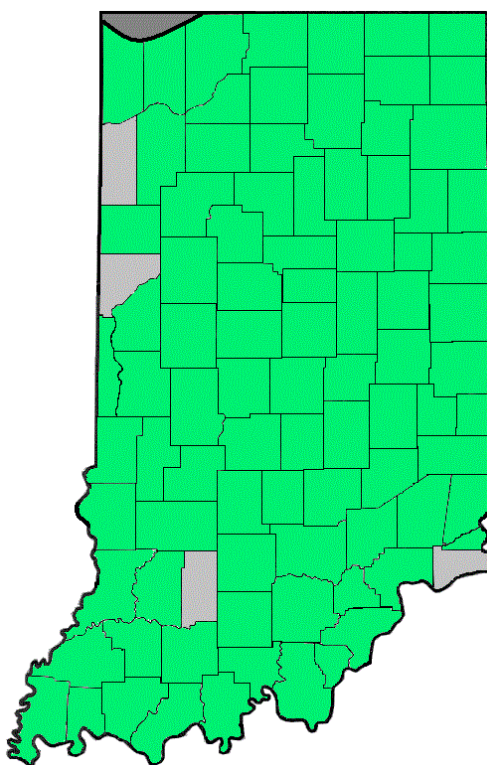


Figure 4.20 *C. pennsylvanicus* distribution

### **Indiana References**

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986).

### **Comments**

This large black ant is common throughout the state. It is a serious structural pest and can cause extensive amounts of damage to homes and other buildings. This is the largest species of ant present in Indiana.



*Camponotus subbarbatus* EmeryFigure 4.21 *Camponotus subbarbatus***Previous Names and Synonyms***Camponotus (Camponotus) marginatus subbarbatus* Emery 1893*Camponotus caryae subbarbatus* Emery**Taxonomy**

See Snelling (1988).

**Identification**

The body is 4.0-6.2 mm long. This species is dark orangish-brown in color, with the gaster being brownish-black. The alitrunk is often mottled with darker or paler areas. The gaster has transverse bands of brownish-yellow. Antennae and legs are paler in color. The body is generally smooth and glossy, with the head being less glossy dorsally. The erect hairs on the genae and bands on the gaster are characteristic for this species.

**Biology and Behavior**

This species can be found in oak savanna, shaded wooded areas, and open woods. Workers can be found foraging on foliage, bushes, and through leaf litter. Coovert (2005)

reported this species feeding on blooms of various plants. They were collected feeding on a hummingbird feeder (Greene Q1). This species is also known to feed on honeydew.

This species commonly tends aphids.

### **Nest and Colony Structure**

Nests can be found in rotten wood such as logs, stumps, and trees. Nests often penetrate deep into the soil underneath the wood. Colonies are usually small. Female alates can be found from mid May to early June while male alates are found from early June to early August (Coovert, 2005).

### **Range**

New England south to North Carolina, Georgia, Mississippi, west to Michigan, Ohio, Illinois, Iowa.

### **Indiana Distribution**

Occasional. This species is recorded from 38 counties in Indiana.

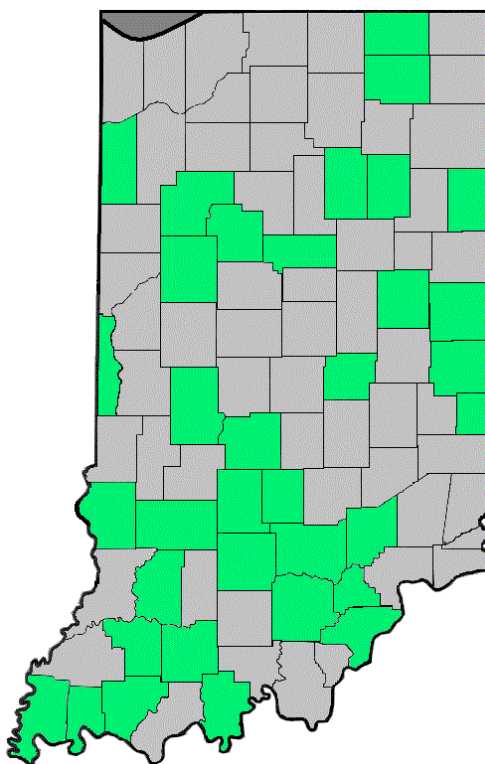


Figure 4.22 *C. subbarbatus* distribution

### **Indiana References**

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Parke (Morris, 1943), LaPorte (Gregg, 1944).

**Comments**

This species once thought to be rare in Indiana has been found to be more common but often difficult to find.

*Colobopsis impressus* (Roger)**Previous Names and Synonyms**

*Colobopsis impressus* (Roger) 1863

*Camponotus (Colobopsis) impressus* (Roger)

*Camponotus impressus* (Roger)

*Colobopsis impressa* Roger

**Taxonomy**

See Creighton (1950)

**Identification**

Major: The body is 4.2-4.7 mm long. The head and alitrunk are orangish-brown to reddish-brown in color, with the head being slightly paler apically. The alitrunk usually has lighter mottling. The gaster is dark brown/black, usually with the first 3 tergites lighter in color. The front half of the head is heavily punctuate and dull, smooth and glossy dorsally. The alitrunk and gaster are smooth and glossy.

Minor: The body is 3.2-4.0 mm long. The minors are similar to the majors but paler areas are less noticeable and the head has reduced sculpturing and is glossier.

**Biology and Behavior**

This species is found in wooded areas. See Creighton (1950) for the behaviors of this species. Honeydew is the primary food source.

**Nest and Colony Structure**

Smith (1979) reported colonies in clumps of sedges.

**Range**

Maryland south to Florida, west to Ohio, Illinois, Indiana and central Texas.

**Indiana Distribution**

Rare. This species is recorded from 2 counties in Indiana.

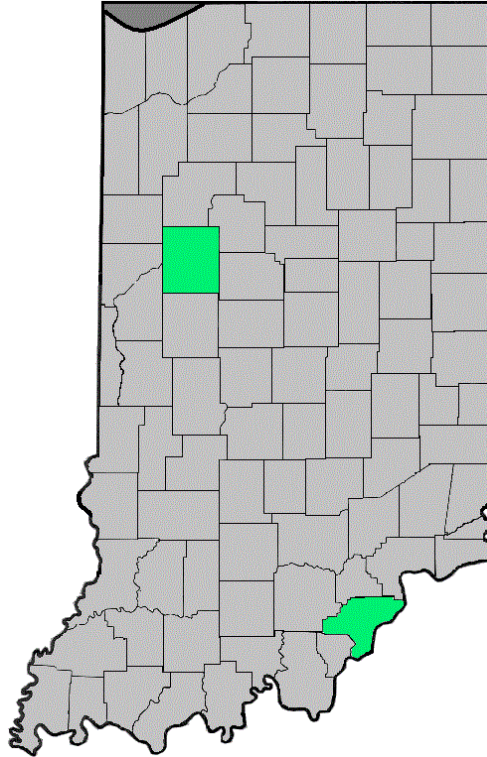


Figure 4.23 *C. impressus* distribution

#### Indiana References

None.

#### Comments

This is typically a southern species but has extended its range into Indiana. Due to its nesting preferences, it is often difficult to find.

#### *Colobopsis mississippiensis* (Smith)

#### Previous Names and Synonyms

*Camponotus (Colobopsis) mississippiensis* Smith 1923

#### Taxonomy

See Creighton (1950).

#### Identification

Major: The body is 4.8-5.7 mm long. This species has a orangish-brown/dark brown head and alitrunk with the head being paler apically. The gaster is dark brown/black, usually with the bases of the first two segments being paler. The front half of the head is punctuate and dull, with the dorsal area smooth and glossy. The alitrunk and gaster are smooth and glossy.

Minor: The body is 3.4-3.9 mm long. Similar to the majors but the paler areas are reduced or absent. They may be darker in color. The sculpturing of the head is greatly reduced and the body is glossier, with the alitrunk being satiny dorsally.

### **Biology and Behavior**

This species can be found in open woodlands and at woods' edges. Workers can be found foraging on the ground in wooded areas. See Creighton (1950) for a more specific account of the behaviors of this species. The primary food source for this species is honeydew.

### **Nest and Colony Structure**

Nests can be found in hollow twigs and branches. Carter (1962) reported nests in hollow branches of living hickory and ash trees.

### **Range**

Maryland south to Florida, west to Ohio, Indiana, Illinois, Tennessee, Oklahoma, Mississippi, Louisiana.

### **Indiana Distribution**

Rare. Recorded from one county in Indiana.



Figure 4.24 *C. mississippiensis* distribution

### Indiana References

Vermillion (Munsee, Jansma, & Schrock, 1986).

### Comments

The one record of this species is dealated female that was found in a strip mine study site. Typically a southern species, it should be sought after in the southern portion of the state.

### *Crematogaster cerasi* (Fitch)

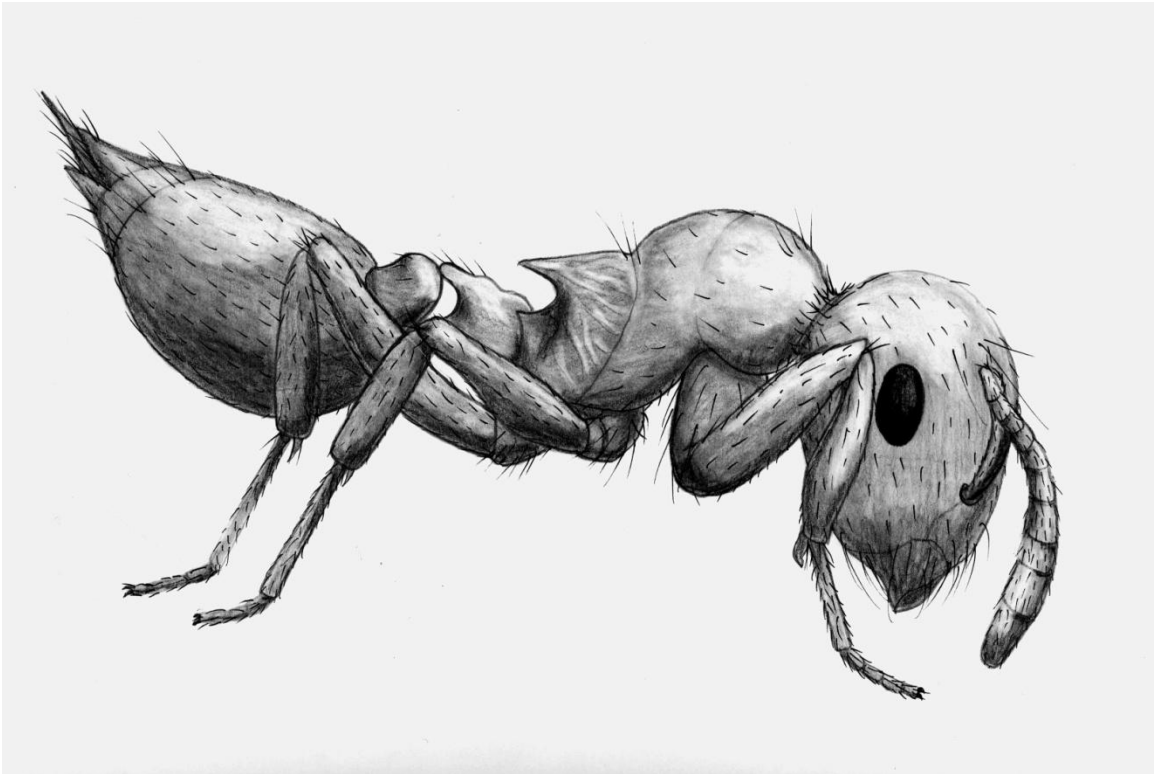


Figure 4.25 *Crematogaster cerasi*

### Previous Names and Synonyms

*Myrmica cerasi* Fitch 1855

*Crematogaster (Acrocoelia) kennedyi* Wheeler 1930

*Crematogaster lineolata* var. *cerasi* (Fitch)

### Taxonomy

This species was once thought to be a subspecies of *C. lineolata*. It has since been raised to species status, and is the most distinct species present in the state.

**Identification**

The body is 2.7-4.0 mm long. This species is dark yellowish-brown to very dark reddish-brown in color, with a brownish-black/black gaster. The head is minutely striate on the lower surface and sides, but mostly smooth and glossy. The alitrunk is rugose dorsally, with finely punctuate sculpturing on the sides, and is mostly dull/weakly glossy. The appressed pubescence on the head and erect hairs restricted to the pronotal corners are characteristic for this species.

**Biology and Behavior**

This species can be found in wooded areas, as well as prairies, agricultural fields, and rarely in buildings. Workers were found foraging on the ground, tree trunks, logs, sidewalks, foliage, and buildings. Covert (2005) recorded this species tending aphids and foraging for dead insects. This species is known to tend scale insects (Burns, 1964). It is also parasitized by phorid flies (*Pseudacteon onyx*) (Steyskal, 1944).

**Nest and Colony Structure**

Nests can be found in decaying wood, under rocks, logs, and various other items. Male and female alates can be found from mid July to late October.

**Range**

Quebec south to Georgia and Florida, west to Michigan, South Dakota, Arkansas, New Mexico.

**Indiana Distribution**

Throughout the state. This species is recorded from 73 counties in Indiana and is widespread throughout the state.

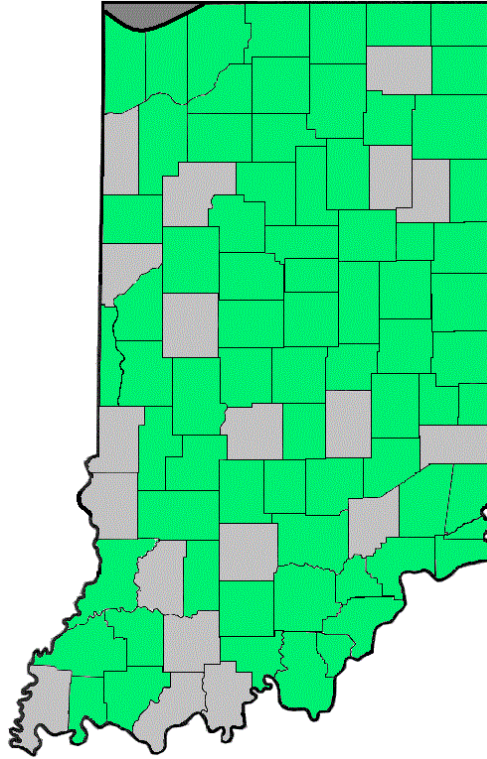


Figure 4.26 *C. cerasi* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Crawford, Fountain, Knox (Wheeler, 1916), Kosciusko, Lake, Marshall, Martin, Rush, Starke, Tippecanoe, Washington (Morris, 1944), LaPorte, Porter (Gregg, 1944).

#### Comments

This species is common throughout the state and the most frequently encountered *Crematogaster* in Indiana.

#### *Crematogaster lineolata* (Say)

#### Previous Names and Synonyms

*Myrmica lineolata* Say 1836

*Crematogaster punctulata* Emery 1895

*Crematogaster (Acrocoelia) lineolata punctulata* Emery

*Crematogaster (Crematogaster) lutescens* Emery

*Myrmica novaeboracensis* Buckley

*Crematogaster lineolata* var. *subopaca* Emery



*Crematogaster lineolata* subsp. *lineolata* var. *subopaca* Emery  
*Crematogaster (Acrocoelia) opaca* var. *texana* Santschi  
*Crematogaster lineolata* subsp. *opaca* var. *punctulata* Emery  
*Crematogaster lineolata* var. *lutescens* Emery  
*Crematogaster (Acrocoelia) lineolata subopaca* Emery  
*Cremastogaster lineolata lutescens* Emery  
*Myrmica (Monomorium) marylandica* Buckley  
*Cremastogaster lineolata* var. *subopaca* Emery  
*Myrmica (Monomarium) columbiana* Buckley  
*Crematogaster novaeboracensis* Buckley  
*Crematogaster (Crematogaster) subopaca* Emery  
*Crematogaster (Crematogaster) texana* Santschi  
*Crematogaster (Crematogaster) punctulata* Emery  
*Crematogaster lineolata* subsp. *punctulata* Emery  
*Crematogaster opaca* var. *punctulata* Emery  
*Myrmica (Monomorium) columbiana* Buckley  
*Cremastogaster lineolata* var. *lutescens* Emery  
*Myrmica (Monomarium) marylandica* Buckley  
*Crematogaster lineolata* subsp. *subopaca* Emery  
*Cremastogaster lineolata opaca* var. *punctulata* Emery  
*Crematogaster lineolata* subsp. *lineolata* var. *lutescens* Emery  
*Crematogaster (Acrocoelia) opaca* var. *texana* Santschi

### **Taxonomy**

See Johnson (1988)

### **Identification**

The body is 2.8-4.2 mm long. This species is orangish-brown to reddish-brown in color, with the head being slightly darker and the gaster nearly black. The head has minute striae or rugose sculpturing on the lower surface and sides and is mostly smooth and glossy. The alitrunk is rugose dorsally with finely punctuate or minutely striate sculpturing on the sides and is mostly dull/weakly glossy. The pubescence on the head is appressed and the pronotum has a band of erect hairs across the anterior margin. These two characteristics are diagnostic for the species.

### **Biology and Behavior**

This species can be found in woods, open areas, agricultural fields, and oak savanna. Workers can be seen foraging on the ground, logs and the trunks of trees. This species feeds on

dead insects but also feeds on honeydew. It has been known to tend scale insects (Burns, 1964) and membracids (Bristow, 1983). If disturbed, the nest will erupt with a multitude of workers to defend.

### **Nest and Colony Structure**

Nests can be found under rocks, boards, logs, and various objects on the ground, under which they nest in the soil. Coovert (2005) and Wesson & Wesson (1940) report this species using carton to construct nests. Colonies of this species are polydomous and usually rather large. Male alates can be found from early July to late August, while female alates are found from late August to late October.

### **Range**

Quebec, Ontario south to Florida, west to Michigan, North Dakota, Colorado, Texas.

Occasional to frequent. Widespread throughout the state.

### **Indiana Distribution**

Throughout the state. Recorded from 40 counties in Indiana.

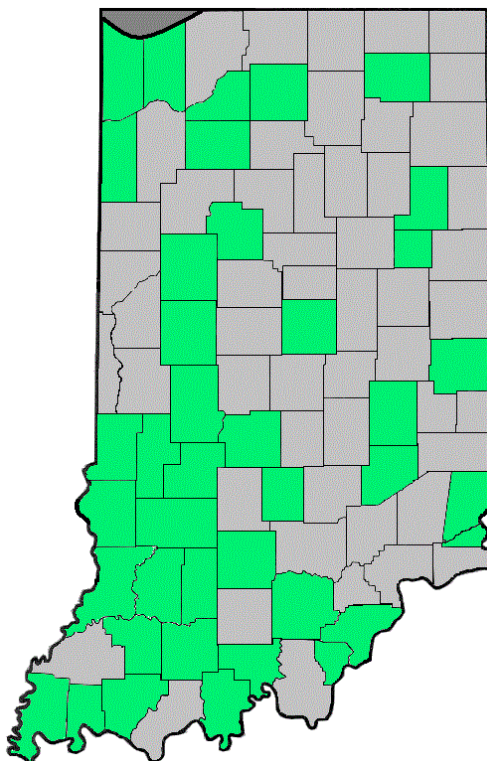


Figure 4.27 *C. lineolata* distribution

### **Indiana References**

Indiana (Morris, 1943; Gregg, 1944; Munsee &

Schrock, 1983; Munsee, Jansma, & Schrock, 1986)

**Comments**

This species of *Crematogaster* can be found throughout the state and is fairly common.

*Crematogaster missouriensis* Emery

**Previous Names and Synonyms**

*Crematogaster minutissima* subsp. *missouriensis* Emery 1895

*Crematogaster victim* subsp. *missouriensis* Emery

**Taxonomy**

See Creighton (1950).

**Identification**

The body is 1.4-2.7 mm long. This species is much smaller than other *Crematogaster*. It is dark yellowish-brown in color. Propodeal spines are directed more upward than backward with the spines having a length of more than one half the distance which separates their bases. The promesonotal setae are in three ranks, decreasing in length from front to back. Scapes of antennae just reach the occipital margin. The yellow color and structure of the propodeal spines is characteristic for this species.

**Biology and Behavior**

This species was found at the edge of a wooded area. Workers were foraging on the ground, logs, branches, and foliage (Floyd Q2). The main food source of this species is unknown.

**Nest and Colony Structure**

The nest was found in a fallen branch of a white oak underneath the bark. They have also been found to nest in open areas along the roadside.

**Range**

Texas to Missouri, throughout the southeastern United States and south to Costa Rica.

**Indiana Distribution**

Rare. Found in one county in southern Indiana.



Figure 4.28 *C. missouriensis* distribution

#### Indiana References

None.

#### Comments

This species has extended its northern range into the southern portion of Indiana. It is a new state record, and it is a unique species of *Crematogaster* in the state due to its small size and yellow coloration.

*Crematogaster pilosa* Emery

#### Previous Names and Synonyms

*Crematogaster (Acrocoelia) creightoni* Wheeler

*Crematogaster (Crematogaster) creightoni* Wheeler

*Crematogaster laeviuscula clara*

*Crematogaster clara*

#### Taxonomy

See Johnson (1988).

**Identification**

The body is 2.7-3.7 mm long. This species is dark reddish-brown in color with a nearly black gaster. The head is minutely striate/punctuate on the lower face and sides, with a few scattered punctures above, mostly smooth and glossy. The sides of the mesonotum are fully punctuate and dull, never glossy. The head is covered in erect/suberect pubescence which is characteristic for this species.

**Biology and Behavior**

This species can be found in semi-open and open areas, as well as wooded areas. Workers were found foraging on the ground throughout leaf litter, on logs, tree trunks, and foliage. Covert (2005) reports this species feeding on the blooms of *Oxypolis rigidior* and on a dead cicada.

**Nest and Colony Structure**

Nests can be found under the bark of trees, logs, and stumps, and in hollow grasses and reeds (Johnson, 1988). Covert (2005) recorded this species nesting under the bark of an elm stump.

**Range**

New Jersey south to Georgia, Florida, west to Indiana, Kansas, Missouri, Texas.

**Indiana Distribution**

Rare to Occasional. Recorded from 23 counties in Indiana.

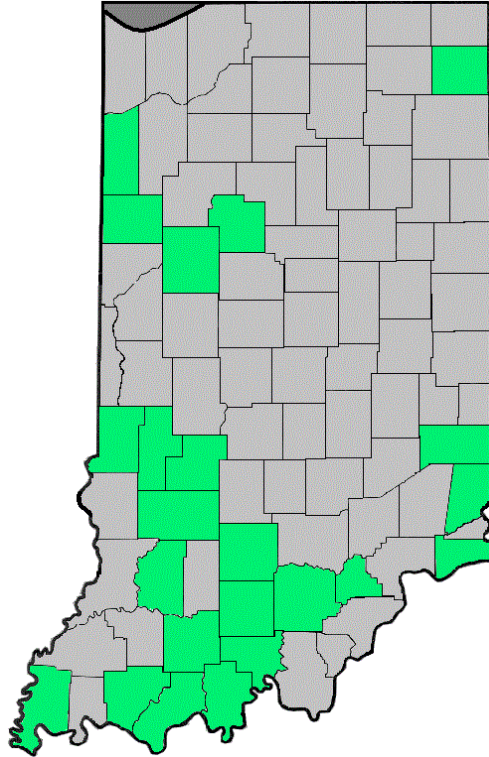


Figure 4.29 *C. pilosa* distribution

#### Indiana References

Indiana (Munsee, Jansma, & Schrock, 1986; Morris, 1943).

#### Comments

This species has a IUCN Red List status of VU D2. Populations are considered very vulnerable. However, this species may be under represented due to misidentification.

#### *Dolichoderus mariae* Forel

#### Previous Names and Synonyms

*Dolichoderus mariae* subsp. *davisi* Wheeler

*Dolichoderus mariae* var. *blatchleyi* Wheeler

*Dolichoderus mariae* var. *davisi* Wheeler

*Dolichoderus (Hypoclinea) mariae* var. *blatchleyi* Wheeler

*Dolichoderus mariae davisi* Wheeler

*Dolichoderus blatchleyi* Wheeler

#### Taxonomy

See Creighton (1950).

**Identification**

The body is 4.0-5.1 mm long. This species is pale brownish-orange to reddish-brown in color with the gaster being concolorous at the extreme base and the remaining portions very dark brown/black. The mandibles are paler with blackened margins, and the legs are concolorous basally and apically, darkened medially. The head and alitrunk are smooth and weakly glossy and the propodeum is rugose and dull. The bicolored body is characteristic for this species.

**Biology and Behavior**

This species can be found in open grassy areas and occasionally in fens but has a preference for sandy soils. Wheeler et. al. (1994) reported finding this species in marshes and swamps in Michigan. Workers can be seen traveling single file up and down tree trunks as they tend aphids and coccids (Wheeler, 1916). The main food source for this species is honeydew but they also scavenge for dead insects (MacKay, 1993).

**Nest and Colony Structure**

Nests are found in sandy soils underneath tufts of grass. *D. mariae* builds characteristic thatch mound nests which are constructed mainly out of coarsely shredded plant fibers. The brood is cared for in the thatch portion of the nest area. They are occasionally found under stones and logs (MacKay, 1993). Colonies are large in size. Male and Female alates can be found from early July to mid September (MacKay, 1993).

**Range**

Massachusetts to Georgia, west to Michigan, Minnesota, Indiana, Illinois, Oklahoma, Louisiana.

**Indiana Distribution**

Rare. Recorded from 5 counties in Indiana.



Figure 4.30 *D. mariae* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Lake, Starke (Wheeler, 1916), LaPorte (Rericha, 2007).

#### Comments

This bicolored species is more commonly found in the northern portion of the state and is much more rare in the central and southern portions.

#### *Dolichoderus plagiatus* (Mayr)

##### Previous Names and Synonyms

*Hypocheila plagiata* Mayr 1870

*Dolichoderus plagiatus inornatus* Wheeler

*Dolichoderus inornatus* Wheeler

*Dolichoderus borealis* Provancher

*Dolichoderus plagiatus* var. *inornatus* Wheeler

*Dolichoderus plagiatus* var. *inornata* Wheeler



**Taxonomy**

See Creighton (1950).

**Identification**

The body is 3.5-3.9 mm long. This species has a dark reddish-brown head, medium reddish-brown alitrunk, and gaster that is yellowish-brown at the base and black on the apical two thirds. The legs and antennae are slightly paler basally. The head and alitrunk have forevolae (bordered pits) that are closely packed on the dorsal surface and are dull. The sides of the alitrunk have reduced sculpturing and are weakly glossy. The tiny erect hairs on the scapes of the antennae are characteristic for this species.

**Biology and Behavior**

This species can be found in oak forests, at the edge of wooded areas, oak sand savanna, and occasionally fens and bogs. Workers can be seen foraging on the ground, logs, tree trunks, and foliage. Coovert (2005) found them feeding on *Solidago* blooms. This species feeds on dead insects and honeydew, and is known to tend aphids.

**Nest and Colony Structure**

Nests can be found in leaf litter (Coovert, 2005). Wesson & Wesson (1940) reported this species nesting in curled oak leaves which were lined with shreaded plant fibers and glued together with soil. Colonies are small in size (MacKay, 1993) with as many as 378 workers to a single queen (Kannowski, 1967). Male and female alates can be found in mid August (MacKay, 1993).

**Range**

New Brunswick, Quebec, Ontario, south to Georgia, Tennessee, west to Michigan, North Dakota, Illinois, Indiana, Ohio.

**Indiana Distribution**

Rare to occasional. This species is recorded from 7 counties in northern Indiana.

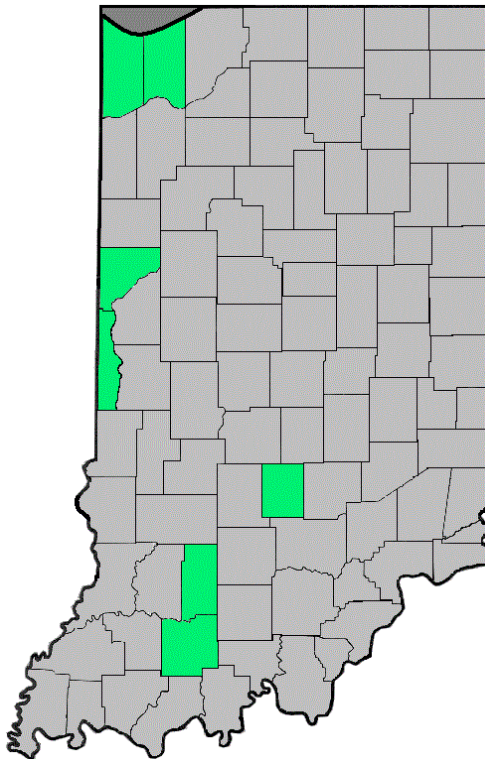


Figure 4.31 *D. plagiatus* distribution

### Indiana References

Indiana (Munsee, Jansma, & Schrock, 1986), Porter (Gregg, 1944), Vermillion (Munsee, 1967), Lake (Rericha, 2007).

### *Dolichoderus pustulatus* Mayr

### Previous Names and Synonyms

*Dolichoderus plagiatus* var. *beutenmuelleri* Wheeler 1904

*Dolichoderus* (*H.*) *plagiatus pustulatus beutenmuelleri* Wheeler

*Dolichoderus beutenmuelleri* Wheeler

### Taxonomy

See Creighton (1950).

### Identification

The body is 3.1-3.8 mm long. This species is very dark reddish-brown/black in color with the head and gaster being the darkest. The mandibles are slightly paler than the head, and the base of the antennae, trochanters, and tibiae are also slightly paler. The head and alitrunk have foveolae that are very closely spaced, the surface moderately glossy. The propleuron and

mesopleuron are smooth and very glossy. The propodeum is much longer in this species than in *D. taschenbergi*, and the posterodorsal edge of the propodeum is distinctly emarginated, unlike *D. mariae*. These features are characteristic for the species.

### **Behavior and Biology**

This species can be found in wetlands, fens, bogs, fields and wooded areas. Wheeler et. al. (1994) reported this species in bogs and swamps in Michigan. Workers can be found foraging on the ground, logs, and stones. Coovert (2005) reported this species foraging on boardwalks in a bog. The main food source for this species is honeydew, but it also scavenges for dead insects. Coovert (2005) found workers tending aphids on jewelweed and Bristow (1983) found them tending membracids on ironweed.

### **Nest and Colony Structure**

Nests can be found in moss clumps and in leaf sheaths of sedges (Rericha, 2007). Wesson & Wesson (1940) reported nests in dead pine needles. This species often uses carton when constructing nests. Colonies are small in size, probably around a few hundred individuals (MacKay, 1993). Nests were found in Michigan to contain up to 794 workers with one or two queens (Kannowski, 1967). Male and Female alates can be found from July to September (MacKay, 1993).

### **Range**

Nova Scotia, Quebec, south to Florida, west to Michigan, Illinois, Oklahoma, Texas.

### **Indiana Distribution**

Rare. Recorded from 3 counties in northern Indiana.

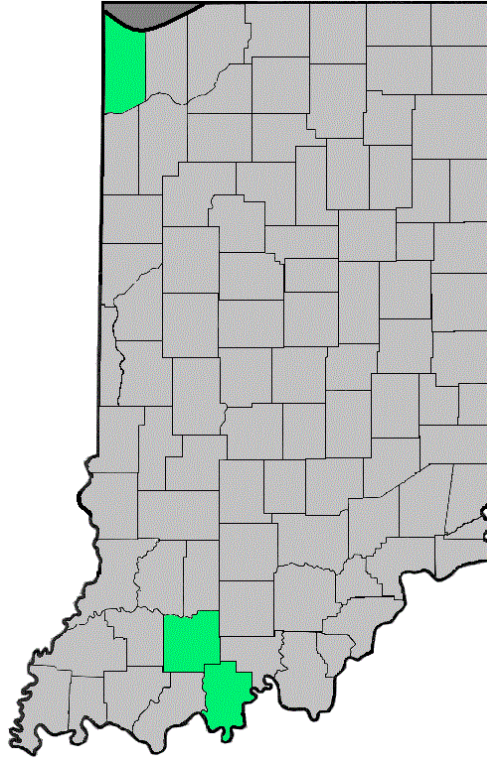


Figure 4.32 *D. pustulatus* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Lake (Wheeler, 1916), LaPorte, Porter (Rericha, 2007).

#### Comments

This species is more commonly found in the northern portion of Indiana and is much less common elsewhere.

#### *Dolichoderus taschenbergi* (Mayr)

##### Previous Names and Synonyms

*Hypoclinea tashenbergi* Mayr 1866

*Dolichoderus tashenbergi* var. *gagates* Wheeler 1905

*Dolichoderus taschenbergi* var. *wheeleriella* Forel

*Dolichoderus (Hypoclinea) taschenbergi* var. *aterrimus* Wheeler

*Dolichoderus taschenbergi* var. *aterrima* Wheeler

*Dolichoderus aterrimus* Wheeler

*Dolichoderus (Hypoclinea) taschenbergi* var. *aterima* Wheeler

*Dolichoderus wheeleriella* Forel

*Dolichoderus taschenbergi* var. *atterina* Wheeler

### **Taxonomy**

See Creighton (1950).

### **Identification**

The body is 3.9-4.1 mm long. This species is dark reddish-brown/black in color and usually completely concolorous, but paler areas may be present on the alitrunk and gaster. The mandibles are slightly paler and antennae and legs may be slightly paler. The head and alitrunk are covered in closely spaced foreolae and minute punctuation, with the surface being dull to weakly glossy; the mesothorax and propodeum being more dull and the propleuron glossier. The black color and subquadrate propodeum is characteristic for this species

### **Biology and Behavior**

This species can be found in wooded areas, at the edge of woods, in dry fields, and occasionally bogs (Wesson & Wesson, 1940; MacKay, 1993). Workers can be seen foraging in single file (Wheeler & Wheeler, 1963). This species scavenges for dead insects and also feeds on honeydew. They are known to tend aphids and other honeydew producing homopterans.

### **Nest and Colony Structure**

Nests can be found in and under clumps of grass where they appear as irregular funnels filled with pieces of plant matter (Wesson & Wesson, 1940). They also nest in mounds covered with thatch and in the soil under leaf litter (MacKay, 1993). Colonies are large with up to 50,000 workers with multiple queens (MacKay, 1993). Male and female alats can be found from mid June to late July (MacKay, 1993).

### **Range**

Nova Scotia, Quebec, Ontario, south to South Carolina, west to Manitoba, Michigan, North Dakota, South Dakota, Louisiana, Ohio.

### **Indiana Distribution**

Rare. Recorded from 3 counties in northern Indiana

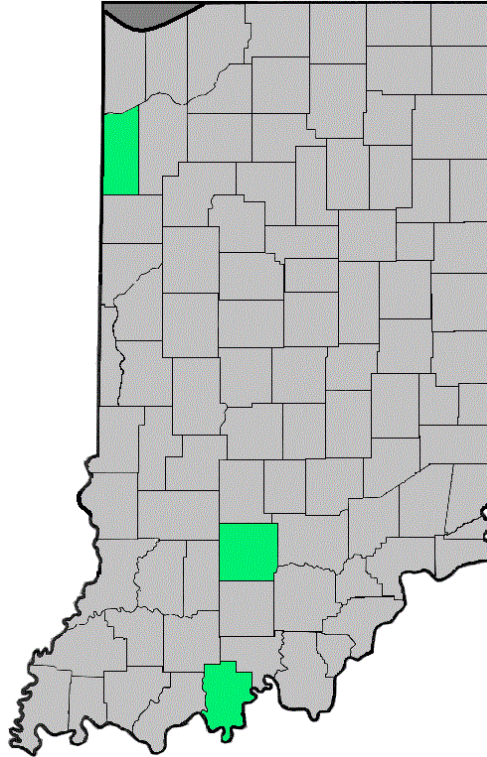


Figure 4.33 *D. tashenbergi* distribution

#### Indiana References

None.

#### Comments

This species is a new state record and should be sought after in northern Indiana.

#### *Dorymyrmex grandulus* (Roger)

#### Previous Names and Synonyms

*Prenolepis (Mylanderia) parvula* var. *grandula* Forel 1922

*Dorymyrmex pyramicus* (Roger)

*Dorymyrmex (Conomyrma) pyramicus* (Roger)

*Dorymyrmex pyramicus* (Roger)

*Dorymyrmex pyranicus* (Roger)

*Prenolepis pyramica* Roger

#### Taxonomy

Forel considered this species a variant of *P. parvula* which was an odd association as the two species are not at all similar and belong to different subfamilies.

### **Identification**

The body is 2.6-2.8 mm long. This species is medium brown to blackish-brown in color, with the head and alitrunk being paler ventrally. The gaster is nearly black, and the mandibles and lower genae are orangish to brownish yellow in color. The mandibles are also edged with black. The antennal scapes and tibiae are basally paler. The head, alitrunk, and gaster are covered in appressed micropubescent that is seen as a white sheen, the surface is otherwise glossy. The dark coloration and micropubescent present on the head are characteristic for this species.

### **Biology and Behavior**

This species can be found in sandy areas and dry prairies. Workers are very active and can be seen foraging on the ground and low vegetation. This species is predaceous but also feeds on honeydew.

### **Nest and Colony Structure**

Nests can be found in sandy areas where they appear as mounds or low hills.

### **Range**

New Jersey south to Florida, Alabama, west to Michigan, Ohio.

### **Indiana Distribution**

Rare. Recorded from an unknown location in Indiana.

### **Indiana References**

Indiana (Morris, 1944).

### **Comments**

This rare species was reported by Morris (1944) from a report by M.R. Smith. No collection information was given. It should be sought after in northwestern Indiana.

*Dorymyrmex insanus* (Buckley)

### **Previous Names and Synonyms**

*Formica insana* Buckley 1866

*Dorymyrmex pyramicus*

### **Taxonomy**

This species is often referred to as *D. pyramicus* (Roger) which is a legitimate species only found in South America. See Snelling (1995).

### **Identification**

The body is 2.7-3.4 mm long. This species is yellowish-brown to blackish-brown in color with the head and alitrunk slightly paler ventrally. The gaster is brown/black and the

mandibles and genae are orangish to brownish-yellow, the mandibles being edged with black. The antennal scapes and legs are paler apically. The head, alitrunk, and gaster are covered with minute appressed pubescence is seen as a whitish sheen, the surface glossy. The dark coloration, narrow head, and pubescence present on the front of the head are characteristic of this species.

### **Biology and Behavior**

This species can be found foraging in open fields and sunny areas such as roadsides, open woodlands, grasslands, and sand dunes (Ward, 2005). Smith (1979) reports workers being very active and aggressive, able to emit a fluid with a disagreeable odor. Workers forage in single file and move very quickly (Wheeler & Wheeler, 1986). This species of ant is predaceous but also feeds on honeydew (Wheeler & Wheeler, 1986).

### **Nest and Colony Structure**

Nests can be found in irregular or crater like mounds (Smith, 1979). Colonies are moderately sized, with up to 1000 workers (Wheeler & Wheeler, 1986).

### **Range**

Kansas to central Texas, west to southern California (Snelling, 1995).

### **Indiana Distribution**

Rare. This species is listed in the checklist created by Munsee, Jansma, & Schrock (1986) as *Conomyrma insana* with no location data given.

### **Indiana References**

Indiana (Munsee, Jansma, & Schrock, 1986).

### **Comments**

This species is commonly a western species and should be sought after in northwestern Indiana. The record from Munsee, Jansma, & Schrock (1986) may actually be *D. grandulus*.

## *Forelius pruinosus* (Roger)

### **Previous Names and Synonyms**

*Tapinoma pruinosum* Roger 1863

*Tapinoma anale* André 1893

*Iridomyrmex analis* (André 1893)

*Iridomyrmex pruinosus* (Roger)

*Iridomyrmex pruinosus* var. *testaceus* Cole

### **Taxonomy**

Wheeler & Wheeler (1986) and Bolton (1995) did not recognize subspecies.



**Identification**

The body is 2.0-2.6 mm long. This species is variable in color, but usually yellowish-brown to dark brown. The gaster is often paler. Mandibles may be paler in color, antennae are basally paler, and legs are apically paler. The head, alitrunk, and gaster are covered in micropunctate sculpturing with a covering of micropubescence. The surface is weakly to moderately glossy. This is the only species for this genus present in Indiana and the characteristics given for the genus distinguish it.

**Biology and Behavior**

This species can be found in dry prairies, old agricultural fields, and oak dunes. Workers are extremely active and fast. Wheeler & Wheeler (1986) reported workers being able to withstand very high soil temperatures. The main food source for this species is honeydew, however they have also been recorded visiting extrafloral nectarines of flowers (Barton, 1986). This species is known to tend plant lice and scale insects (Dennis, 1938). Myrmecophilous syrphid larvae (*Microdon fuscipennis*) can be found within their nests.

**Nest and Colony Structure**

Nests can be found in the soil under stones or in mounds in sandy areas (Smith, 1979). Colonies are moderately large and are known to form aggregations (Cole, 1940).

**Range**

New York to Florida, west to Ohio, Wisconsin, North Dakota, southern Idaho, Oregon, Kansas, Oklahoma, Texas, New Mexico, California; West Indies, Mexico, Guatemala.

**Indiana Distribution**

Occasional. Recorded from 13 counties in Indiana.

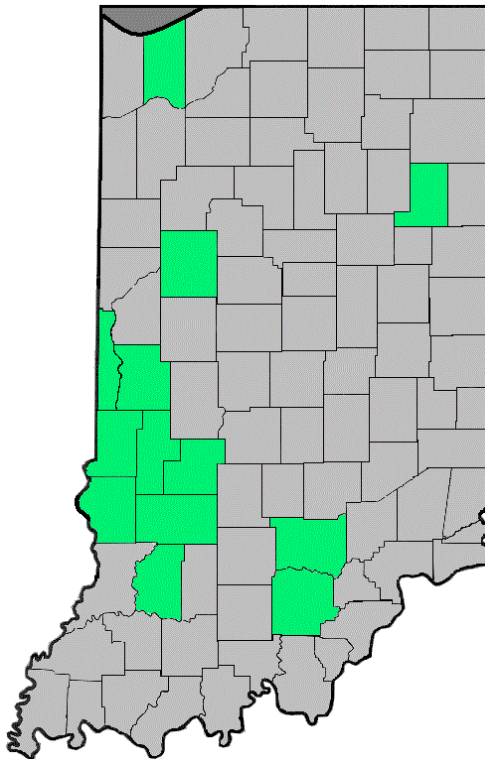


Figure 4.34 *F. pruinosis* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Daviess (Morris, 1943), Porter (Gregg, 1944), Vermillion (Munsee & Schrock, 1983).

#### Comments

This is the only species of *Forelius* in Indiana. It is an occasional pest in houses where it feeds on sugars.

#### *Formica argentea* Wheeler

#### Previous Names and Synonyms

*Formica fusca* var. *argentata* Wheeler 1902

*Formica fusca* var. *argentea* Wheeler 1912

*Formica fusca fusca* var. *blanda* Wheeler

*Formica fusca blanda* Wheeler

*Formica fusca* subsp. *subsericea* var. *blanda* Wheeler

*Formica fusca* var. *blanda* Wheeler

**Taxonomy**

See Fracoeur (1973).

**Identification**

The body is 5.7-7.4 mm long. This species is medium brown/blackish-brown in color. The mandibles are reddish brown with black edges, antennae are brownish-yellow, and legs are brownish-yellow to brown and darker basally. The whole body is covered with very dense appressed pubescence that appears silvery. The presence of dense appressed pubescence on the first 4 gastral tergites and the lack of elongate punctures on the genae are characteristic for this species.

**Biology and Behavior**

This species can be found at the edge of woods and in open areas such as agricultural fields and prairies (Wheeler et. al., 1994). They are a known host to the larval syrphid *Microdon lanceolatus* (Duffield, 1981). In addition to this, they are the slaves of *Polyergus breviceps* (Smith, 1979).

**Nest and Colony Structure**

Nests can be found in sandy soil forming low sprawling mounds, or in the soil under various objects (Smith, 1979). Holldobler & Wilson (1990) reported that workers in queenless nests are able to reproduce.

**Range**

Quebec west to British Columbia, south to South Carolina, Ohio, Illinois, Iowa, South Dakota, New Mexico, Arizona, Nevada, southern California.

**Indiana Distribution**

Occasional to widespread. Recorded from 42 counties in Indiana.

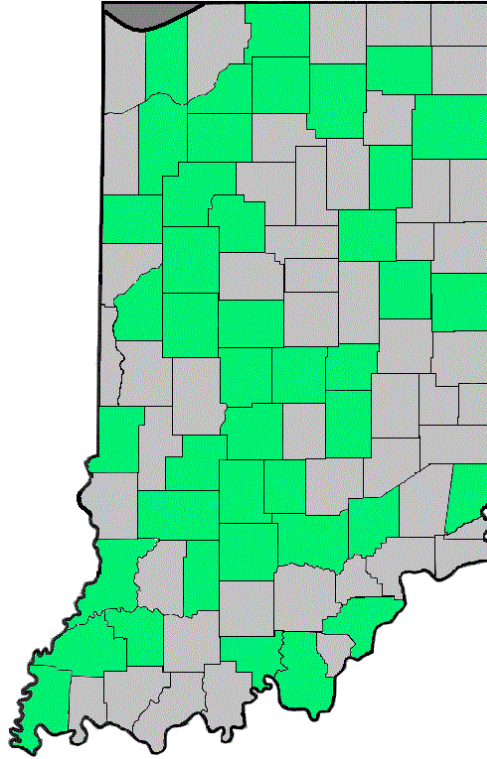


Figure 4.35 *F. argentea* distribution

#### Indiana References

None.

#### Comments

This species is typically found in the northern and western areas of North America in the mountains. A new state record for Indiana.

#### *Formica aserva* Forel

#### Previous Names and Synonyms

*Formica sanguinea rubicunda* var. *subnuda* Emery 1895

*Formica sanguinea aserva* Forel 1901

*Formica sanguinea* var. *subnuda* Emery

*Formica sanguinea* subsp. *subnuda* Wheeler

*Formica subnuda* Emery

*Formica sanguinea subnuda* Wheeler

#### Taxonomy

See Bolton (1995).

### **Identification**

The body is 4.9-7.8 mm long. The head and alitrunk of this species are orangish-brown in color, and often darker dorsally. The gaster is dark reddish-brown to black, and segments may be paler basally. The mandibles are slightly darker, antennae are darker dorsally, and the legs are concolorous or slightly darker. The head is dull dorsally, with the sides being weakly glossy. The alitrunk is also dull, with the propleuron being slightly glossy. The gaster is satiny to moderately glossy, with the appressed pubescence forming a grayish/silverish sheen. The lack of erect hairs on the gula and pronotum is characteristic for this species.

### **Biology and Behavior**

This species can be found at the edge of wooded areas in sunny places (Headley, 1943a). The main food source for this species is honeydew. Nests are host to the larval syrphid *Microdon cothurnatus* (Duffield, 1981). This species is a slave-maker of *Formica altipetens*, *F. fusca*, *F. Montana*, *F. neorufibarbis*, and *F. subpolita* (Smith, 1979).

### **Nest and Colony Structure**

Nests can be found under logs, stumps, and rocks. The entrance is often covered with thatch (Talbot, 1985). Colonies may be moderately large in size. Female alates may be seen in July (Talbot, 1985).

### **Range**

Newfoundland west to Yukon, central Alaska, south to New York, northern Ohio, Indiana, Illinois, Minnesota, North Dakota, Colorado, New Mexico, Arizona, Nevada, California.

### **Indiana Distribution**

Rare. Recorded from one county in Indiana.



Figure 4.36 *F. aserva* distribution

### Indiana References

Indiana (Gregg, 1944; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Porter (Morris, 1943)

### Comments

This northern slave-maker was recorded from Indiana by Morris (1943). This account, however, is questionable because the paper it was cited from did not pinpoint the counties where the species was collected. It is the most frequently occurring species of the *Sanguinea* Group, however, in northern Wisconsin and Michigan. Interestingly, workers of this species are not always slave raiders and although rare, pure colonies can be found.

### *Formica dakotensis* Emery

#### Previous Names and Synonyms

*Formica montigena* Wheeler 1904

*Formica dakotensis* var. *saturata* Wheeler

*Formica specularis* Wheeler

*Formica fusca* subsp. *subpolita* var. *specularis* Emery

*Formica dakotensis* var. *Wasmanni* Forel

*Formica subpolita* var. *specularis* Wheeler

*Formica dakotensis* subsp. *montigena* Wheeler

*Formica dakotensis* *montigena* Wheeler

*Formica dakotensis* var. *specularis* Wheeler

*Formica dakotensis* var. *wasmanni* Forel

*Formica wasmanni* Forel

*Formica dakotensis* var. *montigena* Wheeler

### **Taxonomy**

Many authors place this species in the *rufa* group, however the author is following the lead of Coover (2005) and placing it in the *microgyna* group. See Creighton (1950) and Brown (1957b).

### **Identification**

The body is 5.7-7.3 mm long. This species has a brownish-orange head and alitrunk that may be slightly darker dorsally. The gaster is brownish-black/black. The mandibles are slightly darker, antennae distally darker, and legs slightly darker. The body has a sparse covering of appressed micropubescence. The head and alitrunk are glossy but duller dorsally, and the gaster is glossy. The shape of the petiolar scale and the lack of erect hairs on the mesonotum, propodeum, and gula are characteristic for this species.

### **Biology and Behavior**

This species can be found in open fields and black spruce bogs. Workers can be seen foraging on the ground and in open areas (Coover, 2005). This species is a temporary social parasite of *Formica fusca*, *F. lepida*, *F. montana*, and *F. pallidefulva* (Smith, 1979).

### **Nest and Colony Structure**

Nests can be found as mounds in the soil or under stones near roots of plants (Smith, 1979).

### **Range**

Nova Scotia, Ontario west to Alaska, British Columbia, south to Ohio, Indiana, Iowa, New Mexico, Nevada.

### **Indiana Distribution**

Rare. Recorded from 4 counties in Indiana

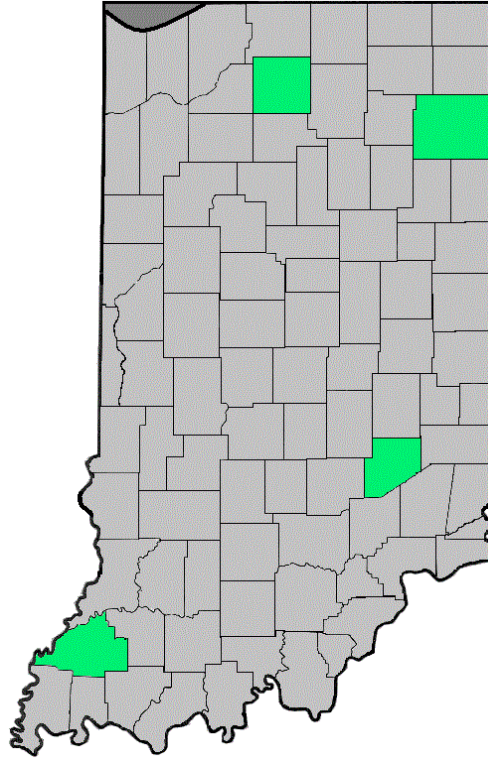


Figure 4.37 *F. dakotensis* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986).

#### Comments

This rare species is more common in the northern and western plains.

#### *Formica dolosa* Buren

#### Previous Names and Synonyms

*Formica (Neoformica) pallidefulva schaufussi* var. *dolosa* Wheeler

*Formica (Neoformica) pallidefulva* subsp. *dolosa* Buren

*Formica (Neoformica) pallidefulva* subsp. *schaufussi* var. *dolosa* Wheeler

*Formica (Neoformica) schaufussi dolosa* Buren

*Formica dolosa* Buren

*Formica pallide-fulva* subsp. *schaufussi* var. *meridionalis* Wheeler

#### Taxonomy

See Creighton (1950)



**Identification**

The body is 5.8-7.6 mm long. This species is faintly bicolored: it has a red to yellow to reddish-brown head, alitrunk, and legs and a slightly darker gaster. The mandibles are darker and the antennae are slightly paler basally. The head is smooth and glossy, and the alitrunk and gaster have appressed micropubescence and abundant, long, erect pubescence. The propodeal crest is usually rounded in profile.

The reddish coloration and rounded propodeal crest are characteristic for this species.

**Biology and Behavior**

This species can be found in open woods, prairies, oak savanna, and near the edge of wooded areas. Workers can be seen foraging on the ground or low foliage. Wheeler (1913) described this ant as extremely timid, as they quickly flee the nest when it is disturbed. This species is known to feed on dead insects and honeydew. Nests are host to larval syrphids (*Microdon ocellaris* and *M. fulgens*) (Duffield, 1981). They also serve as hosts to *Formica rubicunda*, *F. subintegra*, *Polyergus breviceps*, and *P. lucidus* (Smith, 1979).

**Nest and Colony Structure**

Nests can be found in the soil or under rocks. Colonies are considered populous (Cole, 1940b). Male and Female alates can be found in July.

**Range**

Quebec, Ontario south to North Carolina, New England across the Great Lakes region, west to Wisconsin and Iowa, south to northern Florida.

**Indiana Distribution**

Rare to occasional. Recorded from 3 counties in Indiana.

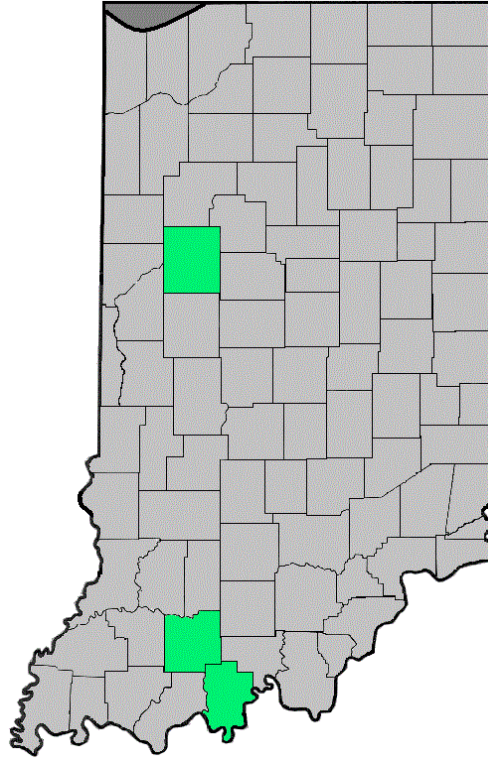


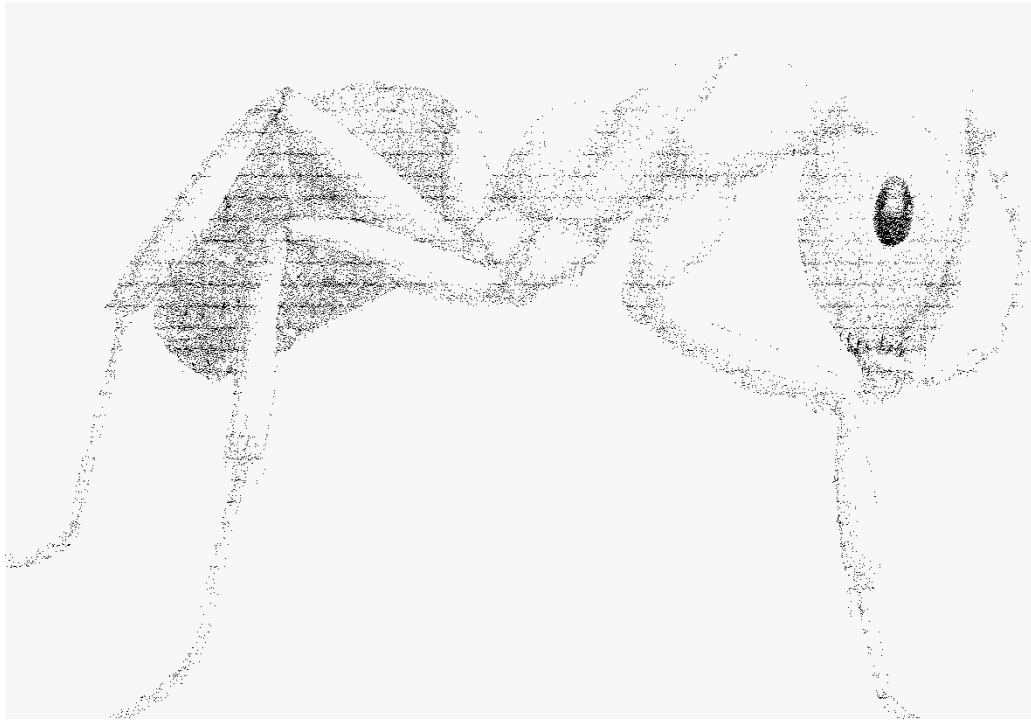
Figure 4.38 *F. dolosa* distribution

#### **Indiana References**

Indiana (Gregg, 1944; Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Porter (Rericha, 2007).

#### **Comments**

There are many misidentification of this taxonomic group in major collections.

*Formica exsectoides* ForelFigure 4.39 *Formica exsectoides***Previous Names and Synonyms**

*Formica exsectoides exsectoides* var. *davisi* Wheeler 1913

*Formica exsectoides* var. *davisi* Wheeler

*Formica davisi* Wheeler

*Formica exsectoides hesperia* Wheeler

*Formica exsectoides exsectoides* var. *hesperia* Wheeler

**Taxonomy**

See Creighton (1950).

**Identification**

The body is 5.5-7.9 mm long. This species has an orangish-brown to brownish-red head and alitrunk that may be slightly darker dorsally and a brownish-black/black gaster. The mandibles are darker, antennae are basally paler, and legs are darker. The head and alitrunk appear satiny due to microscopic texturing and appressed micropubescence. The gaster is more glossy but with a covering of appressed micropubescence.

**Biology and Behavior**

This species can be found in open fields, at the edges of wooded areas, prairies, and old agricultural fields. Workers can be found foraging on the ground, foliage, and logs. Workers are highly aggressive when disturbed and are known to bite the heads off of other ants (Headley, 1943a). The main food source of this species is honeydew, however they also scavenge for dead insects. They have been known to tend a variety of membracids, scale insects, and aphids. They are also host to the staphylinid *Megastilicus formicarius* (Wheeler, 1910b) and the larval syrphid *Microdon abstrusus* (Duffield, 1981).

**Nest and Colony Structure**

Nests can be found at the edge of woods or in sunny areas. They are large mounds that are usually covered with a fine layer of thatch. Mounds may be as tall as one meter and two meters in greatest diameter. Usually more than one mound can be found in an area. Colonies can occupy the same mound for up to 30 years (Coover, 2005). Colonies are large, with as many as 300,000 workers and multiple queens (Holldobler & Wilson, 1990). Male and female alates can be found from early July to early August.

**Range**

Nova Scotia, Ontario south to Georgia, west to Wisconsin, Iowa, Kansas, Colorado, New Mexico.

**Indiana Distribution**

Occasional. Recorded from 12 counties in Indiana.

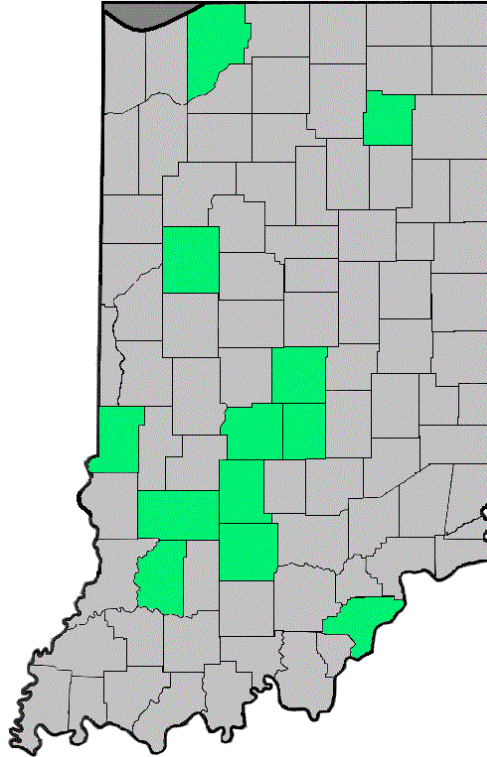


Figure 4.40 *F. exsectoides* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Clark, Morgan, Vigo (Morris, 1943), Porter (Gregg, 1944).

#### Comments

The very large mounds of this species are characteristic. They are the largest mounds of any Indiana ant and make it easily identifiable by sight.

#### *Formica ferocula* Wheeler

#### Previous Names and Synonyms

None.

#### Taxonomy

See Creighton (1950).

#### Identification

The body is 5.0-6.6 mm long. This species has a brownish-orange head and alitrunk with a dark brown gaster, on which their base and sternites are brownish-red. The smaller workers have their heads and alitrunks darkened dorsally.

### **Biology and Behavior**

Little is known about the biology and behaviors of this species. Workers can be found foraging in dry open fields (Wheeler, 1913).

### **Nest and Colony Structure**

Nests form small craters near the roots of plants (Wheeler, 1913).

### **Range**

Illinois (Rockford).

### **Indiana Distribution**

Rare. Recorded from 3 counties in Indiana.

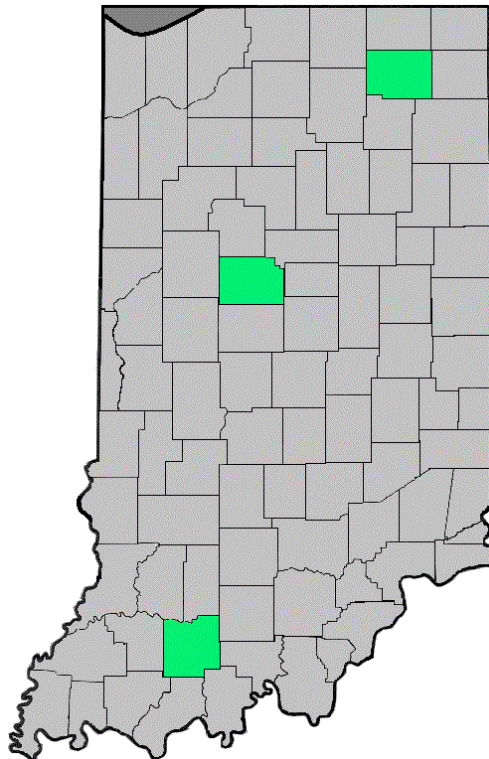


Figure 4.41 *F. ferocula* distribution

### **Indiana References**

None.

### **Comments**

This rare species was previously only known from Rockford, IL and was recorded by Wheeler (1913).

*Formica gynocrates* Snelling & Buren

**Previous Names and Synonyms**

None.

**Taxonomy**

See Snelling & Buren (1985).

**Identification**

The body is 5.2-7.6 mm long. This species has an orangish-brown head and alitrunk with a dark brownish-black/black gaster. The mandibles, antennae, and legs are concolorous. The head and alitrunk are dull while the gaster is dull to satiny with a grayish/silverish sheen caused by the dense appressed micropubescence.

**Biology and Behavior**

This species can be found in open prairies (Snelling & Buren, 1985). Workers are aggressive. This species is known to tend aphids for honeydew and to steal brood from other ant species (Talbot, 1985). They are a social parasite and slave-maker of *Formica vinculans* and *F. lasiodes* (Snelling & Buren, 1985).

**Nest and Colony Structure**

Nests can be found in the soil, marked with thatch piles around the base of plants which enclose aphids (Talbot, 1985). Male and female alates can be seen from early July to mid August.

**Range**

Southern Michigan, North Dakota, Wyoming, Colorado.

**Indiana Distribution**

Rare. Recorded from one county in Indiana.



Figure 4.42 *F. gynocrates* distribution

#### Indiana Reference

None.

#### Comments

This species was described and recorded from southern Michigan. It represents a new state record for Indiana.

#### *Formica glacialis* Wheeler

#### Previous Names and Synonyms

*Formica fusca* var. *glacialis* Wheeler 1908

*Formica fusca* var. *fairchildi* Wheeler

*Formica fusca* *fairchildi* Wheeler

#### Taxonomy

See Wheeler & Wheeler (1986) and Wheeler et. al. (1994).

#### Identification

The body is 3.9-6.2 mm long. This species is dark brownish-black/black in color with the mandibles being dark reddish-brown with black edges, antennae being paler basally, and legs



being slightly paler apically. Dense appressed pubescence that appears silvery covers the front and top of the head, alitrunk, and first two gastral tergites. The 3<sup>rd</sup> gastral tergite has much sparser appressed pubescence, which is characteristic for this species.

### **Biology and Behavior**

This species can be found in woods, at the edge of wooded areas, wetlands, and fens. Workers can be found foraging on the ground, tree trunks, and foliage. Covert (2005) reports this species feeding on flower blooms, smashed apples, and honeydew. They are known to tend membracids and aphids.

### **Nest and Colony Structure**

Nests can be found in sunny areas and near the edge of woods. They are usually low, spread out mounds, but may be up to a meter high (Covert, 2005).

### **Range**

Newfoundland (insular), Quebec, south to New York, west to Manitoba, eastern North Dakota, northern Illinois.

### **Indiana Distribution**

Occasional. Recorded from 16 counties in northern Indiana.

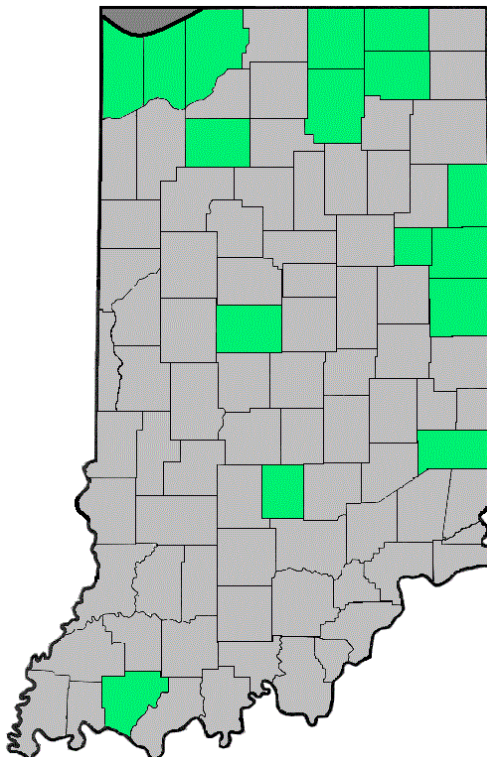


Figure 4.43 *F. glacialis* distribution

### Indiana References

Indiana (Munsee, Jansma, & Schrock, 1986), Kosciusko, LaGrange (Francoeur, 1973), Lake, LaPorte, Porter (Rericha, 2007).

### Comments

This prairie species is only found in the northern unglaciated areas of Indiana.

### *Formica indianensis* Cole

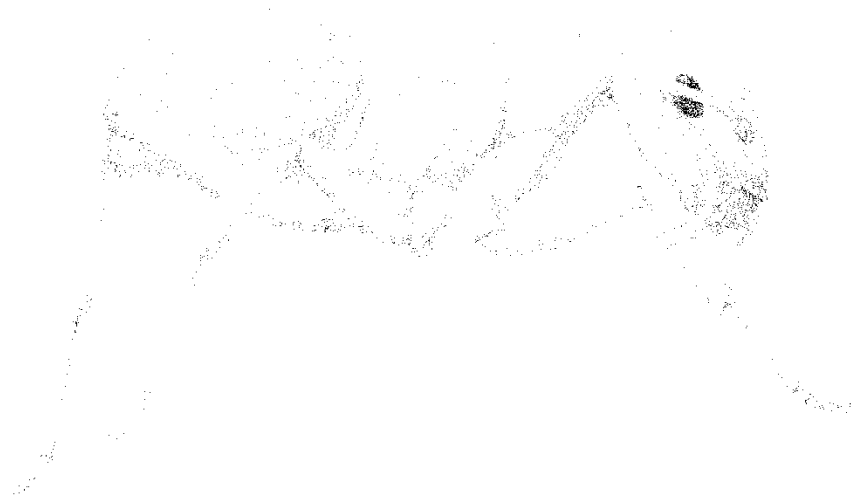


Figure 4.44 *Formica indianensis* Cole

### Previous Names

*Formica (Formica) indianensis* Cole 1940

*Formica indianensis* Cole

### Taxonomy

See Creighton (1950).

### Identification

The body is 5.5-6.5 mm long. This species has a dark reddish-brown head and alitrunk that are darker dorsally, with a very dark reddish-brown gaster that is lighter ventrally and apically. The legs are darker in color. The head and alitrunk are dull while the gaster is satiny with a grayish hue.

### Biology and Behavior

Very little is known. This species can be found in grassy fields (Cole, 1940a).

### Nest and Colony Structure

Nests can be found under stones which are banked along their margins with grass debris (Cole, 1940a).

### Range

Northern Indiana.

### Indiana Distribution

Rare. Recorded from 3 counties in Indiana.

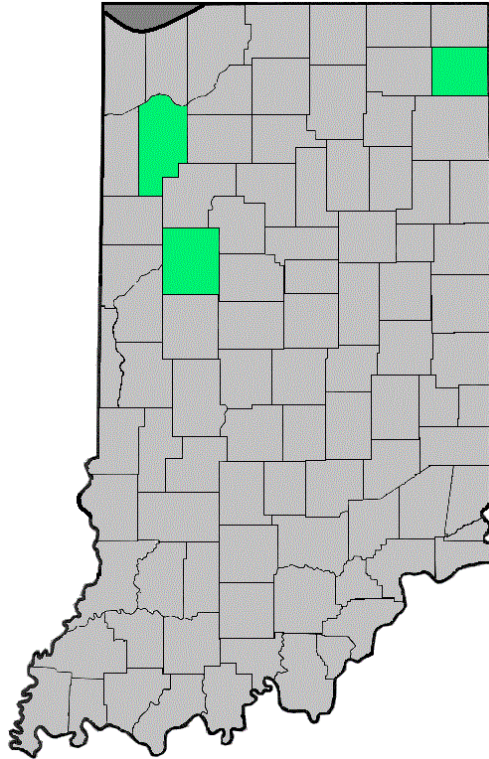


Figure 4.45 *F. indianensis* distribution

### Indiana References

Indiana (Cole, 1940a; Creighton, 1950)

### Comments

This species is only known from northwestern Indiana.

*Formica integra* Nylander

### Previous Names and Synonyms

*Formica truncicola integra* Nylander

*Formica similis* Mayr

*Formica integra* var. *similis* Mayr

### **Taxonomy**

See Creighton (1950).

### **Identification**

The body is 5.0-8.8 mm long. This species is known to be weakly polymorphic (See Kloft et. al., 1973). The head and alitrunk are brownish-yellow to brownish-red in color and the gaster is brownish-black/black. The mandibles are darker, antennae are darker distally, and legs are concolorous. The body is covered with a fine layer of appressed micropubescence. The head and alitrunk are dull to weakly satiny, and the gaster is satiny with a slight grayish hew.

### **Biology and Behavior**

This species can be found in woods, at the edges of wooded areas, and interstitial prairies. Workers can be found foraging on the ground in open areas. They also create cleared trails that are at or just below the surface (Covert, 2005). Workers are highly aggressive if they are disturbed. The main food source for this species is honeydew. They are also known to gather seeds of *Viola* spp. (Culver & Beattie, 1978). This species is known to tend aphids, scale insects, and membracids. Webster & Nielsen (1984) list the larvae of the butterfly *Satyrium edwardsi* and the membracid *Similia camelus* as insects associated with this species.

### **Nest and Colony Structure**

Nests can be found under fallen bark slabs, decomposing wood, and rocks with thatch mounds surrounding. Colonies are large in size and may have multiple queens present (Kloft et. al., 1973). Male and female alates can be found in June.

### **Range**

Nova Scotia, Quebec, south to Georgia, west to Michigan, Wisconsin, South Dakota, Illinois, Mississippi.

### **Indiana Distribution**

Rare. Recorded from 4 counties in Indiana.

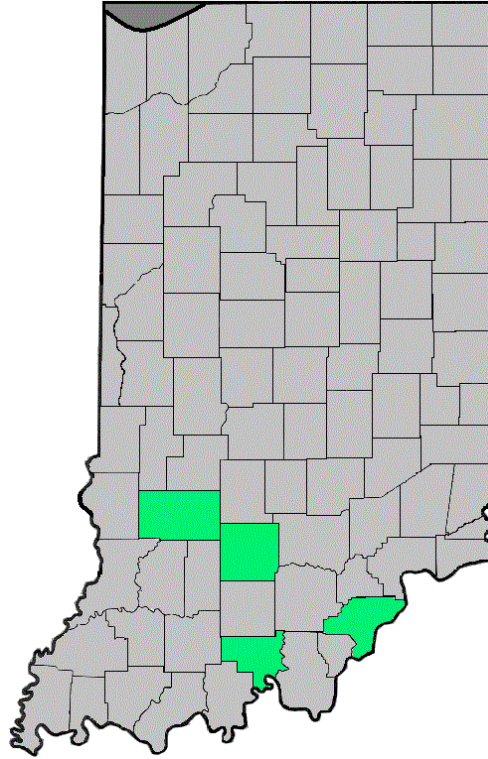


Figure 4.46 *F. integra* distribution

#### Indiana References

Indiana (Munsee, Jansma, & Schrock, 1986), Crawford (Wheeler).

#### Comments

This is typically a southern species whose northern range limit reaches the southern portion of Indiana.

#### *Formica lasioides* Emery

#### Previous Names and Synonyms

*Formica vetula* Wheeler

*Formica neogagates lasioides* var. *vidua* Wheeler

*Formica (Proformica) neogagates* subsp. *lasioides* var. *vetula* Wheeler

*Formica lasioides* var. *vetula* Wheeler

*Formica lasioides* var. *picea* Emery

*Formica neogagates* subsp. *lasioides* var. *vetula* Wheeler

*Formica subpolita* var. *picea* Emery

*Formica fusca subpolita* var. *picea* Emery

**Taxonomy**

See Creighton (1950).

**Identification**

The body is 4.1-5.0 mm long. This species is dark reddish-brown to brownish-black in color. The alitrunk may be slightly paler in color, the mandibles are paler and black edged, antennae are distally paler, and the legs are apically paler. The entire body is smooth and glossy. The tiny erect hairs on the scape are characteristic for this species.

**Biology and Behavior**

This species can be found in grasslands (Smith, 1979), and at the edge of wooded areas (Wheeler et. al., 1994). Workers are fast moving and timid but in larger colonies they are more aggressive and may bite (Wheeler & Wheeler, 1986). This species is a host to *Formica rubicund*, *F. subintegra*, and *Polyergus lucidus* (Smith, 1979).

**Nest and Colony Structure**

Nests can be found under stones or in the soil as small craters (Smith, 1979). Colonies are generally small with probably only a few hundred individuals (Creighton, 1950).

**Range**

Nova Scotia, Quebec west to British Columbia, south to Massachusetts, Michigan, northern Ohio, South Dakota, Colorado, New Mexico, Arizona, California.

**Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.

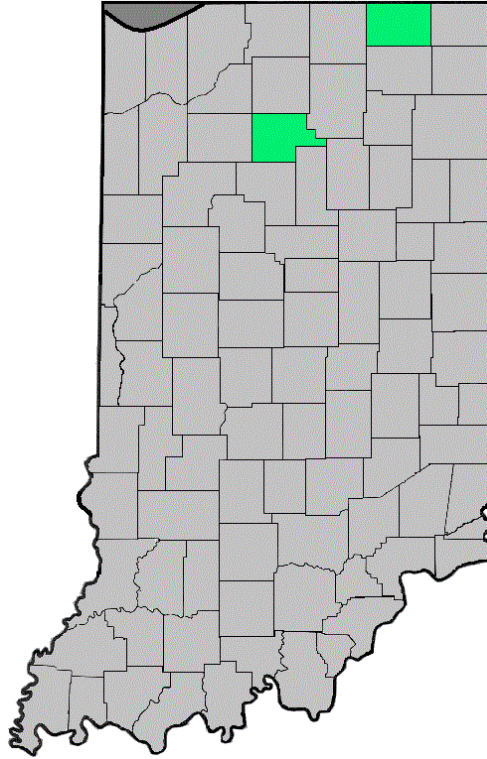


Figure 4.47 *F. lasiodes* distribution

#### Indiana References

None.

#### Comments

This northern species is a new state record for Indiana. It is easily identified by the erect hairs on the antennal scape.

*Formica montana* Wheeler

#### Previous Names and Synonyms

*Formica fusca subpolita* var. *montana* Emery 1893

*Formica cinerea* var. *neocinerea* Wheeler 1913

*Formica cinerea cinerea* var. *rutilans* Wheeler 1913

*Formica rutilans* Wheeler

*Formica cinerea cinerea* var. *neocinerea* Wheeler

#### Taxonomy

See Bolton (1995).

**Identification**

The body is 3.8-6.1 mm long. This species has a yellowish-brown to dark brown head and alitrunk with the lower part of the head and front edge of the alitrunk usually paler. The Gaster is dark brown to blackish-brown. The antennae are basally paler and the legs are apically paler. The whole body is covered with dense appressed pubescence that appears silvery. The hairs on the gula and erect hairs on the dorsum of the alitrunk, petiole, and sides of the mesopleuron are all characteristic for this species.

**Biology and Behavior**

This species can be found in fields, prairies, fens, and wet prairies. Workers can be found foraging on the ground and on foliage. This species is known to tend aphids and membracids for honeydew. It also serves as a host to *Formica dakotensis*, *F. aserva*, *F. rubicund*, *F. subintegra*, and *Polyergus breviceps* (Smith, 1979).

**Nest and Colony Structure**

Nests can be found in shaded areas. They are conical soil mounds that are often covered in thatch. Gregg (1944) reported a mound almost 2 meters in diameter.

**Range**

Central Ohio, west to Manitoba, North Dakota, South Dakota, Nebraska, Kansas.

**Indiana Distribution**

Rare. Recorded from 3 counties in Indiana.



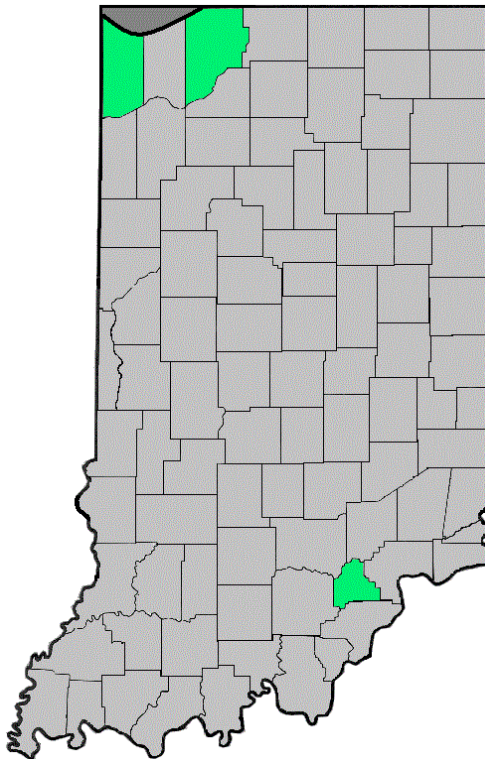


Figure 4.48 *F. montana* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), LaPorte (Gregg, 1944; Rericha, 2007; Wheeler, 1916).

#### Comments

This Great Plains species reaches Indiana on the fringe of its range.

#### *Formica neogagates* Emery

#### Previous Names and Synonyms

*Formica fusca subpolita* var. *neogagates* Emery 1893

*Formica fusca* var. *neogagates* Viereck 1903

#### Taxonomy

Often confused with *F. vinculans* and once combined with that particular species.

#### Identification

The body is 3.7-4.8 mm long. This species is dark reddish-brown to brownish-black in color. The mandibles are somewhat paler with black edges, the antennae are basally paler, and

the legs are paler. The body is smooth and glossy. The short, sparse gastral pubescence is characteristic for this species.

### **Biology and Behavior**

This species can be found in mesic woods (Wheeler et. al., 1994), agricultural fields, dunes, and black oak savanna. Workers can be found foraging on the ground or on foliage. They are fast and when disturbed they exhibit a panic alarm behavior (Snelling & Buren, 1985). The main food source for this species is honeydew. They serve as a host to *Formica creightoni*, *F. rubicund*, *F. subintegra*, and *Polyergus lucidus* (Smith, 1979).

### **Nest and Colony Structure**

Nests can be found under stones or in open soil forming a large crater mound. In densely shaded woodland, it nests in thick leaf litter and soil. Colonies are thought to contain a few hundred individuals (Creighton, 1950).

### **Range**

Nova Scotia, Quebec, west to Alaska, south to North Carolina, Illinois, Iowa, Nebraska, New Mexico, Nevada, Arizona, California.

### **Indiana Distribution**

Occasional to widespread. Recorded from 31 counties in Indiana.

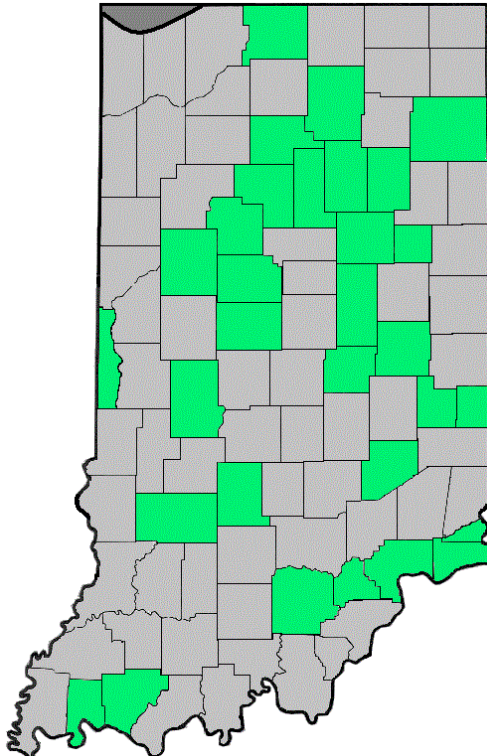


Figure 4.49 *F. neogagates* distribution

**Indiana References**

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Kosciusko (Wheeler, 1916), Lake (Morris, 1943; Rericha, 2007), Porter (Gregg, 1944).

**Comments**

Found throughout Indiana, this species is fairly common.

*Formica nitidiventris* Emery**Previous Names and Synonyms**

*Formica pallid-fulva nitidiventris* Emery 1893

*Formica pallid-fulva schaufussi* var. *incerta* Emery 1893

*Formica pallid-fulva fuscata* Emery 1893

*Formica pallidefulva nitidiventris* Emery

*Formica (Neoformica) pallidefulva* subsp. *nitidiventris* var. *fuscata* Emery

*Formica pallidefulva* subsp. *delicata* Cole

*Formica pallidefulva* subsp. *nitidiventris* var. *fuscata* Emery

*Formica (Neoformica) pallide-fulva nitidiventris* var. *fuscata* Emery

*Formica pallide-fulva* subsp. *schaufussii* var. *incerta* Emery

*Formica (Neoformica) pallidefulva schaufussi* var. *incerta* Emery

*Formica pallide-fulva* subsp. *fuscata* Emery

*Formica pallidefulva schaufussi* var. *incerta* Emery

*Formica pallidefulva fuscata* Emery

*Formica pallidefulva* subsp. *schaufussi* var. *incerta* Emery

*Formica (Neoformica) pallidefulva* subsp. *schaufussi* var. *incerta* Emery

*Formica pallidefulva delicata* Cole

*Formica fuscata* Emery

*Formica (Neoformica) pallidefulva* subsp. *incerta* Buren

*Formica (Neoformica) pallide-fulva schaufussi* var. *incerta* Emery

*Formica pallidefulva nitidiventris* var. *fuscata* Emery

*Formica pallidefulva incerta* Buren

**Taxonomy**

The taxonomy of this species has been in a confused state for some time. See Creighton (1950), Wesson & Wesson (1940), and Holldobler & Wilson (1990) for more details.

**Identification**

The body is 4.5-6.8 mm long. This species has a dark yellowish-brown to dark orangish-brown head and alitrunk. The gaster is dark brown to black. It may also have a dark brown head and alitrunk or be wholly dark brown. The mandibles are concolorous with the head, the antennae are basally paler, and the legs are apically pale. The head and gaster are smooth and glossy, while the alitrunk is minutely sculptured and satiny. The short, sparse appressed pubescence on the gaster and bicolored body are characteristic for this species.

**Biology and Behavior**

This species can be found in fields, prairies, lawns, and at the edge of wooded areas. Workers can be found foraging on the ground, tree trunks, foliage, and pavement. They are very fast and most active around midday (Talbot, 1946). Coovert (2005) reported this species feeding on various flower blooms as well as honeydew. They also feed on the seeds of *Uvularia perfoliata* (Beatie & Culver, 1981). They are known to tend aphids and membracids.

**Nest and Colony Structure**

Nests can be found in various areas in the ground. They may have one or more entrances that have a soil pile spread out in front of them. Colonies may have more than one queen and up to 2,000 workers (Talbot, 1948). Male alates can be found in July and female alates can be found from late June to early August.

**Range**

Ontario, Quebec south to Georgia, west to Wisconsin, South Dakota, Wyoming, Colorado, New Mexico.

**Indiana Distribution**

Widespread. Recorded from 68 counties in Indiana.

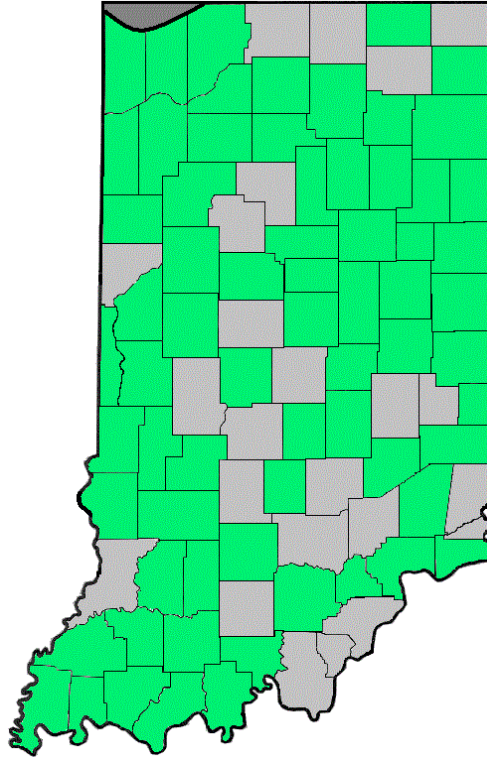


Figure 4.50 *F. nitidiventris* distribution

### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986).

### Comments

This quick moving ant is fairly common in Indiana and is often found in lawns and gardens.

### *Formica obscuripes* Fore

#### Previous Names and Synonyms

*Formica fuva obscuripes* Forel 1893

*Formica ruva obscuriventris* var. *melanotica* Emery 1893

*Formica ruva aggerans* Wheeler 1912

*Formica rufa aggerans* Wheeler

*Formica rufa* r. *aggerans* Wheeler

*Formica truncicola* subsp. *obscuriventris* var. *aggerans* Wheeler

*Formica rufa* subsp. *obscuripes* var. *melanotica* Emery

*Formica rufa obscuripes melanotica* Emery

*Formica rufa* subsp. *melanotica* Creighton

*Formica rufa aggerans* var. *melanotica* Emery

*Formica rufa obscuripes rubiginosa* Emery

*Formica rufa* subsp. *rubiginosa* Emery

*Formica rufa* subsp. *obscuriventris* var. *rubiginosa* Emery

*Formica rufa* subsp. *aggerans* var. *melanotica* Emery

*Formica rufa melanotica* Creighton

### **Taxonomy**

See Creighton (1950).

### **Identification**

The body is 5.0-9.0 mm long. This species is highly variable in color. The head and alitrunk are brownish-yellow to brownish-orange and darkened dorsally. The gaster is blackish-brown to black. The mandibles, antennae, and legs are darker. The body is covered with appressed micropubescence, and the head and alitrunk are dull to weakly satiny. The gaster is satiny with a faint grayish cast.

### **Biology and Behavior**

This species can be found in prairies, agricultural fields, and other open areas. Workers are very aggressive and will bite if threatened (Wheeler & Wheeler, 1963). They are omnivores and will feed on dead invertebrates and honeydew (Beatie & Culber, 1977). This species is known to tend aphids and membracids. They are a host to the larval syrphids *Microdon albicomatus*, *M. cothurnatus*, and *M. xanthopilis* (Duffield, 1981). They are also a host to the ant species *Formica talbotae* and *Formicoxenus hirticornis* (Wilson, 1976; Talbot, 1977).

### **Nest and Colony Structure**

Nests can be found in the soil in various areas, but usually near the base of plants. They are large mounds covered with thatch (Wheeler & Wheeler, 1986) and may be occupied for up to 7.8 years (Holldobler & Wilson, 1990). Colonies are very large, with up to 50,000 adults (Talbot, 1976). Male and female alates can be found in June.

### **Range**

Quebec, Michigan, Indiana, Illinois, Manitoba west to British Columbia, south to New Mexico, Nevada, Utah, California.

### **Indiana Distribution**

Recorded by Munsee, Jansma, & Schrock (1986) but no collection data was given.

### **Indiana References**

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986).

## Comments

This species is rare in Indiana and should be sought after in the western counties.

### *Formica obscuriventris obscuriventris* Mayr

## Previous Names and Synonyms

*Formica truncicola* var. *obscuriventris* Mayr 1870

*Formica truncicola obscuriventris* Mayr

*Formica dryas* Wheeler

*Formica rufa* subsp. *obscuriventris* var. *gynomma* Wheeler

*Formica truncicola obscuriventris* var. *gynomma* Wheeler

*Formica truncicola* subsp. *obscuriventris* var. *gynomma* Wheeler

*Formica dryas* var. *gynomma* Wheeler

*Formica dryas gynomma* Wheeler

## Taxonomy

See Creighton (1950) and Covert (2005).

## Identification

The body is 4.6-8.1 mm long. This species has a brownish-yellow to brownish-red head and alitrunk with the alitrunk being slightly paler than the head. The gaster is brownish-black/black. The mandibles, antennae, and legs are darker. The body is covered with appressed micropubescence. The head and alitrunk are dull, and the gaster is satiny with a faint grayish cast. The erect hairs on the tibiae and femora are characteristic for this species.

## Biology and Behavior

This species can be found in prairies, agricultural fields, and in moist woods (Wesson & Wesson, 1940). They commonly send out foraging columns (Wheeler & Wheeler, 1986). They have also been known to be highly aggressive when the nest is threatened. The main food source for this species is honeydew.

## Nest and Colony Structure

Nests can be found in the soil or under logs. They build large mounds that are covered with thatch. Male and female alates can be seen in August.

## Range

Quebec, Maine south to Virginia, west to North Dakota, Iowa, Colorado, Nevada.

## Indiana Distribution

Rare. Recorded from 4 counties in Indiana.

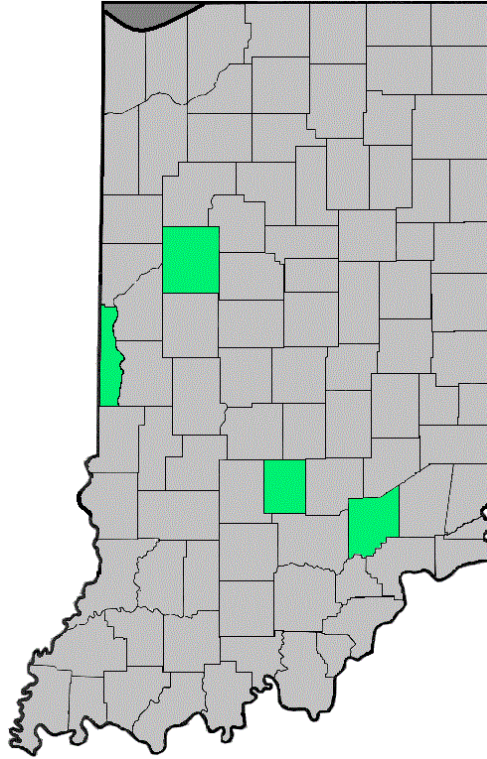


Figure 4.51 *F. o. obscuriventris* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Kosciusko (Wheeler, 1916), Porter (Gregg, 1944), Starke (Rericha, 2007).

#### Comments

This large species is rarely found in Indiana.

#### *Formica pallidefulva* Latreille

#### Previous Names and Synonyms

*Formica pallid-fulva* Latreille 1802

*Formica pallid-fulva* var. *succinea* Wheeler 1904

*Formica (Neoformica) pallidefulva pallidefulva* var. *succinea* Wheeler

*Formica pallidefulva* var. *succinea* Wheeler

*Formica pallidefulva succinea* Wheeler

#### Taxonomy

See Creighton (1950).



**Identification**

The body is 5.2-7.2 mm long. This species is medium brownish-yellow to brownish-orange in color. The head and alitrunk are darkened dorsally. The gaster is weakly brown-tinged. The mandibles are darker, antennae are apically darker, and elgs are concolorous with the alitrunk. The body is smooth and glossy, with the propodeum being minutely sculptured and satiny. The short sparse appressed pubescence on the gaster and uniform coloration are characteristic for this species.

**Biology and Behavior**

This species can be found in prairies, agricultural fields, and in lawns. Workers can be found foraging on the ground, foliage, and tree trunks and are very fast. This species serves as a host to *Formica dakotensi*, *F. difficilis*, and possibly *F. pergandei* (Smith, 1979).

**Nest and Colony Structure**

Nests can be found under sidewalks, stones, and logs. The nests are crater mounds that are typically embedded in the roots of plants (Rericha, 2007). Holldobler & Wilson (1990) found that workers are able to reproduce in queenless nests. Male and female alates can be found in July.

**Range**

Southeastern Canada, New York, New Jersey south to Florida west to Ohio, Illinois, Colorado, Wyoming, Oklahoma, Texas, New Mexico.

**Indiana Distribution**

Widespread. Recorded from 59 counties in Indiana.

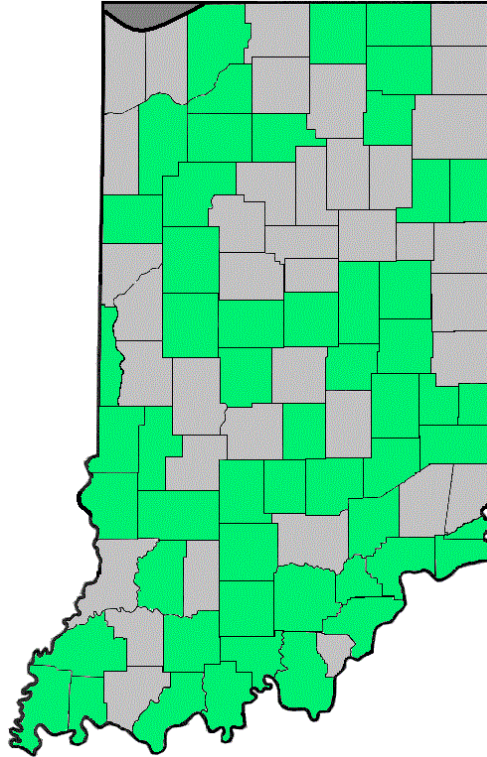


Figure 4.52 *F. pallidefulva* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Lake, Kosciusko, Marion (Wheeler, 1916), LaPorte, Martin, Washington (Morris, 1943), Porter (Gregg, 1944).

#### Comments

This species is distinctive due to its pale coloration and can be found throughout the state.

#### *Formica postoculata* Kennedy & Davis

#### Previous Names and Synonyms

None.

#### Taxonomy

The type locality for this species came from Aurora, Indiana in Ohio County.

#### Identification

The body is 4.4-6.3 mm long. This species has a brownish-yellow to brownish-orange head and alitrunk that are both dorsally darkened. The gaster is brownish-black/black. The mandibles are darker, antennae are distally darker, and the legs are concolorous or slightly darker.

The head and alitrunk are dull to satiny, and the head is glossy on the sides. The gaster is satiny with a grayish cast created by the appressed micropubescence.

### **Biology and Behavior**

This species can be found in grassy pastures and agricultural fields. Workers can be found foraging on the ground, foliage, and saplings. Coovert (2005) reported finding feeding columns across a grassy lane in an open meadow. The main source of food for this species is honeydew, and they are known to tend aphids.

### **Nest and Colony Structure**

Nests can be found in the ground and are thatch mounds. The type series that was found described the nest as a thatch mound between two boulders (Kennedy & Dennis, 1937).

### **Range**

Pennsylvania, Ohio, Indiana, Illinois, Iowa

### **Indiana Distribution**

Rare. Recorded from 1 counties in Indiana.

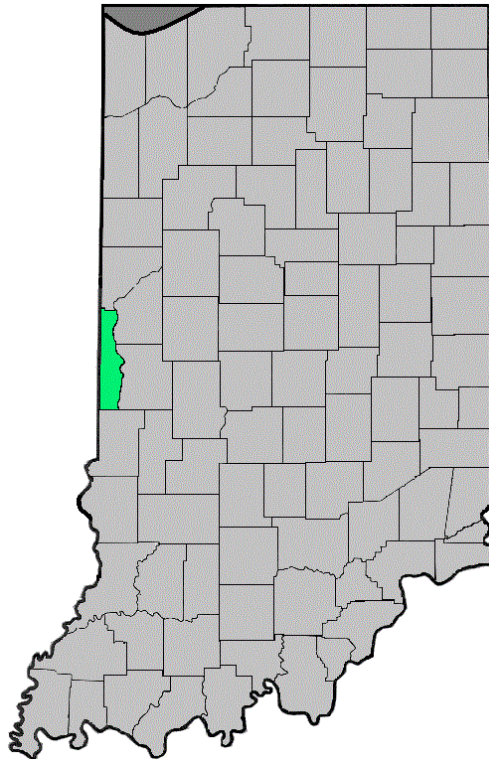


Figure 4.53 *F. postoculata* distribution

**Indiana References**

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Ohio Co (Kennedy & Dennis, 1937).

**Comments**

This species was originally found and described from Indiana.

*Formica querquetulana* Kennedy and Davis**Previous Names and Synonyms**

None.

**Taxonomy**

See Creighton (1950).

**Identification**

The body is 4.0-7.0 mm long. This species has a orangish- to reddish-brown head and alitrunk and a brownish-black/black gaster. The mandibles are slightly darker, antennae are distally darker, and legs are a medium brown. The head and alitrunk are dull while the gaster is satiny with a grayish cast produced by the dense appressed micropubesence.

**Biology and Behavior**

This species can be found at the edge of oak woods (Covert, 2005), oak savanna, and prairie openings. It is a temporary social parasite to the *Formica fusca* group.

**Nest and Colony Structure**

Nests can be found in sandy soil banks and under other objects on the ground (Covert, 2005).

**Range**

New England to Ohio, Michigan, Indiana, Iowa, west to Montana, Nevada, California

**Indiana Distribution**

Rare. Recorded from 9 counties in Indiana.

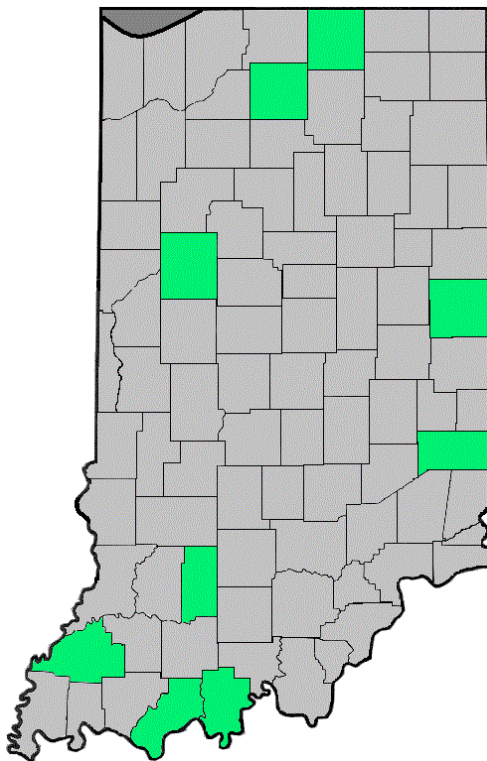


Figure 4.54 *F. querquetulana* distribution

### Indiana References

Indiana (Munsee, 1976; Munsee, Jansma & Schrock, 1986), Spencer (Morris, 1943).

### Comments

This uncommon species was collected by Dr. Kennedy and Dr. Talbot in Spencer County.

### *Formica rubicunda* Emery

### Previous Names and Synonyms

*Formica sanguine rubicunda* Emery 1893

### Taxonomy

See Buren (1968a).

### Identification

The body is 7.0-8.1 mm long. This species has a orangish-brown to dark reddish-brown head and alitrunk, while the gaster is black. The mandibles are darker, antennae are distally darker, and the legs are slightly distally darker. The head and alitrunk are dull with the sides being moderately glossy and the gaster is satiny to glossy with a golden cast caused by the relatively dense appressed micropubesence.

### Biology and Behavior

This species can be found in dry prairies, old fields and pastures, agricultural fields, wooded areas, and at the edge of wooded areas. The main food source for this species is the brood of *Myrmica* spp (Talbot, 1985). Workers can be found only when in the process of raiding nests of other *Formica* spp. They have been known to raid *Formica nitidiventris*, and *F. subsericea* (Coover, 2005) and use *F. altipetens*, *F. bradleyi*, *F. fossiceps*, *F. fusca*, *F. lasiodes*, *F. lepida*, *F. montana*, *F. neoclara*, *F. nitidiventris*, and *F. schaufussi* as hosts (Smith, 1979).

### Nest and Colony Structure

Nests can be found in the soil as low mounds with thatch and gravel on top (Coover, 2005). Talbot (1985) reported that they acquire, at least partially, the characteristics of the host in which the colony is started. Colonies are rather large and female alates can be found from early July to mid August.

### Range

Quebec, Ontario south to North Carolina, Tennessee, west to Michigan, Montana, Colorado, New Mexico.

### Indiana Distribution

Rare. Recorded from 5 counties in Indiana.

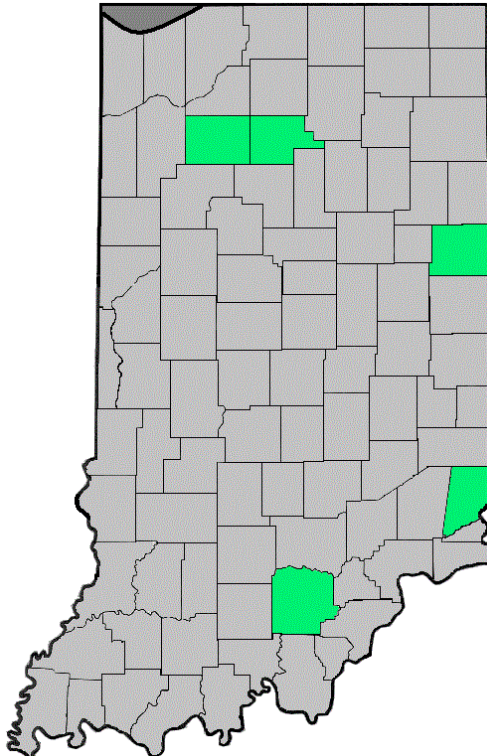


Figure 4.55 *F. rubicunda* distribution

### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986). Brown (Rericha, 2007), Porter (Gregg, 1944).

### Comments

This large slave-raiding ant is somewhat rare in Indiana but a unique find.

### *Formica subaenescens* Emery

### Previous Names and Synonyms

*Formica fusca subaenescens*

*Formica fusca fusca subaenescens*

*Formica fusca*

### Taxonomy

See Creighton (1950).

### Identification

The body is 4.0-5.4 mm long. This species is uniformly reddish-brown to brownish-black in color. The mandibles, antennae, and legs are pale orangish-brown in color. The body is moderately glossy.

### Biology and Behavior

This species can be found in wet woodlands, swamps, bogs, or shaded margins of upland morainic depressions (Rericha, 2007).

### Nest and Colony Structure

Nests can be found beneath the soil or in decomposing wood. It has also been found to nest in moss hummocks of *Atrichum angustatum* (Rericha, 2007).

### Range

Newfoundland (insular) west to Yukon, south to South Carolina (in mountains), Michigan, Wisconsin, northern Illinois, northwestern Indiana, Iowa, South Dakota, New Mexico, Nevada, Arizona, California.

### Indiana Distribution

Rare. Recorded from 1 county in Indiana



Figure 4.56 *F. subaenescens* distribution

### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Porter (Gregg, 1944).

### Comments

This species is at its southern limit in northern Indiana.

### *Formica subintegra* Wheeler

### Previous Names and Synonyms

*Formica sanguinea rubicunda* var. *subintegra* Emery 1893

*Formica sanguinea subintegra* var. *gilvescens* Wheeler 1913

*Formica sanguinea subintegra* Emery

### Taxonomy

See Buren (1968a).

### Identification

The body is 4.9-7.2 mm long. This species has a yellowish-orange to orangish-brown head and alitrunk with a gaster that is blackish-brown and sometimes orange tinged at the base. The mandibles are somewhat darker than the face, the antennae are darkened distally, and the legs



are concolorous with the alitrunk. The head and alitrunk are dull with the sides of the head and propleura being glossy. The gaster is satiny to glossy with a faint golden cast caused by the appressed micropubescence. The blunt crest of the petiole is characteristic for this species.

### **Biology and Behavior**

This species can be found in wooded areas, at the edge of wooded areas, fields, prairies, oak savanna, and in agricultural fields. Davis & Bequaert (1922) reported a raid on an *Aphaenogaster* colony as food. Workers are rarely found foraging and are most often found raiding other colonies of *Formica*. They have been observed raiding *Formica glacialis* and *F. subsericea* for slaves by Covert (2005). When the nest is disturbed, instead of attacking, this species is more likely to relocate the nest. Both slaves and slave-raiders carry nest mates of either species to their new location (Holldobler & Wilson, 1990).

### **Nest and Colony Structure**

Nests can be found under logs (Covert, 2005), branches and in the soil (Wheeler et. al., 1994). Colonies are also started in the nests of host species. Holldobler & Wilson (1990) found that workers can reproduce in colonies that are queenless. Male and female alates can be found in July.

### **Range**

Newfoundland, Nova Scotia, Ontario south to South Carolina, Tennessee, west to North Dakota, Iowa, Kansas.

### **Indiana Distribution**

Rare. Recorded from 5 counties in Indiana.

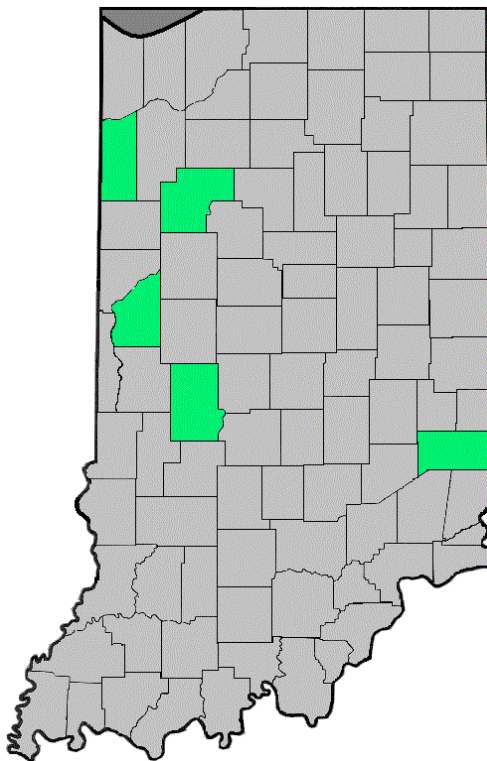


Figure 4.57 *F. subintegra* distribution

### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986).

### Comments

This species is somewhat rare in Indiana but a very interesting find.

### *Formica subsericea* Say

### Previous Names and Synonyms

*Formica lecontei* Kennedy & Dennis 1937

*Formica fusca subsericea* Say

### Taxonomy

*F. subsericea* is often confused with *F. fusca*. See Francoeur's (1973) revision.

### Identification

The body is 5.5-7.3 mm long. This species is dark brownish-black/black in color. The mandibles are dark reddish brown with black edges, the antennae are slightly paler basally, and the legs are slightly paler apically. The head, alitrunk, and first three gastral tergites are covered with dense silvery appressed pubescence that is much thinner on the fourth tergite.

### Biology and Behavior

This species can be found in wooded areas, prairies, lawns, and agricultural fields. Workers can be found foraging during the day on the ground, tree trunks, foliage, and sidewalks. They feed on a variety of flower nectarines and have also been found to tend membracids, scale insects, and aphids. They are the victim of raids by *Formica subintegra*, *F. rubicunda*, *F. pergandei*, *F. nitidiventris*, *F. aserva* and *Polyergus breviceps* (Coovert, 2005; Wheeler et. al., 1994). After a nest has been raided, workers will plug the entrance (Talbot & Kennedy, 1940).

### Nest and Colony Structure

Nests can be found in the soil usually banked up around a small diameter branch (Rericha, 2007). They are large soil mounds with thatch covering the top. Colonies are usually large. Male alates can be found in August and female alates can be found from late July to early September.

### Range

New Brunswick, Quebec south to northern Florida, west to Manitoba, Montana, Iowa, Kansas, Missouri, Mississippi.

### Indiana Distribution

Widespread. Recorded from 86 counties in Indiana.

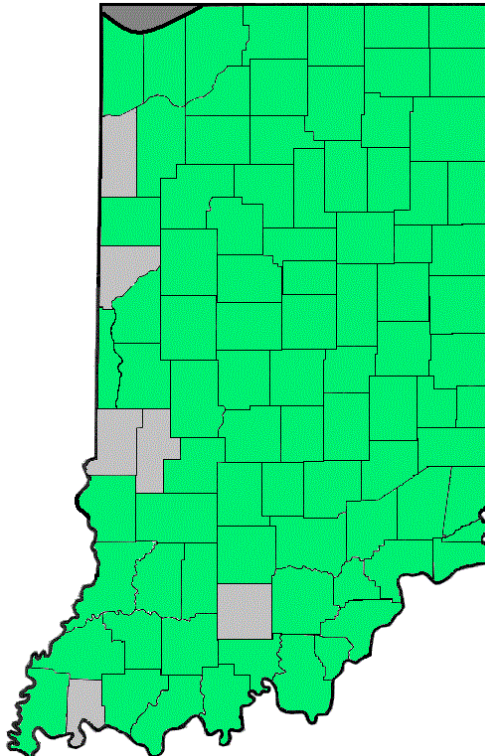


Figure 4.57 *F. subsericea* distribution

### Indiana References

Indiana (Gregg, 1944; Morris, 1943; Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986).

### Comments

This is the most common black *Formica* found in Indiana.

### *Formica ulkei* Emery

### Previous Names and Synonyms

*Formica ulkei* var. *hebescens* Wheeler 1913

### Taxonomy

See Creighton (1950).

### Identification

The body is 5.4-6.9 mm long. This species has a head that is dark brown on top while the clypeus and genae are yellowish brown. The alitrunk is brownish-yellow with brown mottling dorsally on the pronotum and mesonotum. The gaster is brownish-black/black. The mandibles are slightly darker, the antennae are paler basally, and the legs are darker. The body is moderately glossy with microscopic texturing and appressed pubescence.

### Biology and Behavior

This species can be found in bogs, fens, oak forests, and fields near water. Workers can be seen foraging on the ground in an open foraging trail. Talbot (1961) reported honeydew as the main source of food but they also feed on dead insects. They have been known to tend membracids and scale insects. This species is host to the staphylinid *Megastilicus formicarius*. The foundresses of this species is a temporary social parasite on members of the *Formica fusca* group (Talbot, 1961).

### Nest and Colony Structure

Nests of this species can be found in open areas where they are formed as low dome mounds with thick thatch on top. New nests are formed by budding from active nests (Scherba, 1959). Male and female alates can be found in July.

### Range

Nova Scotia, Quebec, west to Manitoba, south to Ohio, Indiana, Illinois, Iowa, North Dakota, Wyoming.

### Indiana Distribution

Rare. Recorded from 6 counties in Indiana.

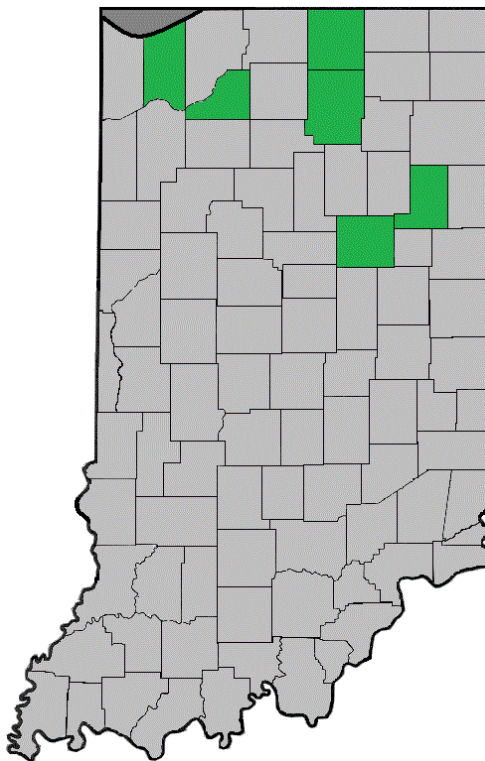


Figure 4.58 *F. ulkei* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Kosciusko, Starke (Wheeler, 1916), Porter (Gregg, 1944), Elkhart (Rericha, 2007).

#### Comments

This species is named by Italian myrmecologist, Carlo Emery (1848-1925).

#### *Formica vinculans* Wheeler

#### Previous Names and Synonyms

*Formica (Proformica) neogagates* var. *vinculans* Wheeler 1913

#### Taxonomy

The type locality for this species is Rockford, IL. See Wheeler et al. (1994).

#### Identification

The body is 3.5-5.6 mm long. This species has a yellowish-brown to orangish-brown head and alitrunk. The gaster is dark orangeish-brown to brownish-black. The mandibles are concolorous with the head and have a dark edge, the antennae are basally paler, and the legs are concolorous with the alitrunk. The body is smooth and glossy.

**Biology and Behavior**

This species can be found in fields, lawns, and prairies. Workers can be found foraging on the ground or pavement. When nests are disturbed, the workers display an aggressive alarm (Snelling & Buren, 1985). This species serves as a host to *Formica gynecrates* (Smith, 1979).

**Nest and Colony Structure**

Nests can be found under piles of organic debris (Coovert, 2005) and in the soil (Wheeler et. al., 1994).

**Range**

Michigan, Ohio, Indiana, Illinois.

**Indiana Distribution**

Occasional to widespread. Recorded from 32 counties in Indiana.

**Indiana References**

None.

**Comments**

This recently recognized species is a new state record for Indiana and fairly common.

*Formicoxenus hirticornis* (Emery)**Previous Names and Synonyms**

*Leptothorax (Leptothorax) hirticornis* Emery 1895

*Leptothorax (Mychothorax) hirticornis subsp. formidolosus* Wheeler

*Leptothorax (Mychothorax) hirticornis var. formidolosus* Wheeler

**Taxonomy**

See Francoeur (1985).

**Identification**

The body is 2.6-2.9 mm long. This species is orangish-brown in color with the middle of the front of the head and the gaster darker. The head and alitrunk are reticulate/punctuate and the surface is dull. The antennal scapes have short, erect, clavate hairs.

**Biology and Behavior**

This species can be found in nests of *Formica obscuripes* and possibly *F. integroides* (Smith, 1979).

**Nest and Colony Structure**

See Host Species

**Range**

Michigan, North Dakota, South Dakota, Colorado, Utah, California.

### Indiana Distribution

Rare. Recorded from one county in Indiana.



Figure 4.59 *F. hirticornis* distribution

### Indiana References

None.

### Comments

This species is an inquiline in nests of *Formica obscuripes*. It is a new state record for Indiana.

*Hypoponera opacior* (Forel)

### Previous Names and Synonyms

*Ponera trigona* var. *opacior* Forel 1893

*Ponera opaciceps* r. *chilensis* Forel 1914

*Hypoponera chilensis* (Forel)

*Hypoponera opacior* (Forel)

*Ponera confinis* subsp. *trigona* var. *opacior* Forel

*Ponera punctatissima* var. *opacior* Forel

*Ponera trigona opacior* Forel

**Taxonomy**

See Forel (1853).

**Identification**

The body is 2.0-2.7 mm long. This species is highly variable in color, ranging from light to dark reddish-brown to occasionally nearly black. The mandibles, appendages, and tip of the gaster are paler in color, usually yellowish-brown. The head and alitrunk are minutely but densely punctuate, with the surface being moderately to distinctly glossy with minute pubescence. This is the only species of hypoponera recorded for the state, so the lack of a circular/oval fenestra will distinguish it.

**Biology and Behavior**

This species can be found in open prairies, grasslands, and mesic/dry-mesic woodlands (Covert, 2005). Wesson & Wesson (1940) reported finding nests of this species in dry-mesic woods and fields. Workers can be found under rocks in open prairies and on the ground in wooded areas (Covert, 2005).

**Nest and Colony Structure**

Nests of this species can be found in decaying wood (Wesson & Wesson, 1940), under stones and rocks (Cole, 1940b), or rarely in the soil where they are embedded in the roots of plants (Rericha, 2007).

**Range**

Virginia to Florida, west to Ohio, Indiana, Illinois, Iowa, Colorado, Texas, Nevada; Oregon, California; Mexico south to Chile, Argentina, West Indies.

**Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.





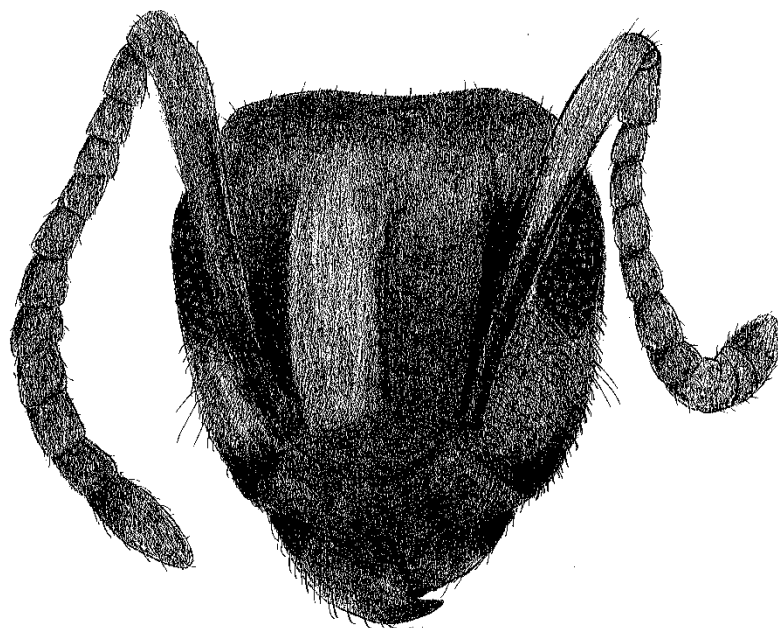
Figure 4.60 *H. opacior* distribution

#### **Indiana References**

Vermillion (Munsee 1967, Munsee & Jansma 1986).

#### **Comments**

This species is thought to be more frequent in the southern portion of the state, where it reaches its northern range limit.

*Lasius alienus* (Förster)Figure 4.61 *Lasius alienus***Previous Names and Synonyms***Formica aliena* Foerster 1850*Lasius niger* var. *americanus* Emery 1893*Lasius niger* subsp. *alienus* var. *americanus* Emery 1893*Acanthomyops* (*Donisthorpea*) *alienus* (Förster)*Acanthomyops* (*Donisthorpea*) *niger alienus* (Förster)*Acanthomyops* (*Lasius*) *niger* subsp. *alienus* var. *flavidus* Kuznetsov-Ugamsky*Acanthomyops* (*Lasius*) *niger* subsp. *alienus* var. *turkmenus* Kuznetsov-Ugamsky*Acanthomyops aliena* (Förster)*Acanthomyops niger alienus* (Förster)*Acanthomyops niger alienus* var. *flavidus* Kuznetsov-Ugamsky*Acanthomyops niger alienus* var. *turkmenus* Kuznetsov-Ugamsky*Donisthorpea aliena* (Förster)*Formica* (*Lasius*) *aliena* Förster*Formica aliena* Förster*Formicina aliena* (Förster)*Formicina nigra* subsp. *aliena* (Förster)*Lasius* (*Lasius*) *niger alienus* (Förster)

*Lasius (Lasius) niger r. alienus var. brunneoalienus* Kulmatycki

*Lasius (Lasius) niger subsp. aliena* (Förster)

*Lasius (Lasius) niger subsp. aliena var. americana* Emery

*Lasius (Lasius) niger subsp. alienus* (Förster)

*Lasius (Lasius) niger subsp. alienus var. alienoamericanus* Wheeler

*Lasius (Lasius) niger subsp. alienus var. americanus* Emery

*Lasius (Lasius) pannonica* Rösler

*Lasius alienus americanus* Emery

*Lasius alienus var. pannonica* Rösler

*Lasius americanus* Emery

*Lasius niger alienus* (Förster)

*Lasius niger americanus* Emery

*Lasius niger r. alienus* Förster

*Lasius niger r. alienus var. brunneoalienus* Kulmatycki

*Lasius niger subsp. aliena* (Förster)

*Lasius niger subsp. alienus var. alienoamericanus* Wheeler

*Lasius niger subsp. alienus var. americanus* Emery

*Lasius niger var. alienus* (Förster)

*Lasius (Lasius) pannonica* Rösler

### **Taxonomy**

In the past, there has been much difficulty in differentiating *L. alienus* from *L. neoniger* due to the reliance of the presence or absence of erect hairs on the scape and tibiae. Covert (2005) suggests that the pilosity of the two species in the Midwest region of the U.S. can distinguish one from the other; with *L. alienus* being much less pilose than *L. neoniger*.

However, this theory may not hold true in other areas.

For other taxonomic descriptions, see Creighton (1950).

### **Identification**

The body is 2.2-4.3 mm long. This species is medium to dark brown in color, usually with spots that appear more orange. The mandibles are dark orangish-brown, while the antennae and legs being brownish-yellow. The head, alitrunk, and gaster are micropunctate with a covering of micropubesence that gives the body a grayish/silverish sheen. The surface is moderately dull to weakly glossy. The features described by Covert (2005) and Wilson (1950) are given in the key and will help to differentiate *L. alienus* from *L. neoniger* in the Midwest. *L. alienus* is generally less pilose than *L. neoniger* and is usually darker in color. In addition to this,

*L. alienus* usually nest under objects such as rocks or logs, while *L. neoniger* tends to nest in soil mounds with no external coverings.

### **Biology and Behavior**

This species can be found in all types of wooded areas. In the Midwest, it occurs in old fields, fens, prairies, and dry-mesic woodlands, usually under rocks or logs (Rericha, 2007). Workers are opportunistic, and can be seen foraging on a variety of food sources, including living or dead insects, seeds, fruits, and honeydew. Coovert (2005) reported this species tending scale insects, aphids, and membracids. Wheeler & Wheeler (1963) and Burns (1964) both report this species tending aphids on trees. Nests of *L. alienus* can be the host of the syrphid larvae, *Microdon ruficrus* (Duffield, 1981). In addition to this, nests can be hosts to *Lasius minutus* and *L. umbratus* which are both social ant parasites (Wheeler et al., 1994).

### **Nest and Colony Structure**

Nests of this species are usually found under rocks, bark, boards, leaf litter, logs, or in acorns. Rericha (2007) reported that nests can be found in moist soil, in the root zones of various plant species. Colonies can be large in size and are very industrious. Male reproductives can be found from mid June to late August, while female reproductives are found from mid June to late July. Headley (1943a) reports that reproductives of both sexes can be found from late July to mid September in Ohio.

### **Range**

Nova Scotia, New Brunswick south to Florida, west to southeastern Manitoba, North Dakota, South Dakota, Nebraska, Kansas, Arkansas, Mississippi; disjunct populations from the main geographic range: British Columbia, Montana, Idaho, Washington, Oregon, northern California; southern Arizona; west central Mexico; Eurasia (Wilson, 1955).

### **Indiana Distribution**

Common. Found throughout the state in 76 counties.

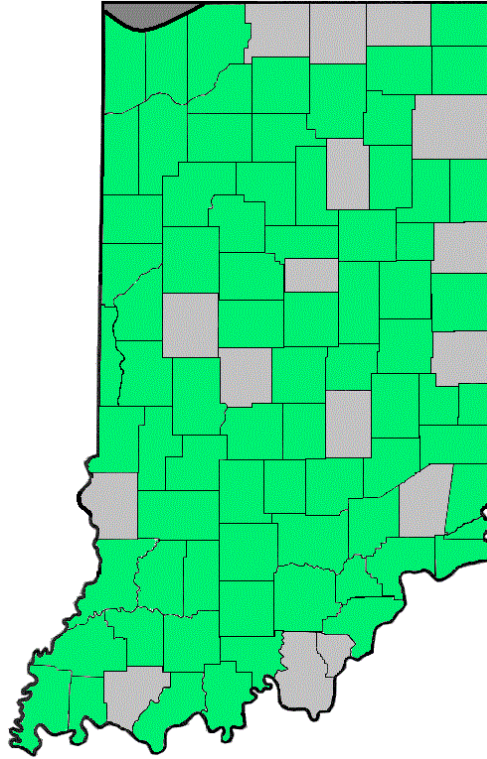


Figure 4.62 *L. alienus* distribution

### Indiana References

Indiana (Munsee 1967, Munsee, Jansma, & Schrock 1986).

### Comments

Often called Cornfield Ants or Piss Ants, this species is one of the more common species for the state and can probably be found in every county. It can be an occasional home invader.

### *Lasius claviger* (Roger)

#### Previous Names and Synonyms

*Formica clavigera* Roger 1862

*Lasius (Acanthomyops) parvula* Smith 1934

*Acanthomyops claviger* (Roger)

*Acanthomyops clavigera* (Roger)

*Acanthomyops parvula* (Smith)

*Lasius (Acanthomyops) claviger* (Roger)

#### Taxonomy

See Wing (1968).

**Identification**

The body is 3.7-4.5 mm long. This species is brownish-yellow to yellow to orangish-brown in color. The mandibles are slightly darker in color and edged with black while the legs are slightly paler. The body is smooth and glossy. This species is easily identified by the less numerous erect hairs on the gula.

**Biology and Behavior**

This species can be found in open woods, empty and old agricultural fields, and pastures. Workers can be found foraging below ground and under rocks or logs for honeydew, which provides the main bulk of their diet. The honeydew is collected from tended root aphids and coccids. Coovert (2005) reported this species in association with *Solenopsis molesta*.

**Nest and Colony Structure**

Nests of this species are found in the soil, usually under rocks, logs, and other various objects. Occasionally it nests in rotting wood or in defunct mound nests created by *Formica montana* and *F. subsericea* (Rericha, 2007). Colonies range in size from a handful of ants to much larger colonies with hundreds of workers. Male and female reproductives can be found from early September to early October.

**Range**

Massachusetts, New York south to Georgia, west to Michigan, Montana, Idaho, Utah, New Mexico.

**Indiana Distribution**

Frequent. Recorded from 47 counties in Indiana.

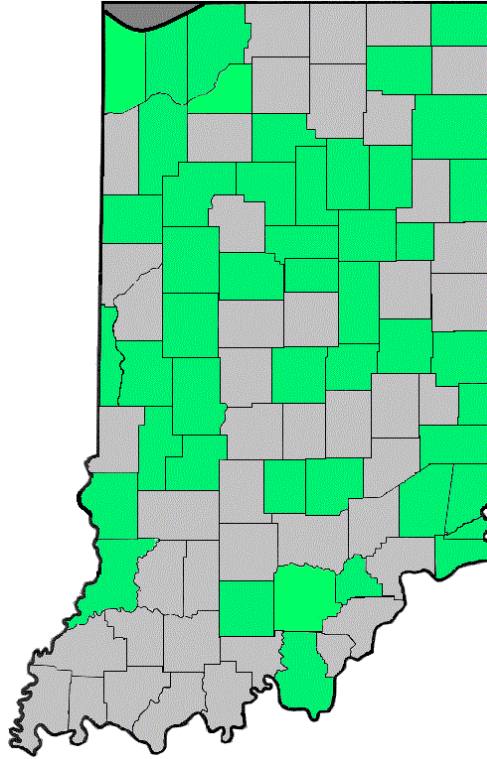


Figure 4.63 *L. claviger* distribution

#### Indiana References

Starke (Wheeler 1916), Clinton, Fulton, Hancock, Knox, Miami, Tippecanoe, Tipton, and Washington (Morris 1943), Lake, Porter, and Brown (Rericha, 2007).

#### Comments

This is the most common yellow ant found in the state. When crushed, it gives off a distinct citronella odor and can be a common home invader when reproductives are swarming.

#### *Lasius flavus* (Fabricius)

#### Previous Names and Synonyms

*Formica flava* Fabricius 1781

*Lasius brevicornis* Emery 1893

*Lasius flavus myops* Forel 1894

*Lasius (Formicina) brevicornis microps* Wheeler 1917

*Acanthomyops (Chthonolasius) flavus* (Fabricius)

*Acanthomyops (Chthonolasius) flavus var. odoratus* (Ruzsky)

*Acanthomyops (Chthonolasius) flavus var. fuscoides* (Ruzsky)

*Acanthomyops flavus* (Fabricius)  
*Chthonolasius flavus* (Fabricius)  
*Chthonolasius flavus* var. *fuscoides* (Ruzsky)  
*Donisthorpea flava* (Fabricius)  
*Formica (Lasius) flava* Fabricius  
*Formica aphidicola* Walsh  
*Formica ruficornis* Fabricius  
*Formicina flava* var. *morbosa* Bondroit  
*Lasius (Cautolasius) flavus* (Fabricius)  
*Lasius (Cautolasius) flavus claripennis* Wheeler  
*Lasius (Chthenolasius) flavus* (Fabricius)  
*Lasius (Chthonolasius) brevicornis* Emery  
*Lasius (Chthonolasius) flavus microps* Wheeler  
*Lasius (Chthonolasius) umbratus aphidicola* (Walsh)  
*Lasius (Chthonolasius) umbratus* st. *ibericus* Santschi  
*Lasius (Chthonolasius) umbratus* st. *ibericus* var. *sancho* Santschi  
*Lasius (Chthonolasius) umbratus* subsp. *mixtus* var. *aphidicola* (Walsh)  
*Lasius (Chthonolasius) umbratus* var. *apennina* Menozzi  
*Lasius (Formicina) brevicornis* Emery  
*Lasius (Formicina) brevicornis* subsp. *microps* Wheeler  
*Lasius (Formicina) flavus* subsp. *claripennis* Wheeler  
*Lasius (Formicina) umbratus* subsp. *mixtus* var. *aphidicola* (Walsh)  
*Lasius apennina* Menozzi  
*Lasius aphidicola* (Walsh)  
*Lasius brevicornis* var. *microps* Wheeler  
*Lasius flavus* (Fabricius)  
*Lasius flavus flavus* (Fabricius)  
*Lasius flavus* subsp. *claripennis* Wheeler  
*Lasius flavus* subsp. *microps* Wheeler  
*Lasius flavus* var. *fuscoides* Ruzsky  
*Lasius flavus* var. *odorata* Ruzsky  
*Lasius fuscoides* Ruzsky  
*Lasius helvus* Cook  
*Lasius ibericus* Santschi



*Lasius microps* Wheeler

*Lasius mixtus* var. *aphidicola* (Walsh)

*Lasius morbosus* (Bondroit)

*Lasius odoratus* Ruzsky

*Lasius olivaceus* Karavaiev

*Lasius umbratus mixtus* var. *aphidicola* (Walsh)

*Lasius umbratus* subsp. *aphidicola* (Walsh)

*Myrmica flava* (Fabricius)

### **Taxonomy**

See Wilson (1955).

### **Identification**

The body is 3.2-3.9 mm long. This species is yellowish-brown to pale orangish brown in color. The alitrunk may be slightly paler. The mandibles are slightly darker with a dark edge and the antennae and legs are concolorous with the body. The body is micropunctate with a covering of micro-pubesence that gives it a grayish/silverish sheen. The surface is moderately dull. This species is differentiated from *L. nearcticus* by its larger and more convex eyes, shorter antennal scapes, and broader more narrow head.

### **Biology and Behavior**

This species is found in fens, wet prairies, and oak savannas (Rericha, 2007). Wheeler et al. (1994) reported them in grasslands and open woods, while Wilson (1955) reported them in dry to moist woods with bare to thinly covered soil. Workers may be found tending root aphids on grasses to collect honeydew (D.R. Smith, 1979). This species is highly subterranean.

### **Nest and Colony Structure**

Nests can be found in shallow soils and in the roots of grasses and sedges (Rericha, 2007). Nests are commonly found under stones. Colonies are founded by 2 or more queens that may live as long as 22 years (Holldobler & Wilson, 1990). Cole (1940b) reported colonies in Tennessee to be small, with less than 100 workers. Male and female reproductives can be found in August (Wheeler, 1916).

### **Range**

Nova Scotia, New Brunswick, Quebec south to North Carolina, Alabama, west to Alberta, Washington, Oregon, California; Eurasia.

### **Indiana Distribution**

Rare. Recorded from 4 counties in northwestern Indiana.

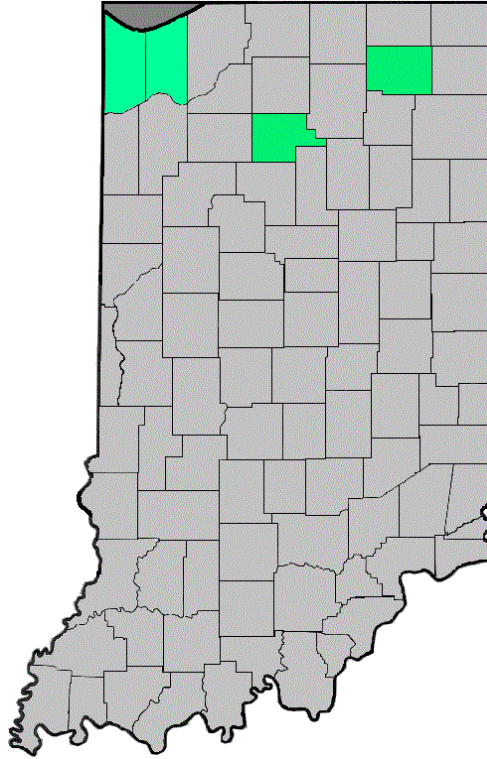


Figure 4.64 *L. flavus* distribution

#### Indiana References

None.

#### Comments

This species is rare for the state and only collected in the northwest. It was originally described by the Danish zoologist, Otto Fabricius in 1781.

#### *Lasius interjectus* (Mayr)

#### Previous Names and Synonyms

*Lasius (Acanthomyops) interjectus* Mayr 1866

*Acanthomyops interjectus* (Mayr)

#### Taxonomy

See Wing (1968).

#### Identification

The body is 4.5-5.4 mm long. This species is brownish-yellow to yellow to orangish-brown in color. The mandibles are darker in color and edged with black, while the legs are only slightly paler in color than the body. The body is smooth and glossy, with the head having dense

appressed micropubescence and being slightly less glossy. The dorsum of the gaster has very sparse appressed micropubescence and appears glossier. This is the most distinctive species of the sub-genus *Acanthomyops* in our area and it is easily identified by its larger size and lack of erect hairs on the 2<sup>nd</sup>- 4<sup>th</sup> gastral tergites.

### **Biology and Behavior**

This species can be found in prairies, old agricultural fields, woods, woods' edges, and occasionally under foundations of buildings. D.R. Smith (1979) reported this species being found in woodlands, pastures, and meadows. This species is highly subterranean, and workers can be found foraging for honeydew underground from root aphids.

### **Nest and Colony Structure**

Nests of this species are irregular upwellings of soil in open areas, or they may be found under rocks, logs, or other decaying wood. Mounds may also be found near the foundations of buildings (D.R. Smith, 1979). Colonies range in size and may be numerous. Male and female reproductives may be seen from mid June to late August (Wing, 1968).

### **Range**

Massachusetts, New York south to Georgia, west to Michigan, Montana, Idaho, Utah, New Mexico.

### **Indiana Distribution**

Uncommon. This species is recorded from 22 counties across Indiana.

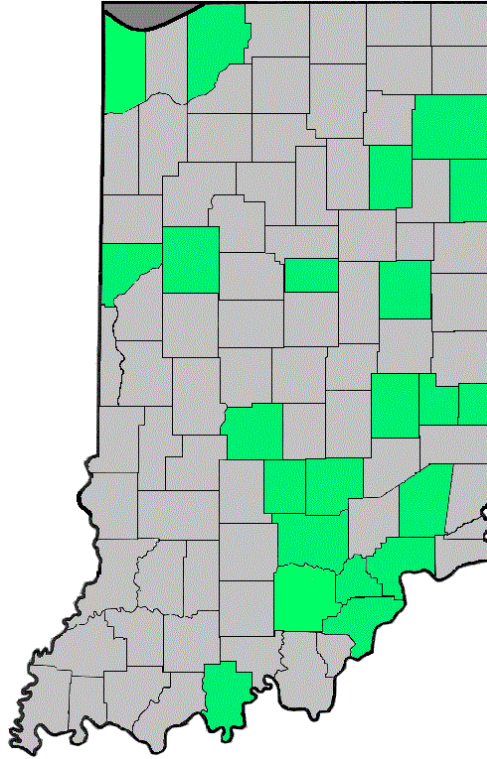


Figure 4.65 *L. interjectus* distribution

#### Indiana References

Indiana (Munsee 1967, Munsee, Jansma, & Schrock 1986), Fayette, Lake, Rush, Tippecanoe, and Washington (Morris, 1943).

#### Comments

Morris (1943) reported that this species is very common throughout the state; however, it may no longer be that populous. When crushed this ant releases a citronella odor that is very distinctive. It is an occasional household pest when nests are flush with foundations, which becomes evident when the winged reproductives swarm.

#### *Lasius latipes* (Walsh)

#### Previous Names and Synonyms

*Formica latipes* Walsh 1863

*Acanthomyops latipes* (Walsh)

*Lasius (Acanthomyops) latipes* (Walsh)

#### Taxonomy

See Wing (1968).

**Identification**

The body is 4.2-4.6 mm long. This species is yellow to brownish-yellow in color, while the head is slightly darker. The mandibles are darker and edged with black. The body is smooth and glossy, with the alitrunk appearing less glossy due to punctuation. This species can be confused with *Lasius claviger*, but the more numerous erect hairs on the gula and blunter petiolar crest help to distinguish it. Wing (1968) reported that these two species can form hybrids.

**Biology and Behavior**

This species can be found in wooded areas, pastures, and meadows (Wing, 1968). Rericha (2007) reported this species in old agricultural fields. This species is highly subterranean, and the workers can be found foraging for honeydew from root aphids, which is their main food source. Individuals and small populations of this species may be temporary parasites to other ants, including *Lasius neoniger*, *L. alienus*, and *L. cripticus* (Wing, 1968).

**Nest and Colony Structure**

Nests of this species are found in open soil, where they create irregular mounds much like *Lasius claviger* and *L. interjectus*. Nests may also be found under rocks, logs, and at the bases of trees and stumps (D.R. Smith, 1979). Colonies can be very large (Talbot, 1963). Male and Female reproductives can be found from August to September in the Midwest.

**Range**

Quebec, Maine, west to British Columbia, south to South Carolina, Tennessee, Illinois, Iowa, Oklahoma, New Mexico, Arizona, California.

**Indiana Distribution**

Rare. Recorded from 9 counties in Indiana.

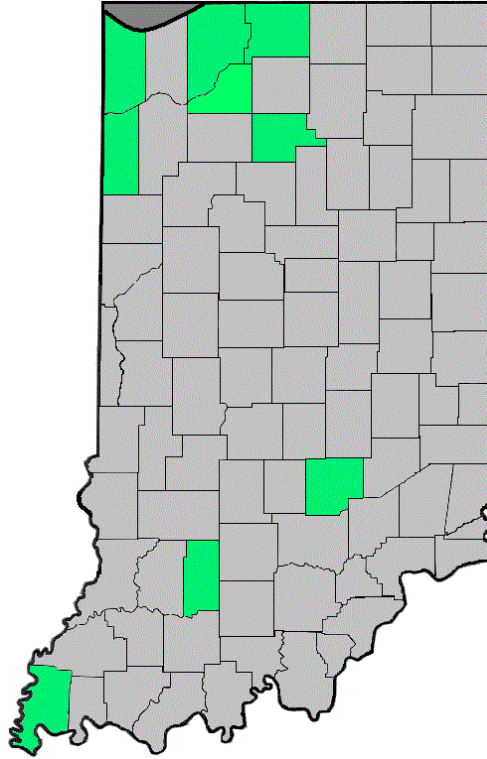


Figure 4.66 *L. latipes* distribution

### Indiana References

Indiana (Morris 1943, Munsee 1967, Munsee, Jansma, & Schrock 1986). Fulton (Wheeler, 1916), Lake (Gregg, 1944), Starke (Rericha, 2007).

### Comments

This is a northern and western species that is rarely collected in Indiana. Because it is a subterranean ant, it may be more common throughout the state but difficult to find.

### *Lasius minutus* Emery

#### Previous Names and Synonyms

*Lasius umbratus minutus* Emery 1893

*Lasius bicornis subsp. minutus* Emery 1925

*Lasius (Chthonolasius) bicornis minutus* Emery

*Lasius (Chthonolasius) bicornis subsp. minuta* Emery

*Lasius (Chthonolasius) minutus* Emery

*Lasius (Formicina) umbratus subsp. minutus* Emery

*Lasius bicornis subsp. minuta* Emery

*Lasius umbratus subsp. minutus* Emery

### **Taxonomy**

See Wilson (1955).

### **Identification**

The body is 3.2-4.0 mm long. This species is pale orangish-brown in color. The mandibles are slightly paler or the same color as the body. The antennae and legs are also the same color as the body. The body is micropunctate with a covering of micropubescence that gives it a grayish/silverish sheen. The surface of the body may be dull to weakly glossy. The large eyes, long hair on the gaster, and dense gastral pubescence help to identify this species.

### **Biology and Behavior**

This species can be found in high quality wetlands in the Midwest. It is found in northern Indiana in fens and wet prairies (Rericha, 2007). It may also be found in dry open forests (Wilson, 1955). This species feeds primarily on honeydew, which workers collect from tending aphids on grass and sedge roots (Kannowski, 1959a). Occasionally *L. minutus* is a parasite in nests of *L. alienus*, and *L. pallitarsis*. Nests of this species can be the host to the ant parasite *L. speculiventris* (Wheeler et al., 1994).

### **Nest and Colony Structure**

Nests of this species are found as large mounds of soil or occasionally as masonry domes (Wilson, 1955). Colonies of this species may be polydomous (Kannowski, 1959a).

### **Range**

Nova Scotia, Quebec, Maine south to Virginia, west to Indiana, Michigan, Minnesota, Iowa.

### **Indiana Distribution**

Rare. Recorded from 13 counties in Indiana.

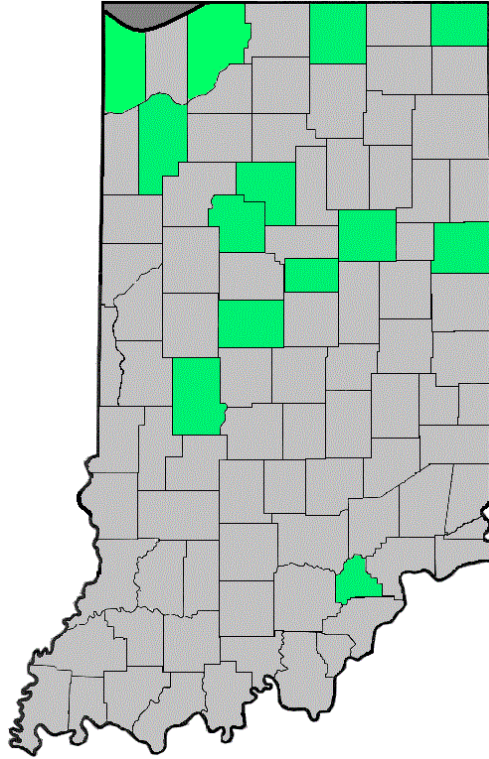


Figure 4.67 *L. minutus* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Steuben (Morris (1943), Lake and LaPorte (Rericha, 2007).

#### Comments

This species is somewhat rare in Indiana and the species name of *minutus* gives some meaning to the small size of these ants.

#### *Lasius nearcticus* Wheeler

#### Previous Names and Synonyms

*Formica mellea* Provancher 1881

*Lasius flavus nearcticus* Wheeler 1906

*Lasius (Chthonolasius) flavus nearcticus* Wheeler

*Lasius (Chthonolasius) flavus subsp. nearcticus* Wheeler

*Lasius (Chthonolasius) nearcticus* Wheeler

*Lasius (Formicina) flavus subsp. nearcticus* Wheeler

*Lasius (Lasius) flavus var. nearctica* Wheeler



*Lasius flavus subsp. nearcticus* Wheeler

*Lasius flavus var. nearcticus* Wheeler

*Lasius mellea* (Provancher)

### **Taxonomy**

This species was previously considered to be a subspecies of *L. flavus* (Wilson, 1955).

### **Identification**

The body is 2.9-3.6 mm long. This species is pale yellow to orangish-yellow in color, with the alitrunk being only slightly paler on some individuals. The mandibles are slightly darker and edged nearly black to black, while the antennae and legs are concolorous. The body is micropunctate and covered with micropubescence that gives it a slight grayish/silverish sheen. The body surface is dull. The minute eyes, long antennal scapae, and subquadrate head help to differentiate this species from *L. flavus*. Coover (2005) noted that this species is usually paler in color than *L. flavus* as well.

### **Biology and Behavior**

This species can be found in mesic wooded areas, oak forests, and sugar maple forests (Rericha, 2007). The main food source for this species is thought to be honeydew, and although they are subterranean, workers can be seen foraging throughout the leaf litter on the ground.

### **Nest and Colony Structure**

Nests of this species are found in the soil beneath rocks and decaying wood; colonies are usually small. Male and female reproductives can be seen from mid August to mid September (Coover, 2005).

### **Range**

Quebec, Ontario south to North Carolina, Tennessee, west to Michigan, South Dakota, Wyoming, Colorado.

### **Indiana Distribution**

Rare. Recorded from 9 counties in Indiana.

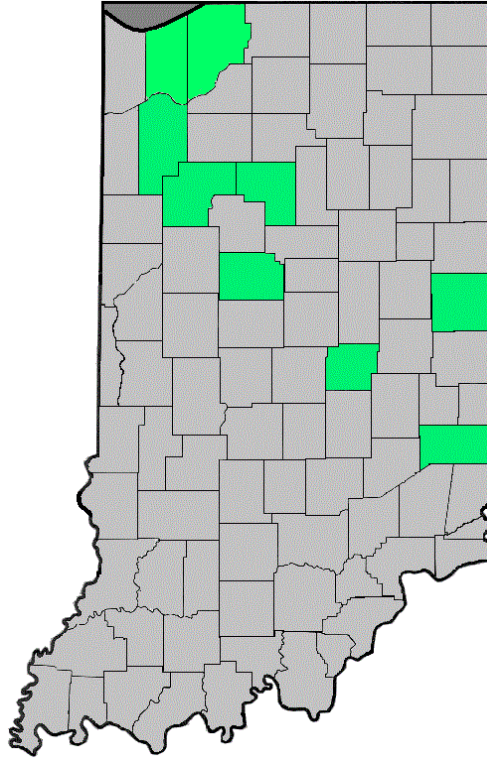


Figure 4.68 *L. nearcticus* distribution

#### Indiana References

Porter and LaPorte (Gregg, 1944).

#### Comments

Although this species appears rare, it is thought to be found throughout the state and only rarely collected due to its subterranean nature.

#### *Lasius neoniger* Emery

#### Previous Names and Synonyms

*Lasius niger* var. *neoniger* Emery 1893

*Lasius* (*Lasius*) *neoniger* Emery

*Lasius* (*Lasius*) *niger* var. *neoniger* Emery

*Lasius* (*Lasius*) *niger* var. *neonigra* Emery

*Lasius niger neoniger* Emery

*Lasius niger* subsp. *neoniger* Emery

#### Taxonomy

See *L. alienus* for comments.

### **Identification**

The body is 2.6-3.8 mm long. This species is yellowish-brown to brown in color. The mandibles are usually paler, while the legs and antennae are concolorous. The body is micropunctate with micropubescence that gives it a grayish/silverish sheen. The surface is dull to weakly glossy. The pilosity of *L. neoniger* is much heavier than that of *L. alienus*, which helps to distinguish it from the latter.

### **Biology and Behavior**

This species can be found in lawns, gardens, prairies, meadows, and at the edges of woods. Wilson (1955) reported that this species was very common in grassy road strips, lawns, cultivated fields, and other disturbed areas. This species is highly carnivorous but has also been found to feed on honeydew and flower nectar (Wilson, 1955). This species commonly tends aphids, including the cornroot aphid (*Aphis maidiradicus*) and *Aphis forebesii* on strawberries (Wilson, 1955; Burrill & Smith, 1919). Nests of this species may be hosts to the temporary ant parasites *Lasius latipes*, *L. umbratus*, and *L. murphyi* (Wheeler et al., 1994; D.R. Smith, 1979). Workers can be found foraging on the ground, on tree trunks, and various other plants. When the weather is warm, they are much more active at night (Talbot, 1946). Headley (1941) reported that this species is very hostile toward *Formica nitidiventris*.

### **Nest and Colony Structure**

Nests of this species are usually found in open sandy or silty soils where they construct mounds or craters. Colonies have a single queen (Holldobler & Wilson, 1990) and can be very large with many crater or mound openings (Headley, 1941). When the weather turns cold, the nests retreat to a single central nest opening (Holldobler & Wilson, 1990). Male and female reproductives can be found from early July to late September. Holldobler & Wilson (1990) nicknamed this ant the “Labor Day ant” due to its tendency to have mass swarms around Labor day.

### **Range**

Quebec, Maine south to northern Florida, across southern Canada west to Idaho, Wyoming, Colorado, New Mexico; disjunct populations in California (Sierras); Alaska.

### **Indiana Distribution**

Throughout the state. Recorded from 81 counties in Indiana.

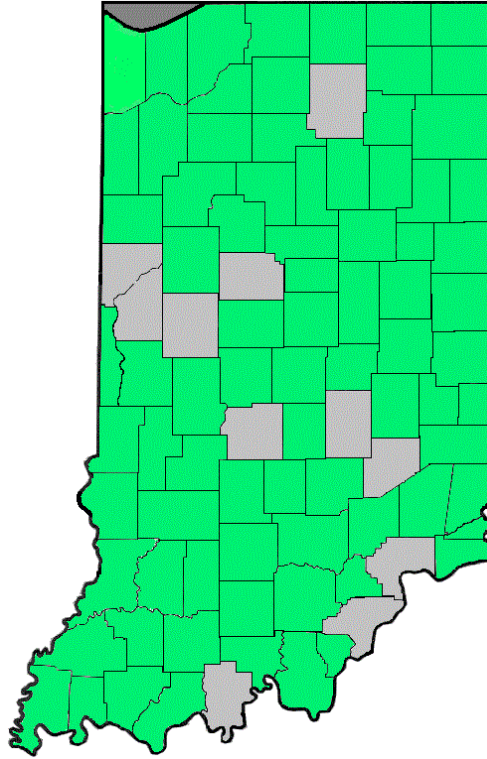


Figure 4.69 *L. neoniger* distribution

### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Martin (Wheeler, 1916), Benton, Lake, Tippecanoe, and Washington (Morris, 1943), Porter and St. Joseph (Gregg, 1944), Vermillion (Munsee & Schrock, 1983), Starke (Rericha, 2007).

### Comments

This ant is commonly found in lawns and gardens across the state. It is one of the most common ant species in Indiana and is often referred to as the “Cornfield Ant” or “Piss Ant”.

### *Lasius pallitarsis* (Provancher)

#### Previous Names and Synonyms

*Formica pallitarsis* Provancher 1881

*Lasius niger sitkaensis* Pergande 1900

*Lasius niger* var. *sitkaënsis* Pergande

*Lasius niger* subsp. *sitkaensis* Pergande

*Lasius* (*Lasius*) *niger* var. *sitkaënsis* Pergande

*Lasius* (*Lasius*) *pallitarsis* (Provancher)

*Lasius sitkaensis* Pergande

### **Taxonomy**

See Wilson (1955).

### **Identification**

The body is 3.5-5.1 mm long. This species is yellowish-brown in color. The mandibles are usually paler, and the antennae and legs are paler. The femora of the legs may be weakly infuscated. The body is micropunctate with micropubesence that gives it a grayish/silverish sheen. The surface is weakly glossy. This is the only species of *Lasius* that has one or more offset teeth at the basal angle of the mandibles. This species closely resembles *L. neoniger* in pilosity.

### **Biology and Behavior**

Wilson (1955) reported this species in wooded areas. In Michigan it can be found in low fields, bogs, swamps, and marshes (Wheeler et al., 1994). This species is opportunistic and feeds on a variety of items, including honeydew from tended aphids, fruit, and dead or alive insects (Wilson, 1955). Nests may be hosts to temporary ant parasites including *Lasius minutus*, *L. umbratus*, and *L. subumbratus* (Wheeler et al., 1994; Wilson, 1955).

### **Nest and Colony Structure**

Nests of this species can be found in decaying wood or under rocks (Wilson, 1955). Wheeler et al. (1994) reported nests in mounds of soil. Wilson (1955) reported male and female reproductives from early July to late September.

### **Range**

Nova Scotia, Quebec west to New York, Michigan, Wisconsin, Minnesota, South Dakota, New Mexico, Arizona, Nevada, California; small disjunct populations in North Carolina; Siberia.

### **Indiana Distribution**

Rare. Recorded from 3 counties in Indiana.



Figure 4.70 *L. pallitarsis* distribution

#### Indiana References

None.

#### Comments

This species is a new record for the state.

#### *Lasius speculariventris* Emery

#### Previous Names and Synonyms

*Lasius speculariventris* Emery 1893

*Lasius (Chthonolasius) speculariventris* Emery

*Lasius (Chthonolasius) umbratus* subsp. *speculariventris* Emery

*Lasius (Formicina) umbratus* subsp. *speculariventris* Emery

*Lasius umbratus mixtus* var. *speculariventris* Emery

*Lasius umbratus speculariventris* Emery

*Lasius umbratus* subsp. *speculariventris* Emery

#### Taxonomy

See Wilson (1955).

**Identification**

The body is 4.5-5.2 mm long. This species is yellow to orangish-brown in color with the alitrunk being slightly paler and the gaster somewhat darker dorsally. The mandibles are darker and edged with black, while the legs are slightly paler. The body is micropunctate with a sparse covering of micropubesence that gives it a faint grayish/silverish sheen. The surface is glossy. The 2<sup>nd</sup> gastral tergite is almost completely lacks appressed pubescence and the surface is smooth and very glossy. This species is very distinctive and is recognized by the glossy segment of the agaster.

**Biology and Behavior**

This species is found in wet, open, wooded areas, pastures and swamps (D.R. Smith, 1979; Wheeler et al., 1994). This species is occasionally a temporary parasite in nests of *Lasius minutus* (Wheeler et al., 1994). Workers are not commonly found above ground.

**Nest and Colony Structure**

Nests of this species can be found under decaying wood, rocks, and bark (D.R. Smith, 1979). Reproductive females can be found from late August to late September.

**Range**

Quebec, New Jersey, Pennsylvania, Ohio, Michigan, Illinois west to Minnesota, Iowa, Kansas.

**Indiana Distribution**

Rare. Recorded from 6 counties in Indiana.

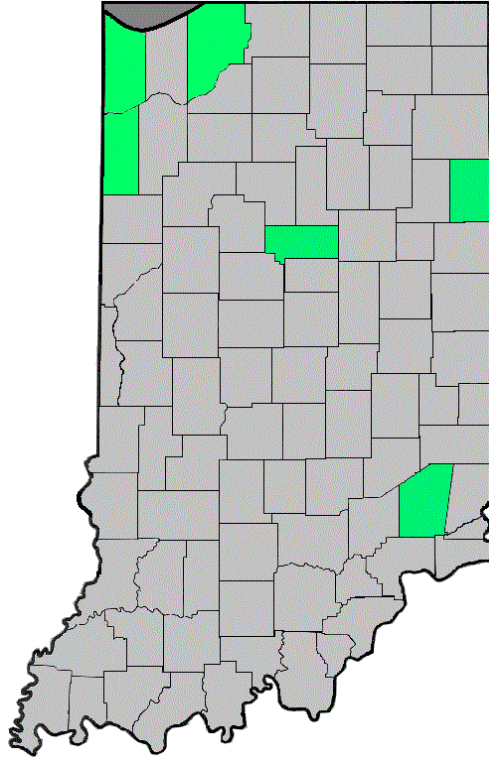


Figure 4.71 *L. speculiventris* distribution

#### Indiana References

LaPorte (Gregg, 1944), Lake and Newton (Rericha, 2007).

#### Comments

This species represents a new state record. *Speculiventris* means “mirror belly” and refers to the glossy area of the gaster.

#### *Lasius subglaber* (Emery)

##### Previous Names and Synonyms

*Lasius claviger* var. *subglaber* Emery 1893

*Acanthomyops subglaber* (Emery)

*Lasius (Acanthomyops) claviger subglaber* Emery

*Lasius (Acanthomyops) claviger subsp. subglaber* Emery

*Lasius (Acanthomyops) claviger* var. *subglaber* Emery

*Lasius (Acanthomyops) clavigeroides* Buren

*Lasius (Acanthomyops) subglaber* Emery

*Lasius claviger subglaber* Emery



*Lasius claviger subsp. subglabra* Emery

*Lasius subglaber* Emery

### **Taxonomy**

See Wing (1968).

### **Identification**

The body is 3.5-4.7 mm long. This species is orangish-yellow to orangish-brown in color. The mandibles are slightly darker and edged black, while the antennae are gradually darkened apically. The body is smooth and glossy. The dorsum of the gaster has dense appressed micropubescence that gives it a grayish sheen.

### **Biology and Behavior**

This species can be found in woodlands (Wing, 1968). Honeydew from root aphids and coccids is thought to be the main food source. This species is highly subterranean, and workers are rarely seen foraging above ground.

### **Nest and Colony Structure**

Nests of this species can be found under rocks, rotting logs, and stumps, or in mounds (Wing, 1968). Male and female reproductives can be found in August.

### **Range**

Quebec, Maine south to Georgia, Tennessee, in north west to Saskatchewan, North Dakota, South Dakota.

### **Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.



Figure 4.72 *L. subglaber* distribution

#### Indiana References

None.

#### Comments

This species represents a new record for the state. The grayish cast of the gaster is very characteristic.

#### *Lasius subumbratus* Viereck

#### Previous Names and Synonyms

*Lasius umbratus subumbratus* Viereck 1903

*Lasius (Chthonolasius) subumbratus* Viereck

*Lasius (Chthonolasius) umbratus* subsp. *subumbrata* Viereck

*Lasius (Formicina) umbratus* subsp. *subumbratus* Viereck

*Lasius umbratus* subsp. *subumbratus* Viereck

#### Taxonomy

See Wilson (1955).

**Identification**

The body is 3.8-4.7 mm long. This species is yellow to orangish-yellow in color, with some individuals having a slightly paler alitrunk. The mandibles are darker, while the antennae and legs are concolorous. The body is micropunctate with micropubescence that gives it a grayish/silverish sheen. The surface is weakly glossy. The abundance of erect hairs, sparse gastral pubescence, and yellow color help to differentiate this species from *L. umbratus*. Covert (2005) adds that this species has longer erect hairs on the gaster and is on average larger in size than *L. umbratus*.

**Biology and Behavior**

This species can be found in meadows and forests (Wilson, 1955). They are temporary parasites in nests of *L. pallitarsis* (Wilson, 1955).

**Nest and Colony Structure**

Nests of this species can be found in the soil, under rocks and decaying wood (Wheeler et al., 1994; Wilson, 1955). New queens start colonies by parasitizing established nests of *L. pallitarsis*.

**Range**

Nova Scotia, Quebec, Maine west to northern Michigan, Saskatchewan, Washington, Oregon, south in the mountains to New Mexico, Arizona, Nevada.

**Indiana Distribution**

Rare. Recorded from a single county in northwestern Indiana.

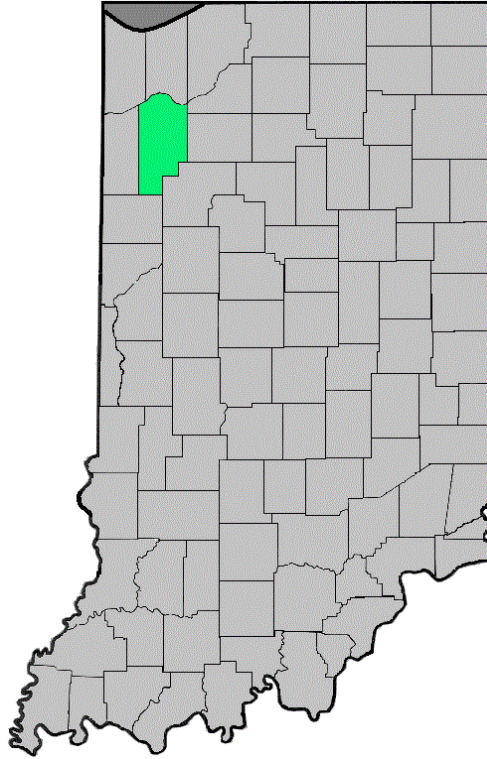


Figure 4.73 *L. subumbratus* distribution

#### Indiana References

None.

#### Comments

This northwestern species represents a new state record for Indiana.

#### *Lasius umbratus* (Nylander)

#### Previous Names and Synonyms

*Formica umbrata* Nylander 1846

*Formica mixta* Nylander 1846

*Formica aphidicola* Walsh 1862

*Lasius umbratus epinotalis* Buren 1944

*Lasius (Chthonolasius) umbratus mixtus aphidicola* Walsh

*Chthonolasius affinis* var. *nyaradi* Rösler

*Formicina belgarum* Bondroit

*Lasius (Chthonolasius) silvestrii* var. *osakana* Santschi

*Lasius (Chthonolasius) silvestrii* Wheeler

- Lasius (Chthonolasius) subumbratus epinotalis* Buren  
*Lasius (Chthonolasius) umbratus subsp. epinotalis* Buren  
*Lasius (Chthonolasius) umbratus subsp. exacuta* Ruzsky  
*Lasius (Chthonolasius) umbratus subsp. mixta var. mixto-umbrata* Forel  
*Lasius (Lasius) mixtoaffinis* Ruzsky  
*Lasius (Lasius) mixtobicornis* Ruzsky  
*Lasius (Lasius) mixtoumbratus* Forel  
*Lasius affinoumbratus* Donisthorpe  
*Lasius exactus* Ruzsky  
*Lasius hirtiscapus* Stärcke  
*Lasius mixtoaffinis* Ruzsky  
*Lasius mixtobicornis* Ruzsky  
*Lasius mixto-umbratus* Forel  
*Lasius osakana* Santschi  
*Lasius silvestrii* Wheeler  
*Lasius subumbratus subsp. epinotalis* Buren  
*Lasius umbratus exacutus* Ruzsky  
*Lasius umbratus subsp. mixtus var. mixto-umbratus* Forel  
*Lasius umbratus var. affinoumbratus* Donisthorpe  
*Lasius umbratus var. affino-umbratus* Donisthorpe  
*Lasius umbratus var. exacutus* Ruzsky  
*Lasius umbratus var. hirtiscapus* Stärcke  
*Lasius umbratus var. mixtoaffinis* Ruzsky  
*Lasius umbratus var. mixtobicornis* Ruzsky  
*Lasius umbratus var. mixto-umbrata* Forel  
*Lasius umbratus var. mixtoumbratus* Forel

### **Taxonomy**

See Wilson (1955).

### **Identification**

The body is 3.9-4.9 mm long. This species is yellowish-brown to orangish-brown in color, with the head and gaster usually darkened dorsally. The mandibles are concolorous with darkened margins, while the legs are paler in color. The body is micropunctate with a fine covering of micropubesence that gives it a slight grayish/silverish sheen. The surface is weakly glossy.

### **Biology and Behavior**

This species can be found in sand prairies, old agricultural fields, wooded areas, and open areas (Rericha, 2007). Honeydew from root aphids and coccids is thought to make up the bulk of their diet. Coovert (2005) found these ants tending white root aphids in Ohio. Workers can occasionally be found foraging above ground on tree trunks and in the leaf litter, however they are mainly subterranean. This species can be a temporary parasite to nests of *Lasius alienus*, *L. niger*, *L. neoniger*, and *L. pallitarsis* (D.R. Smith, 1979; Wheeler et al., 1994).

### **Nest and Colony Structure**

Nests of this species can be found as large soil mounds in open areas or as banks of soil up and around decaying wood in wooded areas (Rericha, 2007). Nests have a single queen and can be very large (Headley, 1943a; Park, 1932). Male reproductives can be found from mid August to late September while female reproductives are found from mid August to mid October.

### **Range**

Novia Scotia, New Brunswick, Quebec south to Florida, west to Idaho, Utah, Nevada, Arizona; Eurasia.

### **Indiana Distribution**

Occasional. Recorded from 17 counties in Indiana.

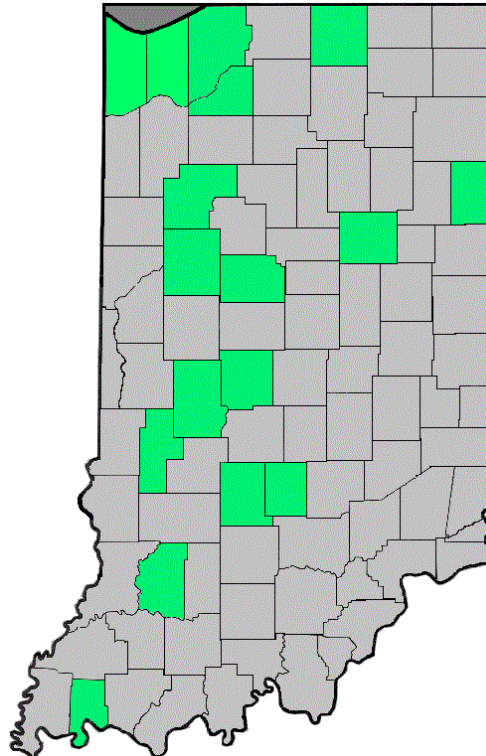


Figure 4.74 *L. umbratus* distribution

### Indiana References

Indiana (Mnsee, 1967; Munsee, Jansma, & Schrock, 1986), Clinton, Tippecanoe (Morris, 1943), Lake, Porter, LaPorte (Gregg, 1943), Brown (Rericha, 2007).

### Comments

When crushed this ant releases a very faint citronella odor much like *Lasius claviger* and *L. interjectus*.

### *Leptothorax muscorum* (Nylander) Complex

#### Previous Names and Synonyms

*Myrmica muscorum* Nylander 1846

*Leptothorax Canadensis* Provancher 1887

*Leptothorax (Leptothorax) Canadensis* var. *yankee* Emery 1895

*Leptothorax acervorum Canadensis* var. *convivialis* Wheeler 1903

*Leptothorax (Mychothorax) acervorum* subsp. *canadensis* Provancher

*Leptothorax (Mychothorax) acervorum* subsp. *canadensis* var. *convivialis* Wheeler

*Leptothorax (Mychothorax) acervorum* subsp. *canadensis* var. *kincaidi* Pergande

*Leptothorax (Mychothorax) acervorum* subsp. *canadensis* var. *yankee* Emery

*Leptothorax (Mychothorax) canadensis kincaidi* Pergande

*Leptothorax (Mychothorax) canadensis* Provancher

*Leptothorax (Mychothorax) canadensis yankee* Emery

*Leptothorax (Mychothorax) muscorum* var. *septentrionalis* Wheeler

*Leptothorax (Mychothorax) muscorum* var. *sordidus* Wheeler

*Leptothorax acervorum canadensis* Provancher

*Leptothorax acervorum* subsp. *canadensis* var. *convivialis* Wheeler

*Leptothorax acervorum* subsp. *canadensis* var. *kincaidi* Pergande

*Leptothorax acervorum* subsp. *canadensis* var. *obscurus* Viereck

*Leptothorax acervorum* subsp. *obscurus* Viereck

*Leptothorax acervorum* var. *canadensis* Provancher

*Leptothorax acervorum* var. *convivialis* Wheeler

*Leptothorax acervorum* var. *yankee* Emery

*Leptothorax canadensis obscurus* Viereck

*Leptothorax canadensis* Provancher

*Leptothorax canadensis* subsp. *kincaidi* Pergande

*Leptothorax canadensis subsp. obscurus* Viereck

*Leptothorax canadensis subsp. yankee* Emery

*Leptothorax kincaidi* Pergande

*Leptothorax muscorum var. septentrionalis* Wheeler

*Leptothorax muscorum var. sordida* Wheeler

*Leptothorax muscorum var. sordidus* Wheeler

*Leptothorax septentrionalis* Wheeler

*Leptothorax sordidus* Wheeler

*Leptothorax yankee* Emery

*Leptothorax yankee var. kincaidi* Pergande

### **Taxonomy**

See Creighton (1950). This name is a complex of more than one species that are chromosomally different (Loiselle et al., 1990).

### **Identification**

The body is 3.0-3.7 mm long. This head and gaster of this species are brown with the alitrunk being brownish-yellow to orangish-brown, or the entire body may be dark reddish-brown. The mandible, antennae, and legs are paler in color. The head and alitrunk are finely rugose/punctuate with the surface being moderately dull. The distinctive median trough on the clypeus is diagnostic for this species.

### **Biology and Behavior**

This species can be found in wooded areas (D.R. Smith, 1979). In Michigan they are found in swamps and bogs (Wheeler et al., 1984). Munsee (1967) reported finding this species in undisturbed heavily wooded areas in Indiana. Individuals are often enslaved by *Harpogoxenus canadensis*.

### **Nest and Colony Structure**

Nests of this species can be found under the bark of logs, in stumps, and under rocks (Headley, 1943a; D.R. Smith, 1979). Holldobler & Wilson (1990) reported colonies having multiple queens.

### **Range**

Throughout Canada and Alaska, south to Connecticut, Michigan, Wisconsin, and south in the Rocky Mountains to Nevada, New Mexico, Arizona, California; northern Eurasia.

### **Indiana Distribution**

Rare. Recorded from 5 counties in Indiana.



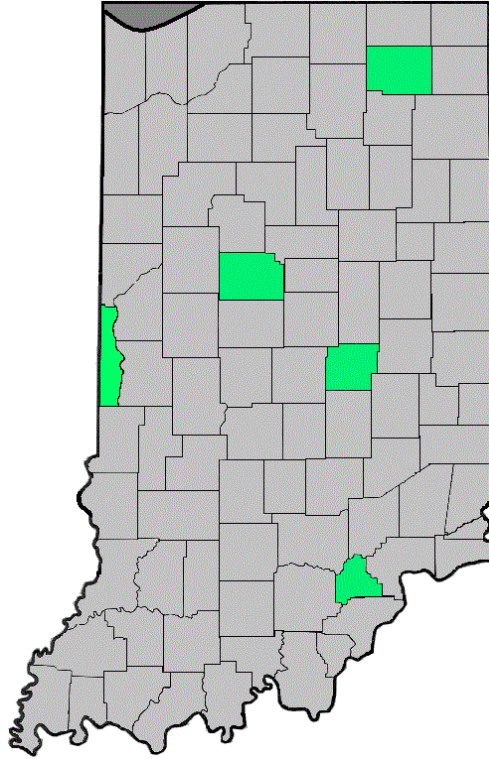


Figure 4.75 *L. muscorum* distribution

### Indiana References

Indiana (Munsee, Jansma & Schrock, 1986), Vermillion (Munsee, 1967).

### Comments

This species of ant occurs farther north than any other New World ant. The complex is currently under revision (Francoeur, in prep.).

### *Monomorium emarginatum* DuBois

### Previous Names and Synonyms

*Monomorium emarginatum* Dubois 1986

### Taxonomy

See DuBois (1986).

### Identification

The body is 2.0-2.2 mm long. This species is dark brown to brownish-black in color. The mandibles are paler and the legs are paler apically. The body is mostly smooth and very glossy. This species can be distinguished from *Monomorium minimum* by the shorter dorsal face of the propodeum.

### **Biology and Behavior**

This species can be found in open sandy areas. Workers can be found foraging for dead insects and various other food items.

### **Nest and Colony Structure**

Nests of this species can be found in sandy or gravelly soil where they create crater mounds (Dubois, 1986). Colonies usually have multiple queens (DuBois, 2000).

### **Range**

Massachusetts, eastern New York, eastern Virginia, Indiana.

### **Indiana Distribution**

Rare. Recorded from one county in southeastern Indiana.



Figure 4.76 *M. emarginatum* distribution

### **Indiana References**

None.

### **Comments**

This central and northcentral Atlantic coast species is a new state record for Indiana.

*Monomorium minimum* (Buckley)

**Previous Names and Synonyms**

*Myrmica (Monomarium) minima* buckley 1867

*Monomorium atra* (Buckley)

*Monomorium atrum* (Buckley)

*Monomorium metoecus* Brown & Wilson

*Monomorium minimum* (Buckley)

*Monomorium minutum subsp. minima* (Buckley)

*Monomorium minutum subsp. minimum* (Buckley)

*Monomorium minutum var. minimum* (Buckley)

*Myrmica (Monomorium) atra* Buckley

*Myrmica atra* Buckley

*Myrmica minima* Buckley

**Taxonomy**

See DuBois (1986).

**Identification**

The body is 1.7-1.8 mm long. This species is dark brown to nearly black in color, with the gaster being blackish-brown to black. The mandibles are slightly paler and the legs are paler apically. The body is smooth and very glossy. This species is easily identified by the glossy surface and shorter antennal scapes.

**Biology and Behavior**

This species can be found in open and semi-open areas, and dry mesic prairies (Rericha, 2007). Workers can be found foraging on the ground in the open on a variety of food sources including living/dead insects, nectar, and fruits. When this species is found as a house pest, it will feed on meat, butter, sweet and greasy foods. Burns (1964) reported individuals tending tulip tree scales (*Toumeyella liriodendri*). Nests can be hosts to syrphids including *Microdon coarctatus*, *M. baliopterus*, and *M. painteri* (Duffield, 1981). They may also be host to the ant parasites *Monomorium pergandei* and *M. talbotae*.

**Nest and Colony Structure**

Nests can be found in sandy soils where they will build small crater mounds (Rericha, 2007). They may also nest under rocks. In homes nests can be found in woodwork (D.R. Smith, 1979). Nests may have multiple queens with colonies being large (2000-3000 workers) (Gregg, 1944). Reproductive males and females can be found from late June to early August.

**Range**

Pennsylvania and District of Columbia, south to Georgia and Texas, west to Michigan, North Dakota, Idaho, Colorado, New Mexico (DuBois, 1986).

**Indiana Distribution**

Common. Recorded from 45 counties in Indiana.

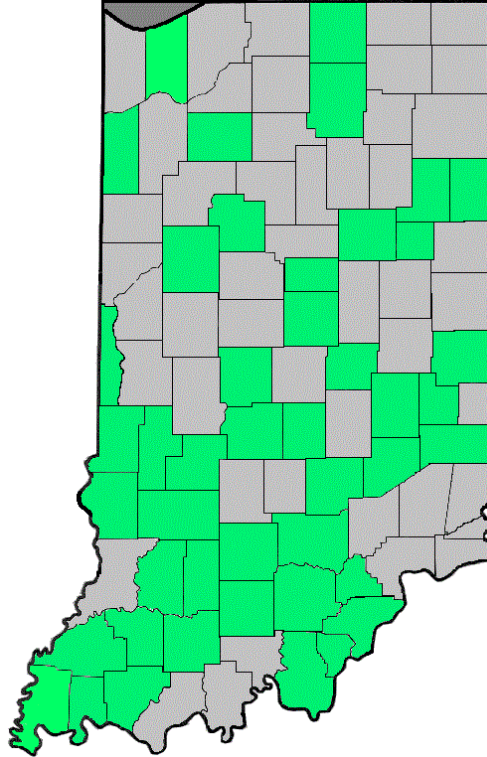


Figure 4.77 *M. minimum* distribution

**Indiana References**

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Martin (Wheeler, 1916), Harrison, Posey, Tippecanoe, Washington (Morris, 1943), Porter (Gregg, 1944), Vermillion (Munsee & Schrock, 1983).

**Comments**

This small black ant is easily recognizable and found throughout the state.

*Monomorium pharaonis* (Linnaeus)

**Previous Names and Synonyms**

*Formica pharaonis* Linnaeus 1758

*Atta minuta* Jerdon

*Formica antiguensis* Fabricius  
*Myrmica (Monomarium) contigua* Smith  
*Myrmica (Monomorium) fragilis* Smith  
*Myrmica (Monomorium) vastator* Smith  
*Myrmica (Myrmecina) domestica* Shuckard  
*Myrmica contigua* Smith  
*Myrmica domestica* Shuckard  
*Myrmica fragilis* Smith  
*Myrmica vastator* Smith

### **Taxonomy**

This species is easily recognized with no major taxonomic problems.

### **Identification**

The body is 2.0-2.2 mm long. This species is yellow to brownish-yellow in color with the gaster being darkened apically. The head and alitrunk are entirely finely punctate, with the surface being dull to weakly glossy. The yellow color and dull, punctate surface are characteristic for this species.

### **Biology and Behavior**

This species can be found in headed buildings in Indiana. Workers can be seen foraging in files for various household foods. They have been known to damage fabrics, rubber goods, and insect collections (D.R. Smith, 1979).

### **Nest and Colony Structure**

Nests of this species can be found in wall voids, debris, and various other areas within buildings. They are known for frequently moving nests around a structure if disturbed. Colonies have multiple queens that are short lived and consist of thousands of workers. The queens are replaced as they die which results in very long lived colonies (Holldobler & Wilson, 1990). Reproductive males and females are produced constantly. Mating occurs in the nest and colonies spread by budding. When a colony buds, one or more mated queens will leave with a number of workers to start a new colony nearby (Holldobler & Wilson, 1990).

### **Range**

Throughout North America. Non-native, from Africa or tropical Asia.

### **Indiana Distribution**

Uncommon. Recorded from 9 counties in Indiana.

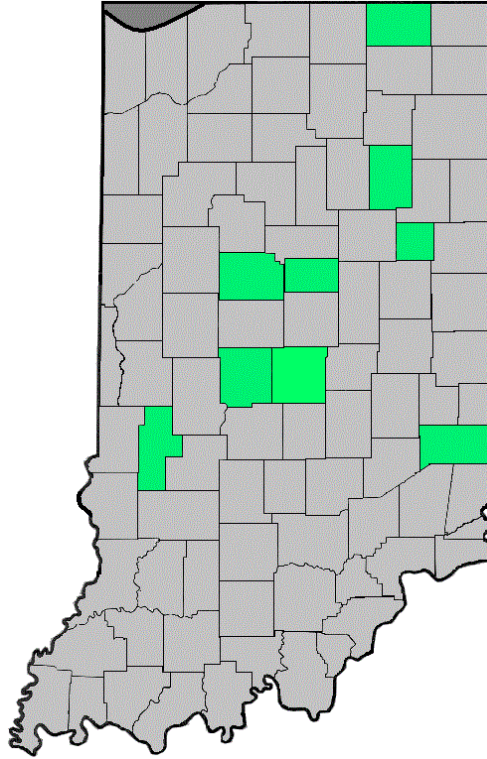


Figure 4.78 *M. pharoanis* distribution

### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Marion (Morris, 1943).

### Comments

This tiny tramp ant is an introduced species originating from Africa or tropical Asia. Once it has invaded a structure, it is very difficult to eliminate due to the large mobile colonies, multiple queens, and growth through budding.

### *Myrmecina americana* Emery

#### Previous Names and Synonyms

*Myrmecina latreillei americana* Emery 1895

*Myrmecina latreillei americana* var. *brevispinosa* Emery 1895

*Myrmecina* *graminicola* *quadrispina* Enzmann 1946

*Myrmecina americana brevispinosa* Creighton

*Myrmecina americana* subsp. *brevispinosa* Creighton

*Myrmecina americana* subsp. *texana* Wheeler

*Myrmecina americana texana* Wheeler

*Myrmecina californica* Smith

*Myrmecina graminicola americana* Emery

*Myrmecina graminicola americana* var. *brevispinosa* Emery

*Myrmecina graminicola* subsp. *quadrispina* Enzmann

*Myrmecina graminicola* subsp. *texana* Wheeler

*Myrmecina graminicola texana* Wheeler

*Myrmecina latreillei* subsp. *americana* var. *brevispinosa* Emery

*Myrmecina latreillei* var. *brevispinosa* Emery

### **Taxonomy**

See Brown (1967).

### **Identification**

The body is 3.0-3.7 mm long. This species is dark reddish-brown to black in color. The mandibles, antennae, and legs are brownish-orange. The apex of the gaster is also slightly paler. The head and alitrunk are distinctly rugose/reticulate and the surface is weakly glossy. The antennal scapes have abundant long erect hairs. This is the only species of *Myrmecina* in North America and is easily identified by the 2 pairs of propodeal spines.

### **Biology and Behavior**

This species can be found in wooded areas, fens, and prairies. Workers are slow moving and can be found foraging on the ground or through leaf litter in search of live arthropods. They are predaceous and carnivorous (Smith, 1947a). When disturbed, the workers will feign death (Dennis, 1938).

### **Nest and Colony Structure**

Nests of this species can be found in decaying wood and rarely beneath stones (Rericha, 2007). Headley (1943a) reported finding a nest in an acorn while Amstutz (1943) found a nest under the bark of an elm tree. Colonies are small with a single queen and rarely having more than 100 individuals (Headley, 1943a; Creighton, 1950; Brown, 1967). Reproductive males and females can be found from late August to mid October.

### **Range**

Quebec, Michigan, south to Georgia, west to Iowa, Colorado, New Mexico, Arizona, California.

### **Indiana Distribution**

Occasional. Recorded from 28 counties in Indiana.

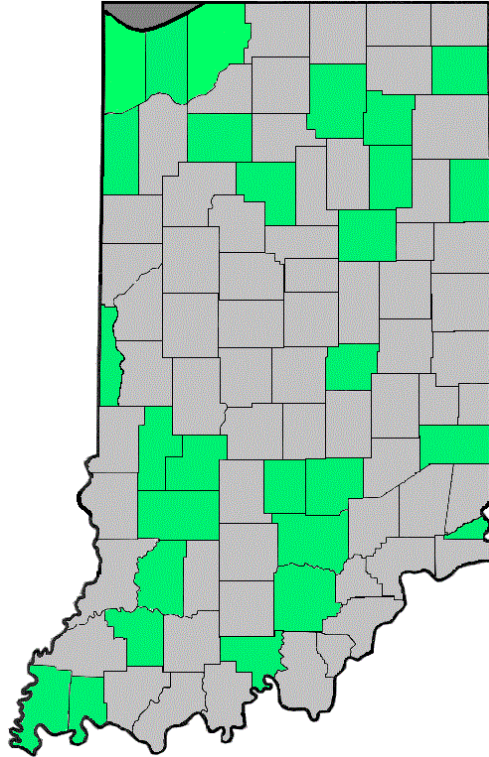


Figure 4.79 *M. americana* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Crawford (Wheeler, 1916), Vermillion (Munsee & Schrock, 1983), LaPorte, Porter (Gregg, 1944), Brown, Lake (Rericha, 2007).

#### Comments

The only species of *Myrmecina* in North America. The dual propodeal spines make this species easily recognizable.

*Myrmica americana* Weber

#### Previous Names and Synonyms

*Myrmica sabuleti* subsp. *americana* Weber 1939

#### Taxonomy

Originally treated as a subspecies, *M. americana* was raised to the species level by Creighton (1950).



**Identification**

The body is 4.5-6.2 mm long. This species is medium to dark reddish-brown in color with the gaster being mostly darker. The mandibles, antennae, and legs are slightly paler. The head and alitrunk are coarsely rugose, with the surface being moderately glossy between the ridges. The shape of the lamina at the bend of the scape and the flat ventral plate-like surface of the postpetiole are characteristic for this species.

**Biology and Behavior**

This species can be found in open fields, prairies, meadows, grasslands, and at the edges of wooded areas. Workers can be found foraging mid-morning and early evening on the ground for animal and plant matter. They have also been known to tend aphids, scale insects, and membracids. When threatened, workers may sting. Wheeler & Wheeler (1963) describe the affects of the sting of this species.

**Nest and Colony Structure**

Nests of this species can be found in the ground out in the open. Rericha (2007) reported nests in the root zone of *Schizachyrium scoparium*, *Andropogon gerardii*, and *Carex pensylvanica*. Covert (2005) found nests under objects that had neatly formed chimneys. Commonly nests are slight mounds with small pieces of dried plants around the opening (Weber, 1948). Nests are moved roughly every 48 days (Talbot, 1946). Male and female reproductives can be found from mid August to late October. Holldobler & Wilson (1990) found that nuptial flights occur in the afternoon.

**Range**

Quebec, Maine south to North Carolina, Tennessee, west to Manitoba, North Dakota, Colorado, Utah, Nevada, Arizona.

**Indiana Distribution**

Uncommon. Recorded from 19 counties in Indiana.

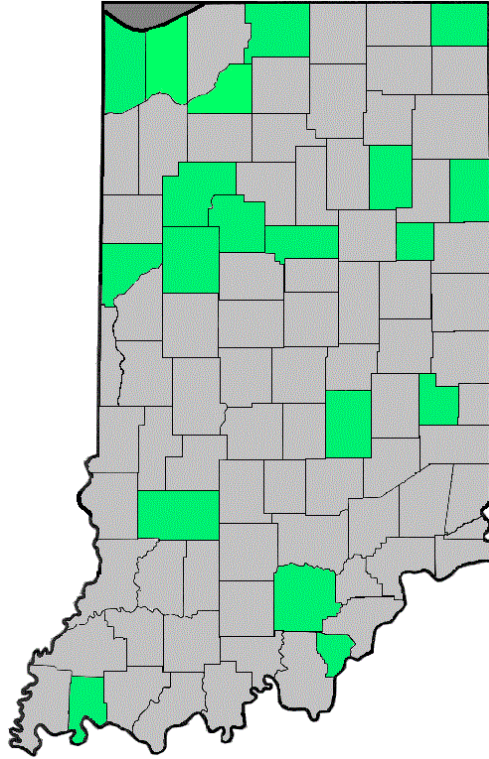


Figure 4.80 *M. americana* distribution

### Indiana References

Indiana (Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986, Morris, 1943), Porter, Lake (Gregg, 1944), Starke (Rericha, 2007).

### Comments

This species is probably more common throughout the state but is often difficult to identify. It is regularly confused with a new unpublished species, *Myrmica evanida* Francoeur (Rericha, 2007).

### *Myrmica fracticornis* Forel

#### Previous Names and Synonyms

*Myrmica rubra scabrinodis* var. *fracticornis* Emery 1895

*Myrmica lobicornis* var. *fracticornis* Forel 1910

*Myrmica scabrinodis sabuleti americana*: Morris 1943

*Myrmica detritinodis* Emery

*Myrmica fracticornis* Forel

*Myrmica lobicornis fracticornis* Forel

*Myrmica lobicornis* subsp. *fracticornis* Forel

*Myrmica rubra scabrinodis* var. *detritinodis* Emery

*Myrmica rubra* subsp. *scabrinodis* var. *detritinodis* Emery

*Myrmica rubra* subsp. *scabrinodis* var. *fracticornis* Emery

*Myrmica scabrinodis* subsp. *scabrinodis* var. *detritinodis* Emery

*Myrmica scabrinodis* subsp. *scabrinodis* var. *fracticornis* Emery

*Myrmica scabrinodis* var. *detritinodis* Emery

*Myrmica scabrinodis* var. *fracticornis* Forel

### **Taxonomy**

Covert (2005) suggests that this may be a complex of two sibling species.

### **Identification**

The body is 3.9-5.2 mm long. This species is dark yellowish-brown to brownish-black in color. The mandibles, antennae, and legs are usually paler and occasionally the alitrunk is paler. The head and alitrunk are weakly to coarsely rugose, and the surface is glossy between the ridges. The weaker carina on the bend of the scape and the angle of the bend are characteristic for this species.

### **Biology and Behavior**

This species can be found in prairies, sedge meadows, wooded areas, bogs, and the edges of marshes (Rericha, 2007; Covert, 2005). The workers are slow moving and they can be found foraging on the ground, on foliage, or on sphagnum in bogs. The main food source for this species is honeydew, which they collect from tending scale insects (*Toumeyella liriodendri*), membracid (*Publilia reticulata*), and aphids (*Aphis vernoniae*) (Bristow, 1983,1984; Burns, 1964). Nests of this species may be the host for the ant parasite *Formicoxenus provancheri*.

### **Nest and Colony Structure**

Nests can be found in the hummocks of sedges, in the soil, and rarely under rocks and other objects (Wesson & Wesson, 1940). Colonies are moderately large with a few hundred workers and one or more queens (Kannowski, 1970). Reproductive males and females can be found from early July to early October. Weber (1948) reported that the winged reproductives could be found in huge, dense swarms which occur in the early evening (Kannowski, 1970).

### **Range**

Newfoundland and Quebec, south to Tennessee, Michigan, Ohio, west to Rocky Mountains of Colorado, New Mexico, Nevada, Utah, Arizona.

### **Indiana Distribution**

Somewhat common. Recorded from 35 counties in Indiana.

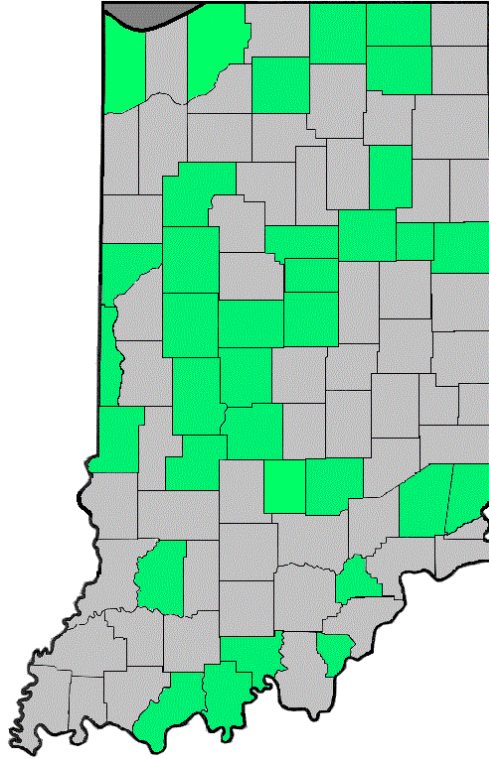


Figure 4.81 *M. fracticornis* distribution

#### Indiana References

Indiana (Gregg, 1944; Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986), LaPorte, Lake, Brown (Rericha, 2007).

#### Comments

This is a fairly common species of *Myrmica* in Indiana.

#### *Myrmica latifrons* Starcke

#### Previous Names and Synonyms

*Myrmica scabrinodis schencki* var. *emeryana* Forel 1914

*Myrmica schencki latifrons* Starcke 1927

*Myrmica emeryana* Cole

*Myrmica scabrinodis* r. *Schenki* var. *emeryana* Forel

*Myrmica scabrinodis* subsp. *schlencki* var. *emeryana* Forel

*Myrmica schencki emeryana* Cole

*Myrmica schencki* subsp. *emeryana* Cole

### **Taxonomy**

Previously known as *M. schencki emeryana*, Bolton (1995) acknowledged that *M. latifrons* had priority since *emeryana* was originally used as a quadrinomial which is nomenclatorially unavailable (Covert, 2005).

### **Identification**

The body is 3.9-5.4 mm long. This species is dark yellowish-brown to brownish-black in color. The mandibles, antennae, and legs are usually paler. The head and alitrunk are coarsely rugose and the surface is moderately glossy between the ridges. The truncated flange-like lamina at the bend of the scape is characteristic for this species. Many individuals also have greatly reduced frontal lobes.

### **Biology and Behavior**

This species is found in wooded areas and at the edges of woods (Wesson & Wesson, 1940; D.R. Smith, 1979). Wheeler et al. (1994) reported finding this species in low fields and mesic woods in Michigan. Workers can be found foraging on foliage or on the ground in search of various plant and animal matter. They are described as timid, and will often feign death when disturbed or threatened (Weber, 1948).

### **Nest and Colony Structure**

Nests of this species can be found under bark, in leaf litter, under logs, stones, and other objects (Covert, 2005). Talbot (1945a, 1945b) reported nests in the soil with a single turret-like opening of grass blades. Colonies can range in size from 35 to 561 workers and usually have a single queen but may have multiple queens (Talbot, 1945b). Talbot (1945a) reported nuptial flights of reproductive males and females in July. In Ohio these flights were reported from early August to late September (Weber, 1948). Flights occur in the morning and are massive (Holldobler & Wilson, 1990).

### **Range**

Newfoundland south to Georgia, west to Manitoba, Idaho, Colorado, Arizona, Nevada.

### **Indiana Distribution**

Fairly common. Recorded from 23 counties in Indiana.

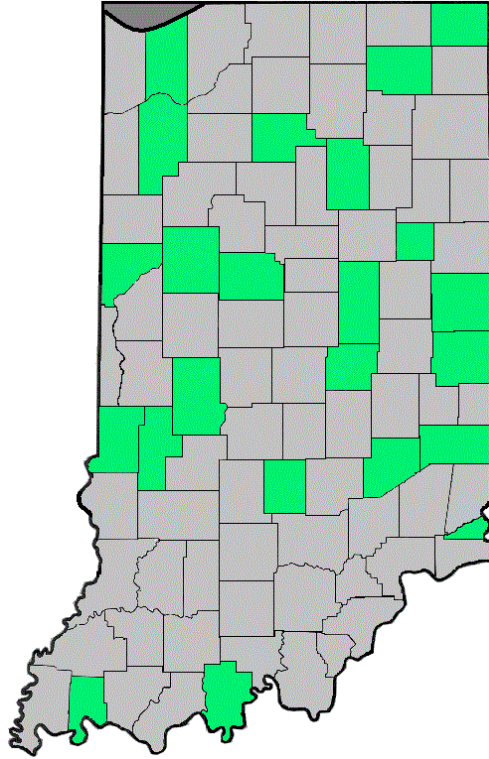


Figure 4.82 *M. latifrons* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986).

#### Comments

This species of *Myrmica* is somewhat common throughout the state.

#### *Myrmica lobifrons* Pergande

#### Previous Names and Synonyms

*Myrmica sabuleti* var. *lobifrons* Pergande 1900

*Myrmica lobicornis lobifrons* Pergande

*Myrmica lobifrons* Pergande

*Myrmica rubra* subsp. *scabrinodis* var. *lobifrons* Pergande

*Myrmica sabuleti lobifrons* Pergande

*Myrmica scabrinodis* subsp. *lobicornis* var. *lobifrons* Pergande

*Myrmica scabrinodis* subsp. *scabrinodis* var. *lobifrons* Pergande

#### Taxonomy

This species was once treated as a sub-species of the European ant, *Myrmica sabuleti*.

**Identification**

The body is 4.4-5.6 mm long. This species is reddish-brown to brownish-black in color, with the alitrunk sometimes slightly paler. The mandibles, antennae, and legs are slightly paler as well. The head and alitrunk are coarsely rugose, with the surface being weakly glossy between the ridges. The prominent, high collar-like lamina on the bend of the scape is characteristic for this species.

**Biology and Behavior**

This species can be found in fens, wetlands, *Sphagnum* flats, bogs, and swamps (Wheeler et al., 1994). Nests are commonly hosts for the ant parasite *Formicoxenus provancheri* (Wheeler et al., 1994).

**Nest and Colony Structure**

Nests of this species can be found in moss hummocks and in the root zones of plants that grow in *Sphagnum* (Wheeler et al., 1994; Rericha, 2007). Colonies may be large. Kannowski (1970) reported colonies with up to 1243 workers and 2-32 dealated queens. He also added that reproductive males and females could be found from late July to early September in Michigan.

**Range**

Quebec, Michigan, Colorado, New Mexico, Nevada, Utah, Arizona, north and west to Alaska.

**Indiana Distribution**

Rare. Recorded from 3 counties in northwestern Indiana.



Figure 4.83 *M. lobifrons* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986), Lake, Porter (Gregg, 1944), LaPorte (Rericha, 2007).

#### Comments

This is a northwestern wetland species that has a distinct antennal lobe. It can be found locally in the northwestern counties of Indiana.

#### *Myrmica nearctica* Weber

#### Previous Names and Synonyms

*Myrmica sabuleti nearctica* Weber 1939

*Myrmica nearctica* Weber

*Myrmica sabuleti subsp. nearctica* Weber

#### Taxonomy

This is yet another species that was once treated as a sub-species of the European *Myrmica sabuleti*. It has only recently been raised to the species level.



### Identification

The body is 3.5-4.5 mm long. This species is reddish-brown to dark brown in color with the alitrunk being slightly paler. The mandibles, antennae, and legs are usually paler as well. The head and alitrunk are rugose. The large, thick, lobate lamina at the bend of the scape is characteristic for this species.

### Biology and Behavior

Weber (1948) reported this species being found in wooded areas. He also reported that when disturbed, workers would feign death.

### Nest and Colony Structure

Nests of this species can be found under various objects including bark on logs, stumps, and rocks (Wheeler et al., 1994). Colonies are usually small in size, and reproductive males and females can be found in August in Michigan (Weber, 1948).

### Range

Quebec, Michigan west to Manitoba, North Dakota, Colorado.

### Indiana Distribution

Rare. Recorded from a single county in north central Indiana.



Figure 4.84 *M. nearctica* distribution

### Comments

This rare species represents a new state record for Indiana. It should be sought after in the northern most counties of the state.

### *Myrmica pinetorum* Wheeler

### Previous Names and Synonyms

*Myrmica punctiventris pinetorum* Wheeler 1905

*Myrmica punctiventris subsp. pinetorum* Wheeler

### Taxonomy

This species was once treated as a subspecies of *Myrmica punctiventris*. Creighton (1950) showed it to be clearly distinct and raised it to the species level.

### Identification

The body is 3.5-4.4 mm long. This species is brownish-yellow to yellowish-brown in color. The alitrunk may be slightly paler. The mandibles, antennae, and legs are also paler in color. The head and alitrunk are rugose and the surface is glossy between the ridges. This species is smaller and has much shorter propodeal spines than *M. punctiventris*.

### Biology and Behavior

This species can be found in pine forests, oak savanna, prairies, wooded areas, and at the edges of wooded areas. Munsee, Jansma, & Schrock (1986) reported this species being collected from a stripmine in southern Indiana. Workers can be found foraging on the ground in wooded areas and Covert (2005) reported collecting stray individuals at the mounds of *Formica subsericea*.

### Nest and Colony Structure

Nests of this species can be found in the soil in root zones of grasses and sedges (Rericha, 2007). Wesson & Wesson (1940) reported that this species builds carton turrets from the soil up through pine needles in pine woods and that colonies are very small in size.

### Range

Quebec, Massachusetts south to South Carolina, west to Michigan, Ohio, Indiana, Oklahoma, Mississippi.

*Myrmica punctiventris pinetorum* Wheeler 1905

### Indiana Distribution

Somewhat common. Recorded from 23 counties in Indiana.

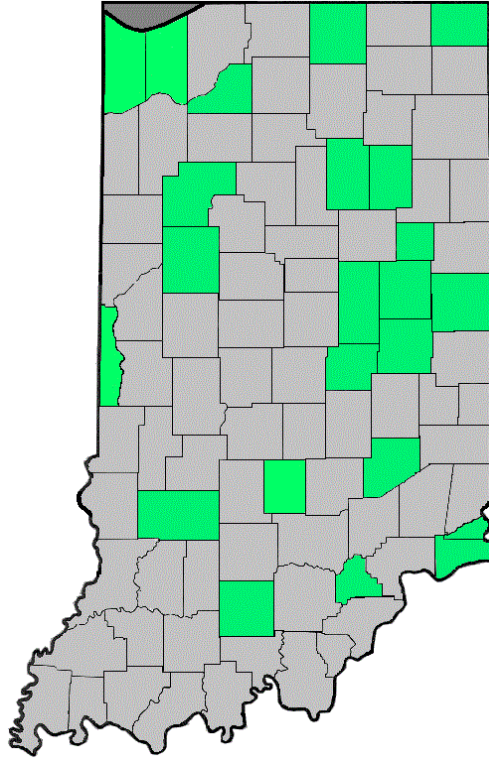


Figure 4.85 *M. pinetorum* distribution

#### Indiana References

Brown, Lake, Porter (Rericha, 2007), Vermillion (Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986).

#### Comments

This is one of the two species of *Myrmica* in Indiana that has a punctate gaster and lacks a lamina at the bend of the antennal scape. The species name *pinetorum* refers to the preference of this species to nest in pine forests.

#### *Myrmica punctiventris* Roger

#### Previous Names and Synonyms

*Myrmica punctiventris* Roger 1963

*Myrmica isfahani* Forel

*Myrmica punctiventris* var. *isfahani* Forel

#### Taxonomy

This species has long been recognized as distinct.

**Identification**

The body is 4.4-5.5 mm long. This species is reddish-brown to brownish-black in color with the alitrunk being slightly paler. The mandibles, antennae, coxae, legs, and apex of the gaster are also slightly paler. The head and alitrunk are coarsely rugose and the surface is glossy between the ridges. This species is distinguished from *Myrmica pinetorum* by its longer propodeal spines and upwardly angled frontal lobes. They are also larger in size.

**Biology and Behavior**

This species can be found in wooded areas (Wesson & Wesson, 1940; Headley, 1943a). Workers can be found foraging on the ground, tree trunks, and various plants and foliage. Weber (1948) noted that when handled or disturbed, the workers will freeze and become temporarily immobile. They feed on a variety of fruits, plants, and myrmecochorous plant seeds (Culver & Beattie, 1978; Beattie & Culver, 1981).

**Nest and Colony Structure**

Nests of this species can be found in decaying wood, under bark, in leaf litter, and in soil under rocks. Rericha (2007) reported finding nests occasionally in old acorns. Nests are moved every 5 to 26 days (Holldobler & Wilson, 1990). The colonies are very small (Wesson & Wesson, 1940). In Michigan, colonies have been reported with up to 68 workers and a single queen (Kannowski (1970). Reproductive males and females can be found from late August to early November.

**Range**

Quebec, Massachusetts south to Georgia, west to Michigan, Iowa, Nebraska, Arkansas.

**Indiana Distribution**

Occasional. Recorded from 14 counties in Indiana.

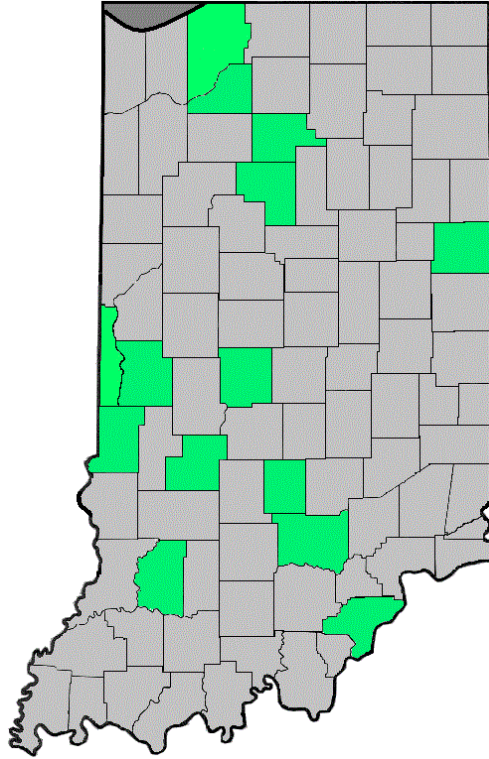


Figure 4.86 *M. punctiventris* distribution

#### Indiana References

Indiana (Munsee, Jansma, & Schrock, 1986), Brown (Rericha, 2007), LaPorte (Gregg, 1944), Vermillion (Munsee, 1967).

#### Comments

This species of *Myrmica* lacks a lamina at the bend of the antennal scape.

### *Myrmica spatulata* Smith

#### Previous Names and Synonyms

*Myrmica schencki* var. *spatulata* Smith 1930

#### Taxonomy

This name might represent a species complex. Representatives have been recorded in Michigan as *species 2* and in Illinois as *spatulata* (Wheeler et al., 1994; D.R. Smith, 1979).

#### Identification

The body is 4.2-4.6 mm long. This species is yellowish-brown to reddish-brown in color with the alitrunk usually slightly paler. The darkest portion of this species is the gaster. The mandibles, antennae, and legs are also paler. The head and alitrunk are coarsely rugose and the

surface is glossy between the ridges. This species is easily identified by the exposed antennal insertion and the strongly projecting and over-hanging lamina at the bend of the scape.

### **Biology and Behavior**

This species can be found in wooded areas. Rericha (2007) reports this species in black oak saavna in remant dunes and swale. They can occasionally be found in prairies. Workers can be found foraging on the ground in the open.

### **Nest and Colony Structure**

Nests of this species are in the soil (Wheeler et al., 1994). Weber (1948) gave the type series from a single nest in Mississippi that consisted of 6 workers and 4 dealated females.

### **Range**

Michigan, Tennessee, Mississippi, Illinois, Indiana, Missouri.

### **Indiana Distribution**

Occasional. Recorded from 19 counties in Indiana.

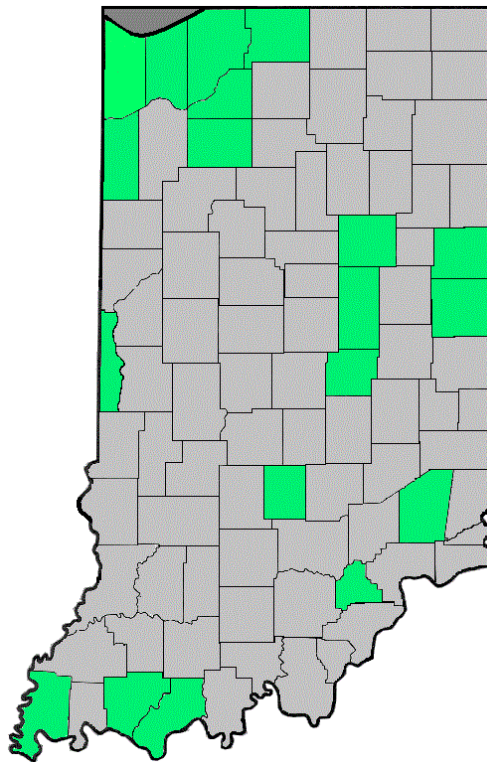


Figure 4.87 *M. spatulata* distribution

## Comments

Historically this species has been misidentified and may be much more common throughout the state. The species name *spatulata* refers to the spoon-like lamina on the antennal scape.

### *Myrmica whymperi* Forel

#### Previous Names and Synonyms

*Myrmica brevinodis* var. *whymperi* Forel 1913

*Myrmica brevinodis* var. *frigida* Wheeler

*Myrmica brevinodis* var. *sulcinodoides* Pergande

*Myrmica frigida* Wheeler

*Myrmica rubra brevinodis* var. *frigida* Forel

*Myrmica rubra brevinodis* var. *sulcinodoides* Pergande

*Myrmica rubra* r. *brevinodis* var. *frigida* Forel

*Myrmica rubra* st. *brevinodis* var. *sulcinodoides* Pergande

*Myrmica rubra* subsp. *brevinodis* var. *frigida* Forel

*Myrmica rubra* subsp. *brevinodis* var. *sulcinodoides* Emery

*Myrmica rubra* subsp. *sulcinodoides* Pergande

*Myrmica rubra sulcinodoides* Pergande

*Myrmica rubra* var. *sulcinodoides* Pergande

*Myrmica sulcinoides* Pergande

#### Taxonomy

See Forel (1913).

#### Identification

The body is 4.2-4.6 mm long. This species is dark brownish-black to black in color. The legs, mesosoma, and antennae are slightly lighter. The head and alitrunk are coarsely sculptured.

#### Biology and Behavior

This species can be found in wooded areas. They can occasionally be found in prairies. Workers can be found foraging on the ground in the open.

#### Nest and Colony Structure

Nests of this species are in the soil (Wheeler et al., 1994). Weber (1948) gave the type series from a single nest in Mississippi that consisted of 6 workers and 4 dealated females.

#### Range

Michigan, Tennessee, Mississippi, Illinois, Indiana, Missouri.

### Indiana Distribution

Rare. Recorded from one county in northwestern Indiana.



Figure 4.88 *M. whymeri* distribution

### Indiana References

None.

### Comments

A rare species of *Myrmica* that should be looked for in the northern portion of the state.

*Neivamyrmex nigrescens* (Cresson)

### Previous Names and Synonyms

*Labidus nigrescens* Cresson, 1872

*Eciton (Acmatius) schmitti* Emery 1894

*Eciton schmitti* Emery

### Taxonomy

This species was once considered to be part of the genus *Eciton* where the workers were described as *E. schmitti*. The present day name of *nigrescens* was based on the description of a male of the species. See Smith (1942b) and Watkins (1972) for further details.



### **Identification**

The body is 3.0-6.0 mm long. This species is light reddish-brown to dark brown or nearly black in color. The legs and gaster are usually paler in contrast. The head and alitrunk are densely granulated and the surface is dull. This is the only species of *Neivamyrmex* recorded in the state and is easily identified by the characters given for the genus.

### **Biology and Behavior**

DuBois & LaBerge (1988) recorded this species from shaded areas near the edges of forests in Illinois. In Tennessee, Cole (1940) recorded it from open grassy areas. Workers of this species are often seen in raiding columns at night or on overcast days. They are predaceous, feeding on other insects such as termites, adult and larval ants, and carabid beetles (Smith, 1942b). The limulodid beetle, *Paralimulodes wasmanni*, can be found riding on the backs of workers where they lick secretions produced by the ants (Holldobler & Wilson, 1990). When raids are occurring, the myrmecophilous ground beetles *Helluomorphoides ferrungineus*, *H. latitarsis*, and *H. texanus* can be found mixed in with the workers where they feed on the ants' prey and occasionally adult and larval ants (Kistner, 1982). In a similar manner, the phorid fly *Xanionoum hystrix* can be found in and around raiding parties feeding on prey (Rettenmeyer & Akre, 1968).

### **Nest and Colony Structure**

Nesting sites of this species are temporary and can be found in decaying logs, stumps, or in the ground beneath rocks and other objects (D.R. Smith, 1979). Colonies are very large and may contain 150,000 to 250,000 workers. They are monogynous (have a single queen) and new colonies are formed by splitting (D.R. Smith, 1979). Male reproductives can be found from mid August to mid November when they leave the colony and fly to another to find a wingless female (Watkins, 1985).

### **Range**

West Virginia, Kentucky, Tennessee south to Georgia, Alabama, Mississippi, Louisiana, west to southern Illinois, Iowa, Nebraska, Kansas, Oklahoma, Texas, Colorado, New Mexico, Arizona, California; Mexico.

### **Indiana Distribution**

Rare. Recorded from one county in southwestern Indiana.



Figure 4.89 *N. nigrescens* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986).

#### Comments

This interesting species reaches its northern range limit in the southwestern tip of Indiana. According to Watkins (1985), it has not been recorded from Indiana. However, 4 individuals are housed in the insect collection at Purdue University which were collected by M.R. Smith.

#### *Prenolepis arenivaga* Wheeler

#### Previous Names and Synonyms

*Prenolepis arenivaga* Wheeler 1905

*Nylanderia arenivaga* (Wheeler)

*Paratrechina* (*Nylanderia*) *arenivaga* (Wheeler)

*Paratrechina* (*Nylanderia*) *melanderi arenivaga* (Wheeler)

*Paratrechina arenivaga* (Wheeler)

*Paratrechina melanderi* subsp. *arenivaga* (Wheeler)

*Prenolepis (Nylanderia) arenivaga* Wheeler

### **Taxonomy**

See LaPolla, Brandy, & Shattuck (2010).

### **Identification**

The body is 2.0-2.7 mm long. This species is yellow to brownish-yellow in color with the head being slightly darker and the alitrunk and gaster being paler basally. The head is densely micropubescent and the alitrunk usually lacks pubescence. This is the only species of *Nylanderia* in Indiana that is predominantly pale in color.

### **Biology and Behavior**

This species can be found in dry sand prairies (Trager, 1984). Workers can be found foraging at night as this species is mostly nocturnal (Thompson, 1988). Their food consists of mainly dead insects but they also feed on honeydew (Trager, 1984).

### **Nest and Colony Structure**

Nests of this species are craters in the sand (Trager, 1984). They are polydomous and therefore may have multiple nest sites (Trager, 1984). Thompson (1988), however, considers them to be monogynous. Reproductive males and females can be found in May in this area (Trager, 1984).

### **Range**

New Jersey south to Florida, west to Arkansas and Texas, north to Illinois, Iowa, Nebraska, Indiana.

### **Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.

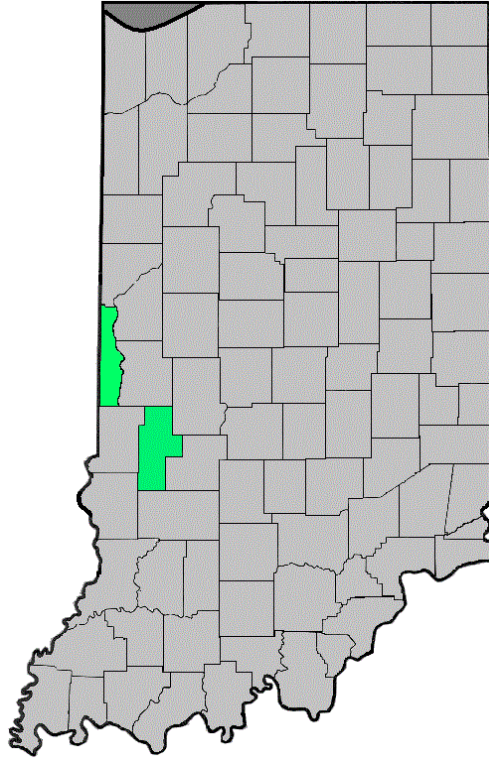


Figure 4.90 *P. arenivaga* distribution

#### Indiana References

Indiana (Munsee, Jansma, & Schrock, 1986), Vermillion (Munsee & Schrock, 1983).

#### Comments

This species may be more common throughout the state, but due to its nocturnal behavior it may be difficult to find and collect.

#### *Paratrechina faisonensis* (Forel)

#### Previous Names and Synonyms

*Prenolepis* (*Nylanderia*) *arenivaga* var. *faisonensis* Forel 1922

*Paratrechina* (*Nylanderia*) *arenivaga* var. *faisonensis* (Forel)

*Paratrechina arenivaga* var. *faisonensis* (Forel)

*Prenolepis arenivaga* var. *faisonensis* Forel

#### Taxonomy

See LaPolla, Brandy, & Shattuck (2010).

### Identification

The body is 1.9-2.5 mm long. This species is dark yellowish-brown to more commonly dark brown or brownish-black in color. The alitrunk may be slightly paler and the gaster slightly darker. The mandibles are paler with black margins and the legs are paler apically. The body is smooth and very glossy. The presence of erect hairs and moderately dense appressed pubescence on the head help to distinguish this species.

### Biology and Behavior

This species can be found in woods, at the edges of woods, and in semi open areas. Occasionally it can be collected inside buildings. Workers can be found foraging on the ground and on foliage in meadows and fields.

### Nest and Colony Structure

Nests of this species can be found under rocks, in acorns, and under bark on trees and logs. Trager (1984) reported reproductive males and females from late April to late May.

### Range

New Jersey south to Florida, west to Ohio, Arkansas, Mississippi (Trager, 1984).

### Indiana Distribution

Rare. Recorded from 6 counties in Indiana.

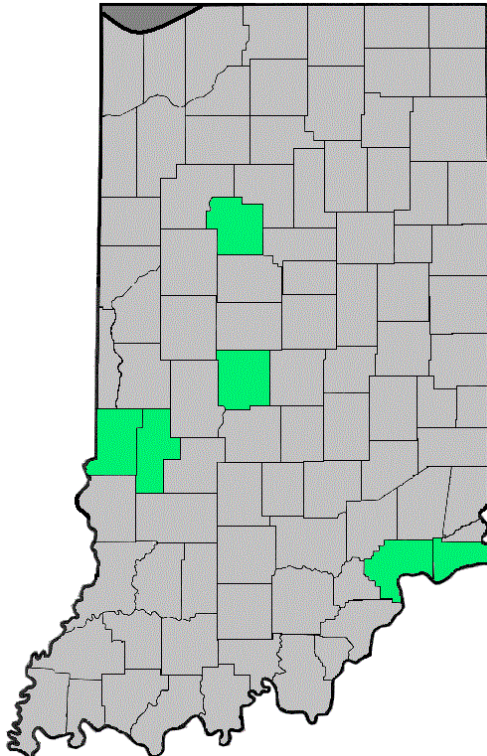


Figure 4.91 *P. faisonensis* distribution

**Indiana References**

None.

**Comments**

This species represents a new state record for the state of Indiana.

*Prenolepis flavipes* (Smith)**Previous Names and Synonyms**

*Tapinoma flavipes* Smith 1874

*Paratrechina (Nylanderia) flavipes* (Smith)

*Paratrechina flavipes* (Smith)

*Prenolepis (Nylanderia) flavipes* (Smith)

**Taxonomy**

See LaPolla, Brandy, & Shattuck (2010).

**Identification**

The body is 1.8-2.3 mm long. This species is brown with the antennae, legs, and alitrunk, being yellow in color. The body is smooth and very glossy. The erect hairs on the antennal scapes and bicolored body are characteristic for this species.

**Biology and Behavior**

This species can be found in forested areas. Workers can be found foraging for live insects.

**Nest and Colony Structure**

Nests are thought to be in the soil. Trager (1984) reported male and female reproductives in May in Pennsylvania.

**Range**

Pennsylvania, New York, New Jersey, Maryland, Ohio, Indiana; Japan, China.

**Indiana Distribution**

Rare. Recorded from 4 counties in Indiana.

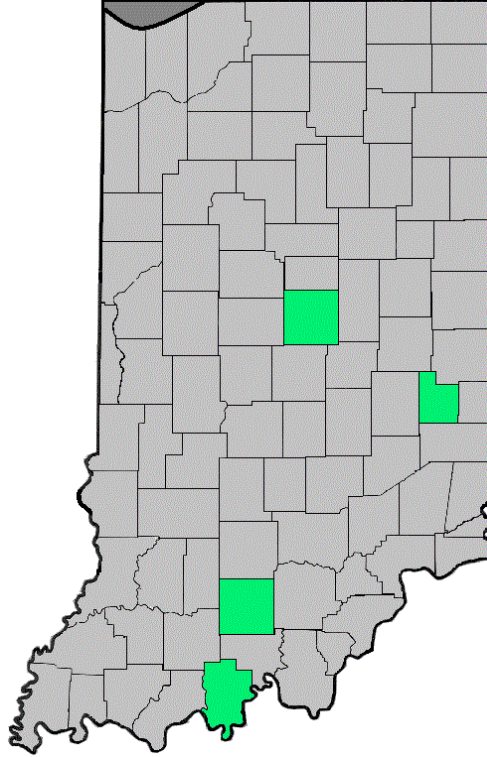


Figure 4.92 *P. flavipes* distribution

#### Indiana References

None.

#### Comments

This introduced species is originally from Asia and represents a new state record for Indiana. It is currently spreading across the northeastern U.S. and has found its way to Indiana.

#### *Paratrechina longicornis* (Latreille)

##### Previous Names and Synonyms

*Formica longicornis* Latreille 1802

*Formcia vagans* Jerdon

*Formica (Tapinoma) gracilescens* Nylander

*Formica gracilescens* Nylander

*Formica vagans* Jerdon

*Paratrechina currens* Motschoulsky

*Prenolepis (Nylanderia) longicornis* var. *hagemanni* Forel

*Prenolepis longicornis* var. *hagemanni* Forel

**Taxonomy**

See LaPolla, Brandy, & Shattuck (2010).

**Identification**

The body is 2.1-2.8 mm long. This species is brown to blackish-brown in color with slight bluish reflections. The mandibles, antennae, and legs are slightly paler with the legs being apically paler. The body is smooth and weakly glossy. This species is easily recognized by the unusually long legs and antennae as well as the much larger eyes.

**Biology and Behavior**

This species can be found in heated buildings in the northern states. D.R. Smith (1979) reported that the workers were found foraging on living or dead insects, seeds, honeydew, and various household foods. Workers are very adept at finding new food sources and are often the first to appear at newly placed baits (Holldobler & Wilson, 1990).

**Nest and Colony Structure**

Nests of this species can be found in wall voids in buildings, in greenhouses or other buildings in the northern states. In warmer climates they can be found in a wide variety of areas such as rotting wood, plant cavities, and under rocks (D.R. Smith, 1979). Colonies are polygynous and may have up to 2,000 workers and 40 queens (Holldobler & Wilson, 1990; Thompson, 1990).

**Range**

South Carolina south to Florida, west to Texas; California; Pantropical. In heated buildings further north: Illinois (DuBois & LaBerge, 1988), Indiana (Munsee, Jansma, & Schrock, 1986), Quebec (Francoeur, 1990).

**Indiana Distribution**

Rare. Recorded from 3 counties in Indiana.





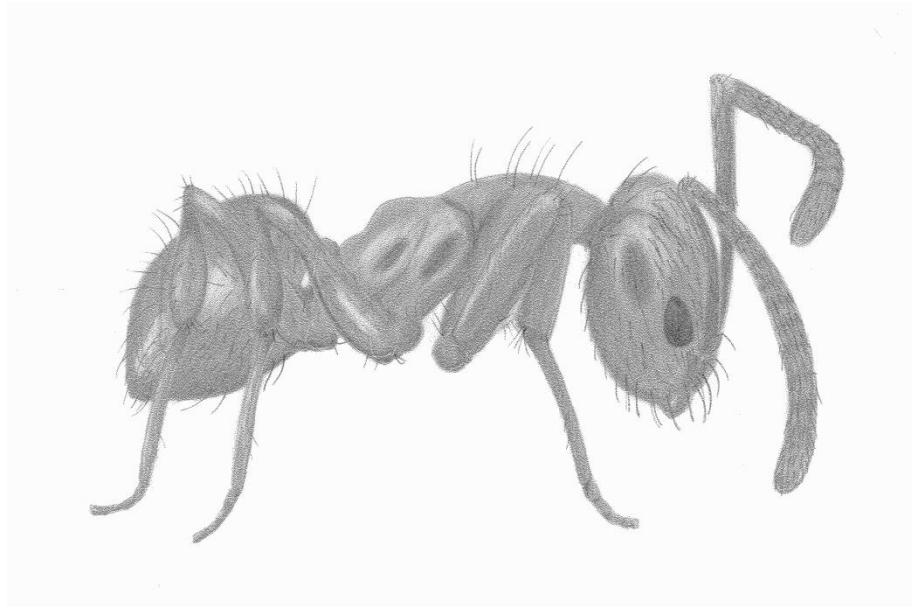
Figure 4.93 *P. longicornis* distribution

#### **Indiana References**

Indiana (Gregg, 1944; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Indianapolis (Morris, 1944).

#### **Comments**

This species is commonly known as the Crazy Ant. It is an introduced species that can only survive in this area in heated buildings but can be abundant in the southern states due to the warmer climate.

*Prenolepis parvula* MayrFigure 4.94 *Prenolepis parvula***Previous Names and Synonyms***Prenolepis parvula* Mayr 1870*Paratrechina (Nylanderia) parvula* (Mayr)*Paratrechina parvula* (Mayr)*Prenolepis (Nylanderia) parvula* Mayr*Prenolepis vividula* r. *parvula* Mayr*Prenolepis vividula* st. *parvula* Mayr*Prenolepis vividula* var. *parvula* Mayr**Taxonomy**

See LaPolla, Brandy, &amp; Shattuck (2010).

**Identification**

The body is 1.9-2.5 mm long. This species is medium brown to brownish-black in color with the gaster usually being slightly darker. The mandibles are paler with black margins and the antennae and legs are apically paler. The body is smooth and very glossy. The lack of erect hairs on the antennal scapes is characteristic for this species.

**Biology and Behavior**

This species can be found in wooded areas, at the edges of woods, prairies, and old fields. Wesson & Wesson (1940) found it to be fairly common in Ohio everywhere except in very cool

moist forests. Workers can be found foraging on the ground and on foliage for seeds of myrmecochorous plants such as *Trillium erectum* and flower nectar (Beattie & Culver, 1981; Barton, 1986).

### **Nest and Colony Structure**

Nests of this species can be found in grassy areas in the soil as craters, under moss, in logs and stumps, or under stones (D.R. Smith, 1979). Rericha (2007) reported nests in the root zones of *Schizachyrium scoparium*. Cole (1940b) reported that the colonies contained “a large number of individuals.” Trager (1984) reported male and female reproductives from July to August in Michigan.

### **Range**

Massachusetts south to northern Florida, west to Michigan, Illinois, North Dakota, Nebraska, Kansas, eastern Oklahoma, eastern Texas (Trager, 1984).

### **Indiana Distribution**

Occasional. Recorded from 20 counties in Indiana.

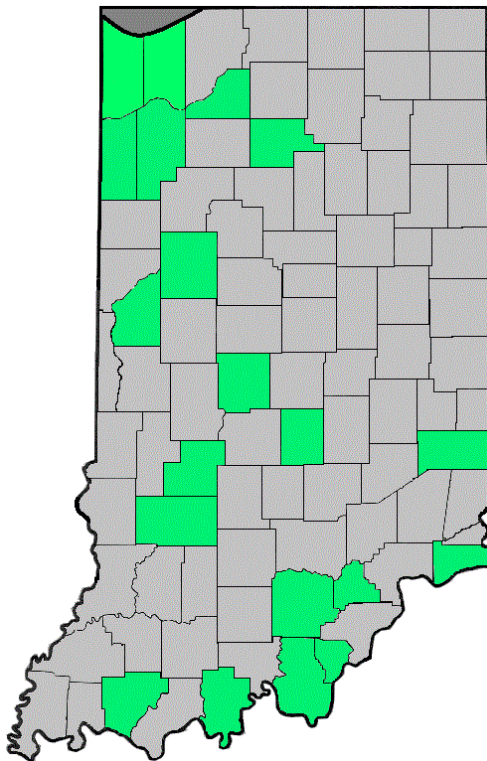


Figure 4.95 *P. parvula* distribution

**Indiana References**

Indiana (Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986), Lake (Wheeler, 1916), Porter (Gregg, 1944), Tippecanoe, Washington (Morris, 1943).

**Comments**

This is the most common species of *Nylanderia* in Indiana. It is regularly recognized by the lack of erect hairs on the antennal scapes.

*Pheidole bicarinata* Mayr

**Previous Names and Synonyms**

*Pheidole bicarinata* Mayr 1870

*Pheidole (Allophaidole) vinelandica* var. *nebracensis* Forel

*Pheidole bicarinata buccalis* Wheeler

*Pheidole bicarinata longula* Emery

*Pheidole bicarinata* r. *vinelandica* Forel

*Pheidole bicarinata* subsp. *buccalis* Wheeler

*Pheidole bicarinata* subsp. *longula* Emery

*Pheidole bicarinata* subsp. *vinelandica* Forel

*Pheidole bicarinata vinelandica* Forel

*Pheidole hayesi* Smith

*Pheidole laeviuscula* Emery

*Pheidole longula* Emery

*Pheidole nebrascensis* Forel

*Pheidole vinelandica buccalis* Wheeler

*Pheidole vinelandica* Forel

*Pheidole vinelandica laeviuscula* Emery

*Pheidole vinelandica longula* var. *castanea* Wheeler

*Pheidole vinelandica* subsp. *buccalis* Wheeler

*Pheidole vinelandica* subsp. *laeviuscula* Emery

*Pheidole vinelandica* subsp. *longula* Emery

*Pheidole vinelandica* subsp. *longula* var. *castanea* Wheeler

*Pheidole vinelandica* subsp. *longula* var. *huachucana* Smith

*Pheidole vinelandica* var. *longula* Emery

### **Taxonomy**

There are 3 names associated with this species heading that are usually treated as subspecies. Of these 3 subspecies, *Pheidole b. vinelandica* is most likely to occur in this area of the Midwest. See Wilson (2003) for details.

### **Identification**

**MAJORS:** The body is 3.2-3.3 mm long. This species is pale brownish-yellow to more commonly dark oranish-brown with the gaster being darkened apically. The mandibles are edged with black and the legs are slightly paler than the alitrunk. The front and sides of the head are sculptured with fine rugae and the top of the head is smooth and glossy with scattered punctures. The alitrunk is smooth and glossy anteriorly with finely punctuate sculpturing posteriorly.

**MINORS:** The body is 1.9 mm long. The head and gaster of the minors are medium to dark brown with the gaster being apically darkened. The alitrunk is orangish-brown. The head has reduced sculpturing and is mostly smooth and glossy. Otherwise characters are the same as in the majors.

### **Biology and Behavior**

This species can be found in sand prairies and old agricultural fields. D.R. Smith (1979) recorded this species from grasslands while Coovert (2005) found them in sand dunes and semi-open sandy areas. The workers are tiny and very slow moving. They can be found foraging on the ground for seeds of various plants (Wilson, 2003).

### **Nest and Colony Structure**

Nests of this species can be found in sandy soils where they appear as small craters. DuBois & LaBerge (1988) found nests under stones and rotten logs in Illinois. Colonies are small with up to 200 workers (Cole, 1940b). Wesson & Wesson (1940) reported winged reproductives in July while Cole (1940b) recorded them in June in Tennessee.

### **Range**

New Jersey to Florida, Michigan, Tennessee, west to North Dakota, Wyoming, Colorado, and Texas, to Utah and Nevada.

### **Indiana Distribution**

Rare. Recorded from 9 counties in Indiana.

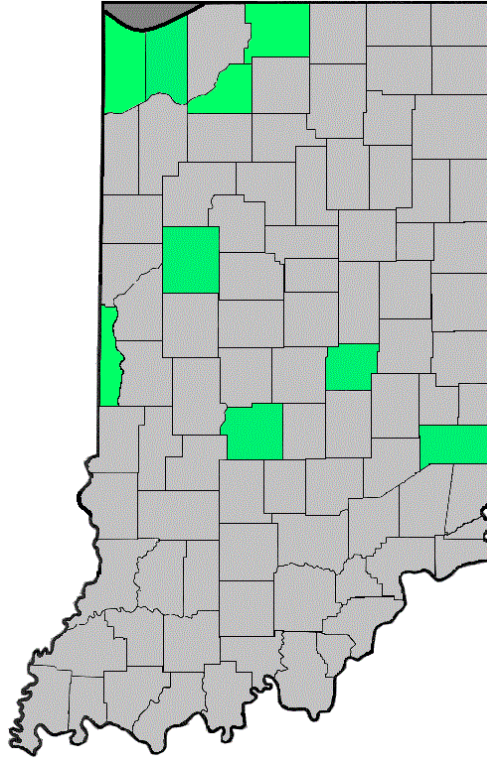


Figure 4.96 *P. bicarinata* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Lake, Porter (Gregg, 1944; Morris, 1943), St. Joseph (Gregg, 1944), Vermillion (Munsee & Schrock, 1983).

#### Comments

*Pheidole* are referred to as Harvester Ants due to their seed gathering tendencies.

#### *Pheidole bilimeki* Mayr

##### Previous Names and Synonyms

*Pheidole bilimeki* Mayr 1870

*Pheidole anastasii* Emery 1896

*Pheidole anastasii anastasii* Emery

*Pheidole anastasii cellarum* Forel

*Pheidole anastasii johnsoni* Wheeler

*Pheidole anastasii* var. *cellarum* Forel

*Pheidole anastasii* var. *johnsoni* Wheeler

*Pheidole anastasii* var. *venezuelana* Forel

*Pheidole anastasii venezuelana* Forel  
*Pheidole floridana antoniensis* Forel  
*Pheidole floridana ares* Forel  
*Pheidole floridana deplanata* Pergande  
*Pheidole floridana subsp. ares* Forel  
*Pheidole floridana var. antoniensis* Forel  
*Pheidole floridana var. deplanata* Pergande  
*Pheidole punctatissima annectens* Wheeler  
*Pheidole punctatissima insulana* Wheeler  
*Pheidole punctatissima jamaicensis* Wheeler  
*Pheidole punctatissima subsp. annectans* Wheeler  
*Pheidole punctatissima subsp. insulana* Wheeler  
*Pheidole punctatissima subsp. jamaicensis var. barbouri* Wheeler  
*Pheidole punctatissima subsp. jamaicensis var. praetermissa* Wheeler  
*Pheidole punctatissima subsp. jamaicensis* Wheeler  
*Pheidole punctatissima var. jamaicensis* Wheeler  
*Pheidole rectiluma* Wilson

### **Taxonomy**

Naves (1985) separated this species as *Pheidole anastasii* from the species *P. floridana*, Emery. See Wilson (2003).

### **Identification**

**MAJORS:** The body is 3.0-3.2 mm long. This species is medium brown to dark brownish-orange in color, with the gaster being apically darkened. The mandibles are edged black, while the antennae and legs are slightly paler in color. The head is finely rugose anteriorly with the sculpturing being coarser on the genae and finely punctate on the occiput. The surface is dull. The alitrunk is minutely punctate and dull as well. The first segment of the gaster is minutely and densely granulose dorsally with the surface being opalescent and dull. This contrasts the smooth glossy surface of the posterior segments of the gaster.

**MINORS:** The body is 1.6-1.7 mm long. The minors are similar in structure and color as the major workers except the head is much smaller and minutely punctate with the surface being dull and largely lacking rugae. The mandibles are also paler in color.

### **Biology and Behavior**

This species can be found in greenhouses and other heated buildings in the northern states. Workers can be found foraging on the ground up to 4 meters away from the nest. Once

food is located, major workers are recruited to help transport it back to the colony (Naves, 1985). This species feeds on seeds, fruits, and small living or dead arthropods (Naves, 1985). See Wilson (2003) for information regarding the tropical behaviors of this species.

### **Nest and Colony Structure**

Nests of this species are found in greenhouses in the northern states. In Florida nests are at the bases of pine trees and occasionally in the soil (Naves, 1985). Colonies can be somewhat large with more than 100 majors and 500 minors with the addition of a single queen (Naves, 1985). See Wilson (2003) for information regarding the tropical organization.

### **Range**

Southern Florida; Mexico, Central America to montane Colombia and Venezuela; Greater Antilles north to the Bahamas.

### **Indiana Distribution**

Rare. Recorded from one county in southern Indiana.



Figure 4.97 *P. bilimeki* distribution

### **Indiana References**

None.



## Comments

This is a small tropical species that only occurs in buildings in the north. It is recorded from a single location in Harrison county where it was found in a greenhouse and it represents a new state record for Indiana.

### *Pheidole morrisii* Forel

#### Previous Names and Synonyms

*Pheidole morrisii* Forel 1886

*Pheidole impexa* Wheeler

*Pheidole morrisi impexa* Wheeler

*Pheidole morrisi subsp. impexa* Wheeler

*Pheidole morrisi vanceae* Forel

*Pheidole morrisi var. impexa* Wheeler

*Pheidole morrisi var. vancae* Forel

*Pheidole morrisi var. vanceae* Forel

*Pheidole morrisii impexa* Wheeler

*Pheidole morrisii morrisii* Forel

*Pheidole morrisii var. vanceae* Forel

*Pheidole vanceae* Forel

#### Taxonomy

See Wilson (2003).

#### Identification

MAJORS: The body is 4.1-4.4 mm long. This species is yellow to pale brownish-yellow in color. The mandibles are edged black while the legs are slightly paler than the alitrunk. The front and sides of the head are rugose with the top being smooth and glossy with scattered punctures. The alitrunk is smooth and glossy on the pronotum and finely, densely punctate and dull elsewhere.

MINORS: The body is 2.4-2.9 mm long. The minors are similar in appearance as the majors with the exception of the head being smaller and smooth and glossy with reduced sculpturing.

#### Biology and Behavior

This species can be found in sand prairies, dunes, and grassy fields. Gregg (1944) reported that it was fairly common in the black oak dunes in Indiana and Illinois. Workers can be found foraging on the ground up to 8 meters from the nest. Once food is located

the major workers are recruited to help bring it back to the nest (Naves, 1985). This species is mainly a scavenger but will also gather seeds and collect nectar from flowers (Naves, 1985; Barton, 1986). When the nest is threatened, the ants will swarm out in large numbers to defend themselves (Gregg, 1944).

### **Nest and Colony Structure**

Nests of this species can be found in the soil where they create small crater mounds. They are usually in the root zones of the grass hummock *Schizachyrium scoparium* in Indiana and Illinois (Gregg, 1944). They may also nest under rocks and other objects (Cole, 1940b). Colonies can be very large and are monogynous, meaning they have a single queen (Naves, 1985; Van Pelt, 1958). Holldobler & Wilson (1990) reported that nests may also have multiple queens and Gregg (1944) reported up to 4 queens per nest. In Indiana and Illinois, reproductive males and females can be found from June to August (Gregg, 1944).

### **Range**

New York to Florida, west to Illinois, Louisiana, Missouri, Oklahoma, and Texas.

### **Indiana Distribution**

Rare. Recorded from 2 counties in northwestern Indiana.



Figure 4.98 *P. morrisii* distribution

**Indiana References**

Lake, Porter (Gregg, 1944).

**Comments**

This species should be sought after in the northwestern counties bordering Lake Michigan.

*Pheidole pilifera* (Roger)**Previous Names and Synonyms**

*Leptothorax pilifer* Roger 1863  
*Pheidole pennsylvanica* Roger 1863  
*Pheidole pilifera* (Roger)  
*Pheidole pilifera artemisia* Cole  
*Pheidole pilifera coloradensis* Emery  
*Pheidole pilifera pacifica* Wheeler  
*Pheidole pilifera pilifera* (Roger)  
*Pheidole pilifera septentrionalis* Wheeler  
*Pheidole pilifera subsp. artemisia* Cole  
*Pheidole pilifera subsp. coloradensis* Emery  
*Pheidole pilifera subsp. coloradensis var. neomexicana* Wheeler  
*Pheidole pilifera subsp. coloradensis var. septentrionalis* Wheeler  
*Pheidole pilifera subsp. coloradensis var. simulans* Wheeler  
*Pheidole pilifera subsp. pacifica* Wheeler  
*Pheidole pilifera subsp. septentrionalis* Wheeler  
*Pheidole pilifera var. coloradensis* Emery  
*Pheidole pilifera var. simulans* Wheeler  
*Pheidole xerophila pacifica* Wheeler  
*Pheidole xerophila subsp. pacifica* Wheeler

**Taxonomy**

See Creighton (1950) and Wilson (2003) for details and geographic variations.

**Identification**

MAJORS: The body is 4.2-5.1 mm long. This species is yellowish-brown to more commonly dark reddish-brown in color with the petiole and postpetiole being darker and the gaster being nearly black. The mandibles have black margins and the legs are paler than the alitrunk. The head is rugosely sculptured on the front and sides with reticulated sculpturing on

the top and is dull or weakly glossy. The alitrunk has rugose or punctate sculpturing and is dull to weakly glossy.

MINORS: The body is 2.4-2.8 mm long. The minors are similar to the majors with the exception of the head being smaller and darker with the mandibles being paler than the head. The head is also fully covered in rugose or punctate sculpturing and the alitrunk is finely punctate.

### **Biology and Behavior**

This species can be found in prairies, oak savannas, open fields, meadows, and in fields where the sun reaches the soil. Wesson & Wesson (1940) reported taking a colony in a small opening on a moist slope in the woods. Workers can be found foraging on the ground for seeds, which compose the bulk of their diet. Buren (1944) noted that they would take dead insects if offered, but seemed to be largely granivorous. Major workers rarely leave the nest except when they are recruited to carry food. Their primary function is to block the nest openings with their large heads (Stefan Cover in Wilson, 2003). This species can be host to the parasitic eucharitid wasp *Orasema occidentalis* (Wheeler & Wheeler, 1986).

### **Nest and Colony Structure**

Nests of this species are found in the soil usually at the bases of grasses or other plants. They appear as small crater mounds. Colonies are monogynous and newly mated queens start their colonies by themselves (Wilson, 2003). Wheeler (1905) found reproductive males and females in July in Illinois.

### **Range**

New York, Massachusetts south to Georgia, west to North Dakota, Nebraska, Kansas.

### **Indiana Distribution**

Rare. Recorded from 6 counties in Indiana.



are rugose while the top is smooth and glossy with scattered punctures. The alitrunk is smooth and glossy.

MINORS: The body is 1.8-2.0 mm long. The minors are similar to the majors but with smaller heads that are smooth and glossy and the mandibles are paler in color.

### **Biology and Behavior**

This species can be found in fields, meadows, grazed pastures, and occasionally openings in the woods (Wesson & Wesson, 1940). The workers can be found foraging on the ground for seeds, or tending aphids and collecting nectar from flowers on low herbaceous plants (Wilson, 2003).

### **Nest and Colony Structure**

Nests of this species are deep in the ground. Cole (1940b) reported nests in the soil under stones in Tennessee. Colonies are small in size (Cole, 1940b). Wesson & Wesson (1940) reported reproductive females in July while Cole (1940b) found male and female reproductives in the nests in late June and July.

### **Range**

New York, Virginia, North Carolina, northwestern Georgia, Ohio, Tennessee, and Kentucky; disjunct populations in Louisiana, west Texas, the mountains of southern Arizona, and Mexico.

### **Indiana Distribution**

Rare. Recorded from 4 counties in southern Indiana.

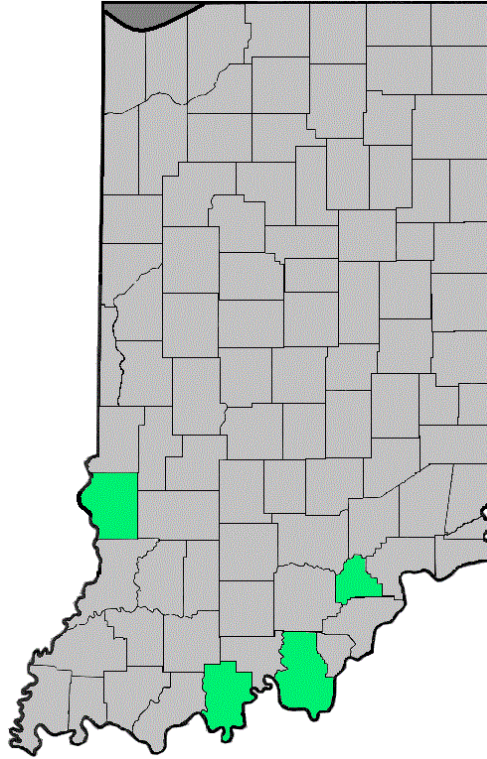


Figure 4.100 *P. tysoni* distribution

#### Indiana References

None.

#### Comments

This species represents a new state record for Indiana. The smooth and glossy areas of the body make it easy to identify.

#### *Polyergus breviceps* Emery

#### Previous Names and Synonyms

*Polyergus rufescens breviceps* Emery 1893

*Polyergus rufescens bicolor* Wasmann 1901

*Polyergus breviceps* Emery

*Polyergus rufescens bicolor* var. *foreli* Wheeler

*Polyergus rufescens breviceps* var. *umbratus* Wheeler

*Polyergus rufescens* st. *breviceps* var. *Silvestrii* Santschi

*Polyergus rufescens* subsp. *bicolor* Wasmann

*Polyergus rufescens* subsp. *bicolor* var. *foreli* Wheeler

*Polyergus rufescens* subsp. *breviceps* Emery

*Polyergus rufescens* subsp. *breviceps* var. *fusciventris* Wheeler

*Polyergus rufescens* subsp. *breviceps* var. *montezuma* Wheeler

*Polyergus rufescens* subsp. *breviceps* var. *silvestrii* Wheeler

*Polyergus rufescens* subsp. *breviceps* var. *umbrata* Wheeler

*Polyergus rufescens* subsp. *umbratus* Creighton

*Polyergus rufescens umbratus* Creighton

### **Taxonomy**

See J. Wheeler (1968).

### **Identification**

The body is 5.9-6.7 mm long. This species is highly variable in color, from yellowish-orange to yellowish-brown to reddish-brown with the gaster being darker in some individuals. The mandibles, antennae, and legs are concolorous with the body. The body is smooth and dull to weakly glossy. The gaster has a fine covering of appressed micropubescence that gives it a grayish sheen. The shorter antennal scapes, long, abundant long, erect hairs, and grayish sheen of the gaster help to distinguish this species.

### **Biology and Behavior**

This species can be found in grasslands (Wheeler et al., 1994). They are known to raid the nests and make slaves of *Formica altipetens*, *F. argentea*, *F. fusca*, *F. gnava*, *F. lepida*, *F. manni*, *F. montana*, *F. neoclara*, *F. neorufibarbis*, *F. nitidiventris*, *F. occulta*, *F. schaufussi*, *F. subpolita*, and *F. subsericea* (D.R. Smith, 1979; Smith, 1947a; Wheeler et al., 1994; Topoff, 1999). See Wheeler (1910b) for an account of slave raids (as bicolor). They are fed by the host species and occasionally feed on the pupae of raids.

### **Nest and Colony Structure**

Nests can be found in the soil (Wheeler, et al., 1994). See the host species for details on nests. Colonies are usually roughly 3,000 raiders with up to 6,000 slaves as workers. Winged queens do not have mating flights and go along with slave raids where they mate along the way. New colonies are founded by the newly mated queen staying behind in a plundered nest or by the new queen locating another more distant colony by herself. In either case she will kill the host queen by repeatedly biting and licking her. This allows the raid queen to obtain the proper scent of the host species and be accepted by the host workers (Topoff, 1999). Holldobler & Wilson (1990) reported that workers are able to reproduce if the nest becomes queenless. Gregg (1944) reported male and female reproductives in July and August in Illinois.



**Range**

Quebec, Ontario, Michigan west to British Columbia, south to Indiana, Illinois, Missouri, Kansas, New Mexico, Arizona, Nevada, California.

**Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.



Figure 4.101 *P. breviceps* distribution

**Indiana References**

Indiana (Gregg, 1944; Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986), Crawford (Morris, 1943).

**Comments**

This genus is currently under revision by Dr. James Trager. This species is thought to represent a complex of 2 species; *Polyergus rufescens breviceps* and *Polyergus umbratus*. This species is currently on the IUCN Red List and populations are considered very vulnerable.

*Polyergus lucidus* Mayr

**Previous Names and Synonyms**

*Polyergus lucidus* Mayr 1870

*Polyergus lucidus montivagus* Wheeler 1915

*Polyergus lucidus* subsp. *montivagus* Wheeler

*Polyergus lucidus* var. *montivagus* Wheeler

*Polyergus rufescens* st. *lucidus* Mayr

*Polyergus rufescens* subsp. *lucidus* var. *montivagus* Wheeler

### **Taxonomy**

See Creighton (1950).

### **Identification**

The body is 6.1-7.4 mm long. This species is brownish-orange to dark orangish-brown in color with the gaster being black apically. The antennae and legs are concolorous or slightly darker. The body is satiny to mostly glossy with the gaster having sparse dorsal appressed micropubescence. The sparse erect hairs, longer antennal scapes, and glossy gaster help to distinguish this species.

### **Biology and Behavior**

This species can be found in open fields, prairies, oak savannas, mowed areas, and occasionally open woods. They are known to raid nests of *F. lasioides*, *F. neogagates*, *F. nitidiventris*, and *F. schaufussi* (D.R. Smith, 1979). See Wesson & Wesson (1940) for raid accounts. Individuals are completely dependent on the slave species for obtaining food, which they do through trophallaxis (Wheeler et al., 1994). They have also been known to feed on the slave pupae. Nests may be host to the myrmecophilous syrphid *Microdon fulgens* (Duffield, 1981).

### **Nest and Colony Structure**

Nests are found in the ground with characteristics of the host or slaves. Talbot (1967) reported a colony in Michigan that had a single queen, 291 workers, 115 alate females, and 407 males with 4527 slave workers. The much greater ratio of slaves to slave-raiders is typical for this species (Holldobler & Wilson, 1990). New colonies are formed by budding, in which a mated female and workers will take over the nest of a slave species and remain there (Marlin, 1968). Male and female reproductives can be found in August (Kennedy, 1937; Wesson & Wesson, 1940; Wheeler 1910b). Marlin (1971) reported flights in Illinois on hot sunny days between noon and 3 pm between July 10 and September 4.

### **Range**

Massachusetts south to South Carolina, west to Michigan, North Dakota, Iowa, Colorado, New Mexico.

**Indiana Distribution**

Rare. Recorded from 6 counties in Indiana.

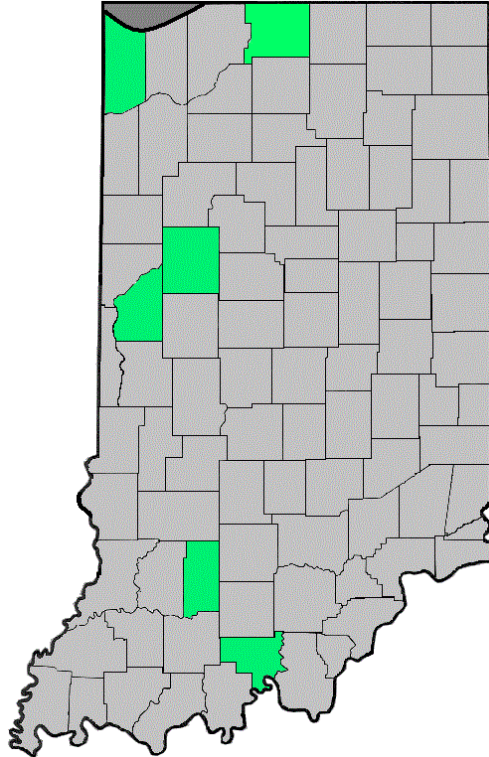


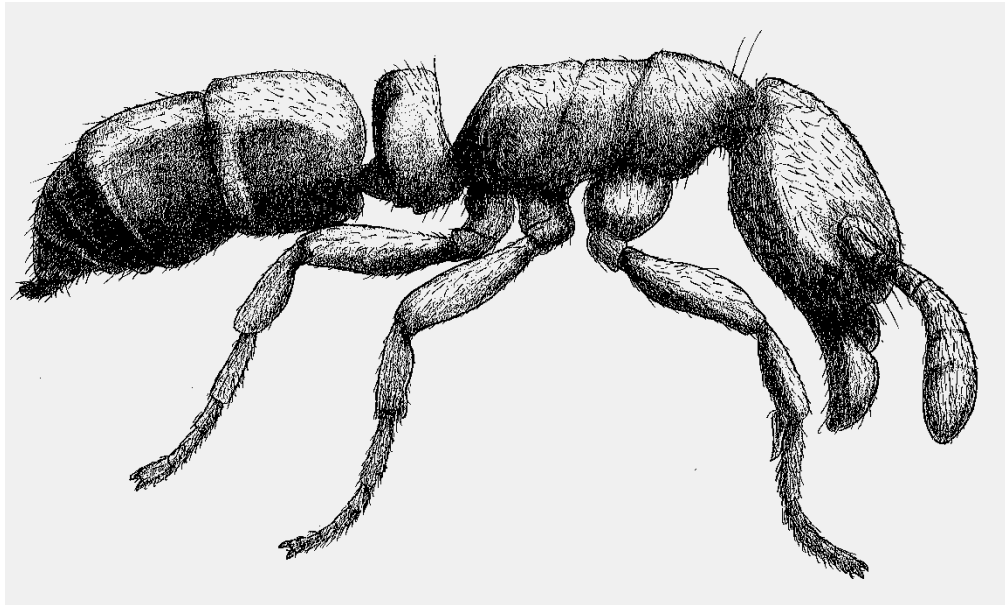
Figure 4.102 *P. lucidus* distribution

**Indiana References**

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), St. Joseph (Wheeler, 1916).

**Comments**

This beautiful species of ant is on the IUCN Red List and populations are considered very vulnerable. It is a dedicated slave-raiding species and is dependant on the host for survival.

*Ponera pennsylvanica* BuckleyFigure 4.103 *Ponera pennsylvanica***Previous Names and Synonyms***Ponera Pennsylvanica* Buckley 1866*Ponera coarctata pennsylvanica* Buckley*Ponera coarctata subsp. pennsylvanica* Buckley*Ponera coarctata var. pennsylvanica* Buckley*Ponera pennsylvanica* Buckley**Taxonomy**

See Taylor (1967).

**Identification**

The body is 3.0-3.8 mm long. This species is variable in color but is usually dark reddish-brown to nearly black. The mandibles, antennae, legs, and tip of the gaster are paler in color. The head and alitrunk are finely and densely punctate with the surface being moderately dull. The pubescence is very short. This is the only species for this genus in our area.

**Biology and Behavior**

This species can be found in a variety of wooded areas, fens, moist prairies, and less commonly in open areas. The workers are slow moving and can be found foraging throughout the leaf litter, on the ground, under bark, in decaying wood, and under rocks for small insects.

They are carnivorous (D.R. Smith, 1979) and rarely seen in the open. Coovert (2005) reported a colony only centimeters away from a colony of *Camponotus chromaiodes* under the bark of a log.

### **Nest and Colony Structure**

Nests of this species can be found under the bark of logs, in decaying wood, under rocks, and in the root zones of sedges and grasses. They can also be found in acorns and other nuts (Headley, 1952). Colonies are small, usually with 40-50 workers with 5-15 pupae during brood rearing (Amstutz, 1943). Although colonies are small, there may be numerous in a small area of soil (Headley, 1952). Reproductive males and females can be found from early August to early October (Headley, 1943a). See Kennedy (1930) for his account of the first reported ergatoid (worker-like) males in the genus *Ponera*.

### **Range**

Nova Scotia, Quebec south to Florida, west to Ontario, Michigan, North Dakota, Colorado, Utah, New Mexico.

### **Indiana Distribution**

Common. Recorded from 69 counties in Indiana.

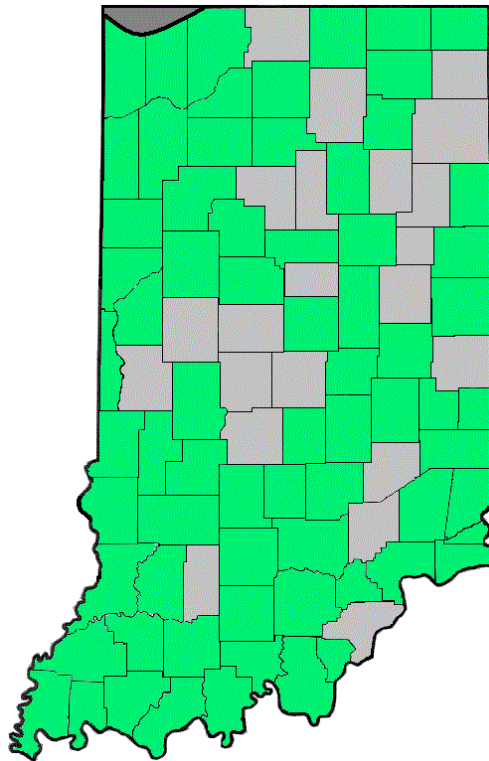


Figure 4.104 *P. pennsylvanica* distribution

### Indiana References

Indiana (Munsee, Jansma, & Schrock, 1986), Brown (Rericha, 2007), Crawford (Wheeler, 1916), Clinton, Jefferson, Lake, Washington (Morris, 1943), Vermillion (Munsee & Schrock, 1983), Porter, LaPorte, Starke (Gregg, 1944).

### Comments

This is the most common ponerine ant in Indiana and is often found under the bark of logs in forested areas or under rocks in moist lawns and gardens. This species is thought to be in every county in Indiana but is small and difficult to find at times.

### *Prenolepis imparis* (Say)

#### Previous Names and Synonyms

*Formica imparis* Say 1836  
*Formica (Tapinoma) Wichita* Buckley  
*Formica (Tapinoma) wichita* Buckley  
*Formica Wichita* Buckley  
*Lasius imparis* (Say)  
*Prenolepis (Nylanderia) imparis* (Say)  
*Prenolepis americana* Forel  
*Prenolepis californica* Wheeler  
*Prenolepis imparis californica* Wheeler  
*Prenolepis impairs impairs* (Say)  
*Prenolepis imparis pumila* Wheeler  
*Prenolepis imparis subsp. californica* Wheeler  
*Prenolepis imparis testacea* Emery  
*Prenolepis imparis var. californica* Wheeler  
*Prenolepis imparis var. minuta* Emery  
*Prenolepis imparis var. pumila* Wheeler  
*Prenolepis imparis var. testacea* Emery  
*Prenolepis minuta* Emery  
*Prenolepis nitens var. americana* Forel  
*Prenolepis pumila* Wheeler  
*Prenolepis testacea* Emery  
*Prenolepis wichita* (Buckley)

### **Taxonomy**

This genus was recently revised. See Creighton (1950) and LaPolla, Brady, & Shattuck (2010).

### **Identification**

The body is 2.8-4.4 mm long. This species has an orangish-brown to dark brown head and alitrunk, while the gaster is darker in color. The mandibles are paler and edged black, and the antennae and legs are paler as well. The body is smooth and very glossy. This species is easily recognized by the characteristics given for the genus as it is the only species found in the state.

### **Biology and Behavior**

This species can be found in open woods, at the edges of fields, meadows, agricultural fields, lawns, gardens, and occasionally in buildings. Wheeler et al. (1994) reported that it can be found in a wide variety of habitats from grasslands to deep forests. Workers can be found foraging on the ground, tree trunks, and on foliage. They are usually seen in feeding trails to and from a food source. This species has workers that are able to extend their gasters as they fill up on fluid nutrients that are known as repletes. These workers are very common. They forage for flower nectar, dead insects, fruit, and honeydew. D.R. Smith (1979) reported this species feeding on honeydew, secretions of floral and extrafloral nectarines, exudates from galls, earthworms, arthropods, and ripened or decaying fruits. Workers may also be found tending the membracids *Entylia bactriana*, *Publilia concave*, and *Enchenopa binotata* (Covert, 2005; Wood, 1982). They are predominantly nocturnal but can be seen foraging on cloudy or cool days (Wesson & Wesson, 1940). Wheeler (1930) reported that they can be found active above ground in the winter due to their preference for cool weather and tolerance of near freezing temperatures.

### **Nest and Colony Structure**

Nests of this species can be found in the soil where they build small crater mounds. They may also be found under or in logs (Covert, 2005). The nests have a single entrance and go on straight down up to a meter with various chambers off the sides (Dennis, 1941; Talbot, 1943a). When winged reproductives are active additional nest entrances may be created (Dennis, 1941). Colonies may be large, with 1,000 to 2,000 workers. Talbot (1943a) reported a single queen, while Holldobler & Wilson (1950) reported that multiple queens may be present and colonies may be as large as 10,300 workers. Male and female reproductives overwinter in the nest and can be found flying from March to early May. This species is one of the first to have its nuptial flight in the spring.

**Range**

Connecticut, Ontario south to Florida, west to Wisconsin, Iowa, Missouri, Oklahoma, Texas, New Mexico, Arizona.

**Indiana Distribution**

Fairly Common. Recorded from 60 counties in Indiana.

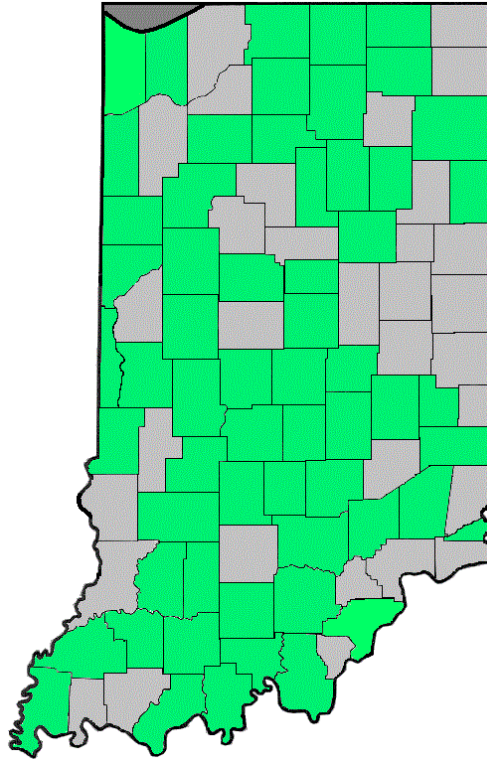


Figure 4.105 *P. impairs* distribution

**Indiana References**

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Crawford, Lake (Wheeler, 1916), Clark, Kosciusko, Tippecanoe, Washington (Morris, 1943), Porter (Gregg, 1944).

**Comments**

Known as the False Honey Ant, this species has replete workers that are able to extend their abdomens (gasters) to hold more liquid. They take this liquid nutrient back to the nest where they feed other workers through tropholaxis. This species was described by Thomas Say, the father of American entomology, who helped to create the Eutopian Society of New Harmony, Indiana.



*Proceratium pergandei* (Emery)

**Previous Names and Synonyms**

*Sysphincta pergandei* Emery 1895

**Taxonomy**

The very distinctive features of this species had it previously placed in the genus *Sysphincta* for many years.

**Identification**

The body is 3.6-4.2 mm long. This species is reddish-brown in color. The antennae and legs may be paler. The head and alitrunk are finely sculptured and the surface is moderately dull. The body is finely pubescent. This species has a low, rounded petiolar node and the second gastral segment is very distinctly shaped making it easily identifiable.

**Biology and Behavior**

This species can be found in open woods and dense woods (Wesson & Wesson, 1940). Carter (1962) reported this species being collected in pine woods, deciduous woods, and grassy broom sedge fields. Munsee (1967) collected this species from an undisturbed woodland location near the spoil bank of a strip mine. Rericha (2007) collected this species in Illinois from dry-mesic white oak woodlands on the morainic bluffs in Sag Valley. In Owen County it was collected near a creek in open woods. Workers can be found underground or under cover (Wesson & Wesson, 1940). They are a specialized predator of spider eggs (Brown, 1979).

**Nest and Colony Structure**

Nests of this species can be found in red, rotting wood (Coover, 2005; Rericha, 2007). A nest was found deep in the soil under a large rock of asphalt in Owen County. Brown (1958) also reported nests under rocks. Colonies are small in size. Wesson & Wesson (1940) reported a nest that was found with a single queen, 8 males, and 11 workers. These males were alates and were found in the nest in late August.

**Range**

Massachusetts to Florida, west to Illinois, Iowa, Arkansas, Louisiana.

**Indiana Distribution**

Rare. Recorded from 3 counties in central Indiana.

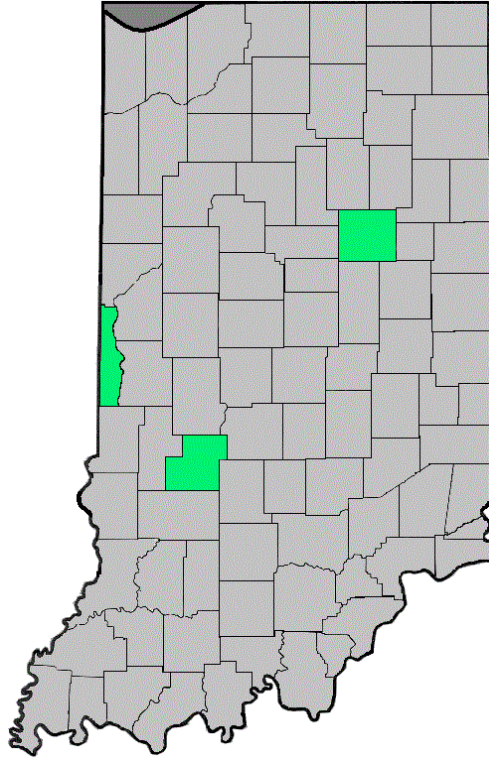


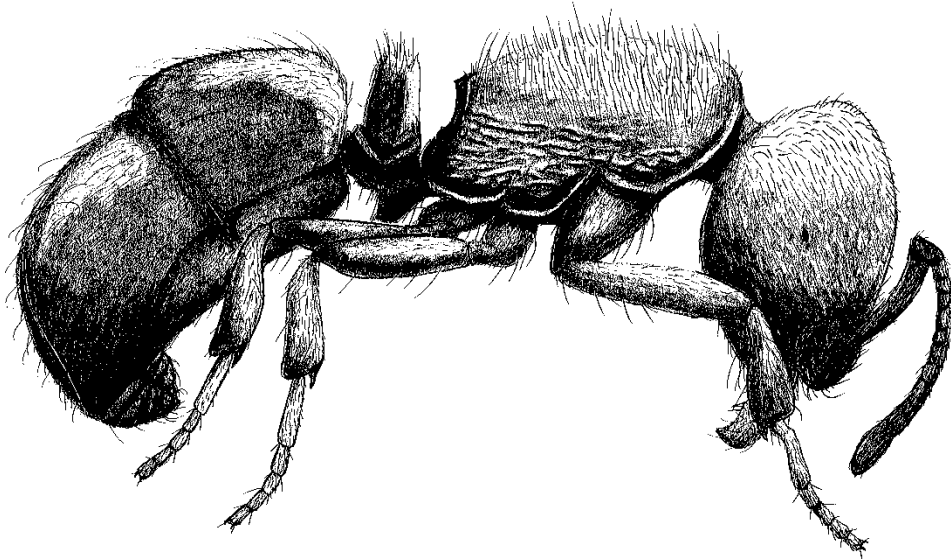
Figure 4.106 *P. pergandei* distribution

#### **Indiana References**

Indiana (Munsee, Jansma, & Schrock, 1986), Vermillion (Munsee, 1967).

#### **Comments**

This distinctive reddish-brown species is rare in Indiana and thought to be at its northern range limit in central Indiana. It may be more common, but is difficult to find due to its hypogaeic tendencies.

*Proceratium silaceum* RogerFigure 4.107 *Proceratium silaceum***Previous Names and Synonyms***Proceratium silaceum* Roger 1863*Proceratium crassicorne* Emery 1895*Proceratium crassicorne* var. *vestita* Emery*Proceratium crassicorne* var. *vestitum* Emery*Proceratium mancum* Mann*Proceratium silaceum rugulosum* Wheeler*Proceratium silaceum* subsp. *rugulosum* Wheeler*Proceratium vestitum* Emery**Taxonomy**

See Creighton (1950).

**Identification**

The body is 2.4-2.8 mm long. This species is orangish-brown to reddish-brown in color with the legs being slightly paler. The head and alitrunk are distinctly sculptured but the surface is generally glossy. The body is finely pubescent. The smaller size and shape of the petiole are characteristic for this species and separate it from *P. pergandei*.

**Biology and Behavior**

This species can be found in open woods (Wesson & Wesson, 1940). Rericha (2007) reports this species in dry-mesic woodlands. Workers forage underground or beneath cover.

Rericha (2007) reported collecting foraging workers in leaf litter extraction. They are a specialized predator of spider eggs and eggs of other arthropods (Brown, 1958). These eggs are stored in the nest for later consumption (Brown, 1979). The reflexed tip of the gaster is used to tuck collected eggs toward the mandibles when they are being carried as they are slippery (Brown, 1979).

### **Nest and Colony Structure**

Nests of this species can be found in decaying logs and stumps or in dry soil under stones or moss (Wesson & Wesson, 1940). Colonies are small in size. Wesson & Wesson (1940) reported nests with 30 to 40 workers, a single queen, and several winged males and females in addition to brood. Holldobler & Wilson (1990) reported colonies ranging in size from 9 to 60 individuals.

### **Range**

Massachusetts, southern Ontario (Pelee Island and the surrounding area), Michigan, south to northern Florida, west to Illinois, Arkansas, Oklahoma.

### **Indiana Distribution**

Rare. Recorded from 3 counties in Indiana.

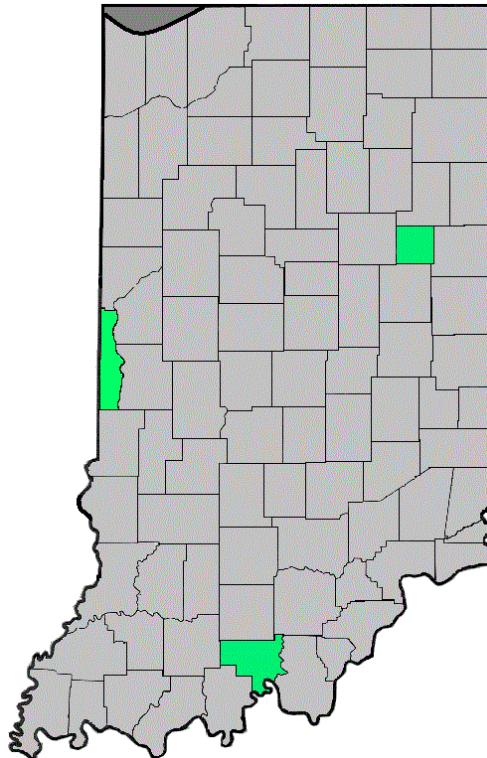


Figure 4.108 *P. silaceum* distribution

### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Crawford (Wheeler, 1916), St. Joseph (Gregg, 1944 as *P. croceum*).

### Comments

This species was misidentified by Gregg (1944) as *Proceratium croceum*. His collection is housed at the Field Museum of Natural History.

### *Protomognathus americanus* (Emery)

### Previous Names and Synonyms

*Tomognathus americanus* Emery 1895

*Harpogoxenus americanus* (Emery)

*Protomognathus americanus* (Emery)

*Tomognathus (Protomognathus) americanus* Emery

### Taxonomy

Holldobler & Wilson (1990) separated this genus from *Harpogoxenus*.

### Identification

The body is 2.8-3.4 mm long. This species is dark yellowish-brown to dark brown nearly black in color. The mandibles are paler and the teeth are black tipped. The antennae are paler, especially the scapes, and the legs are paler basally and apically. The genae are minutely striate and the remainder of the head is smooth and glossy with scattered punctures. The alitrunk is weakly striate and glossy. This is the only species in this genus and is easily recognized by the 4 mandibular teeth and broad, shallow median notch of the clypeus.

### Biology and Behavior

This species can be found in woods and semi-open woods. Rericha (2007) reported them in dry-mesic white oak woodlands that are burned annually. They are a slave maker and can be found in mixed colonies with *Temnothorax curvispinosus* and *T. longispinosus*. Wesson (1939) found 1 out of 15 colonies of *L. curvispinosus* were enslaved by *P. americanus*. Holldobler & Wilson (1990) also list *Temnothorax ambiguus* as a host of this species. Workers can be found foraging on the ground and on tree trunks (Coover, 2005). See Alloway (1979) and Stuart & Alloway (1985) for more details.

### Nest and Colony Structure

Mixed nests of this species and its host can be found in acorns and hickory nuts. Host colonies are enslaved by the queen of *P. americanus* entering the nest and killing or driving away the host ants, then acquiring the brood. She will then care for the brood and produce some of her

own so that a mixed colony results. The *P. americanus* workers will then occasionally raid other host colonies to acquire more slave brood (Smith, 1939b; Wesson, 1939; Creighton, 1950). Colonies are small in size with usually about 6 *P. americanus* workers and 30 slaves but there may be up to 50 *P. americanus* workers and 300 slave workers. Covert (2005) found female reproductives in June while Wesson (1939) reported winged females in July in Ohio and in June in Maryland.

### **Range**

Massachusetts, Ontario, Michigan, south to North Carolina, Ohio, Indiana, Illinois, Iowa, Missouri.

### **Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.

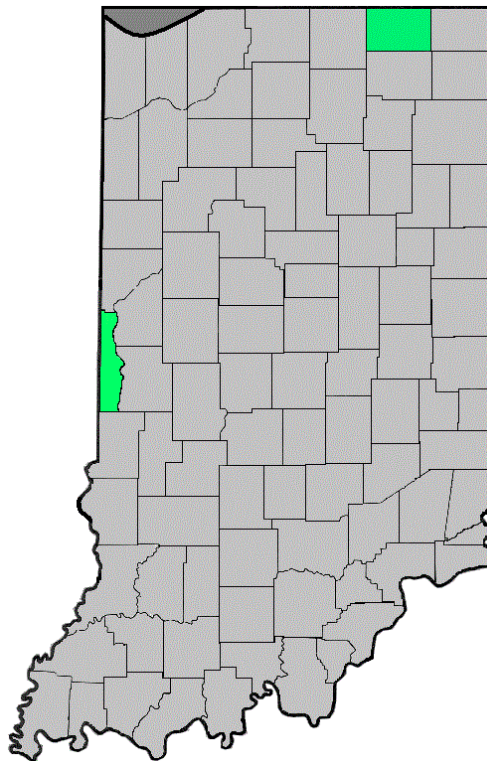


Figure 4.109 *P. americanus* distribution

### **Indiana References**

Vermillion (Munsee, Jansma, & Schrock, 1986).

### **Comments**

This tiny slave making species is rare to find in the field. They are more commonly found in mixed colonies with their slaves. When invading or raiding a host nest, the antennae of

this species are tucked into the deep antennal scrobe for protection. This species is on the IUCN Red List with a VU D2 status meaning that populations are considered very vulnerable.

*Solenopsis molesta* (Say)

**Previous Names and Synonyms**

*Myrmica molesta* Say 1836

*Solenopsis molesta* var. *validiuscula* Emery 1895

*Diplorhoptrum molesta* (Say)

*Diplorhoptrum molestum* (Say)

*Monomorium molesta* (Say)

*Myrmica* (*Diplorhoptrum*) *molesta* Say

*Myrmica* (*Monomorium*) *molesta* Say

*Myrmica* (*Tetramorium*) *exigua* Buckley

*Myrmica exigua* Buckley

*Myrmica intrudens* Clark

*Myrmica minuta* Say

*Myrmica molésta* Say

*Pheidole molesta* (Say)

*Solenopsis* (*Diplorhoptrum*) *molesta* (Say)

*Solenopsis debilis* Mayr

*Solenopsis minuta* (Say)

*Solenopsis modesta* (Say)

*Tetramorium exiguum* (Buckley)

**Taxonomy**

See Creighton (1950) and Thompson (1989).

**Identification**

The body is 1.5-1.8 mm long. This species is yellow to yellowish-brown in color with the head and gaster being dorsally slightly darker. The body is mostly smooth and highly glossy. The bare, non-punctate central longitudinal stripe on the head with inward facing border hairs is characteristic for this species.

**Biology and Behavior**

This species can be found in open woods, fields, and meadows, and prairies. They are occasionally found inside buildings. Workers can be found foraging on the ground and in nests of other species of ants. They feed on a variety of foods, and Thompson (1990) reported that this

species is highly predacious and nearly omnivorous. Coover (2005) found them in the nest of *Formica subsericea*, *Lasius umbratus*, and *L. claviger*. Amstutz (1943) found this species in association with *Myrmica* and *Formica* species.

### **Nest and Colony Structure**

Nests of this species are often found in association with other species of ants. Known as the thief ant, they will raid other nests for food and brood (D.R. Smith, 1979). Wesson & Wesson (1940) reported that nests of this species were often exposed when the nests of other ants were excavated. Nests can be found in woodwork and masonry of houses as well. As a house pest, they are highly annoying because of their small size and difficulty in eliminating (D.R. Smith, 1979). Colonies are large and may contain up to a few thousand workers (Thomson, 1990). Wheeler & Wheeler (1986) reported that nests are polygynous (containing multiple queens). Male and female reproductives can be found from July to August (Amstutz, 1943). Thompson (1990) reported that queens can carry workers on their nuptial flights to help in founding new nests.

### **Range**

Quebec, Ontario south to Florida, west to Washington, California.

### **Indiana Distribution**

Common. Recorded from 46 counties in Indiana.



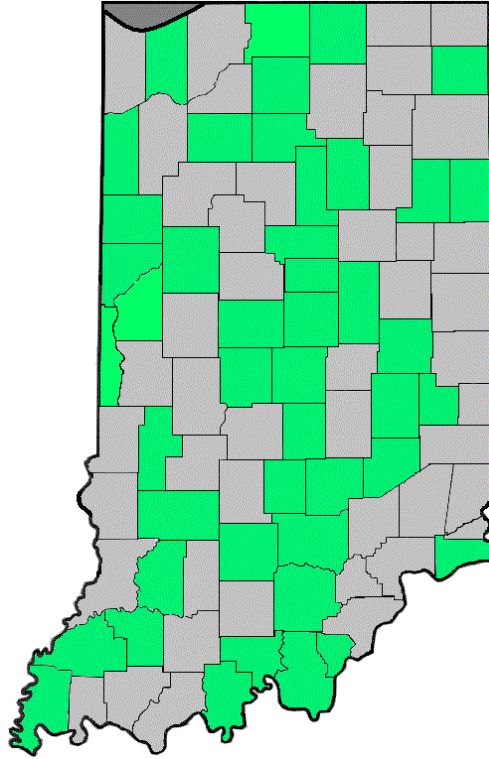


Figure 4.110 *S. molesta* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Crawford, St. Joseph, Fountain (Wheeler, 1916), Clark, Tippecanoe, Washington (Morris, 1943), Porter (Gregg, 1944), Vermillion (Munsee & Schrock, 1983).

#### Comments

This species is known as the thief ant due to their tendency to steal food from nests of other ants, which is known as lestopiosis. When in the nests of other ants, they are usually ignored due to their small size. It is one of the smaller species of ants found in Indiana and was named by American entomologist Thomas Say who named them for their annoying presence in houses and their sting which he described as “like the puncture of a very fine needle.”

#### *Solenopsis texana* (Emery)

#### Previous Names and Synonyms

*Solenopsis pollux* var. *texana* Emery 1895

*Solenopsis rosella* Kennedy 1938

*Diplorhoptrum texanum* (Emery)

*Solenopsis (Diplorhoptrum) texana* Emery

### **Taxonomy**

See Creighton (1950) and Thompson (1989).

### **Identification**

The body is 1.5-1.6 mm long. This species is pale to medium yellow in color with the head and gaster being slightly darker. The coxae have a greenish tinge to them and are slightly paler than the alitrunk. The body is smooth and highly glossy. The greenish coxae and lack of the bare non-punctate longitudinal stripe on the head are distinguishing characteristics for this species. In living specimens, the females have a pinkish-orange gaster.

### **Biology and Behavior**

This species can be found in deciduous woods (DuBois & LaBerge, 1988). Rericha (2007) collected this species from the lip of a sand ridge in remnant dune and swale.

### **Nest and Colony Structure**

Nests of this species can be found in logs, stumps, and under bark (D.R. Smith, 1979). Rericha (2007) found a nest of this species embedded in the fibrous root zone of *Schizachyrium scoparium*.

### **Range**

Ontario south to Florida, west to Illinois, Oklahoma, Texas.

### **Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.

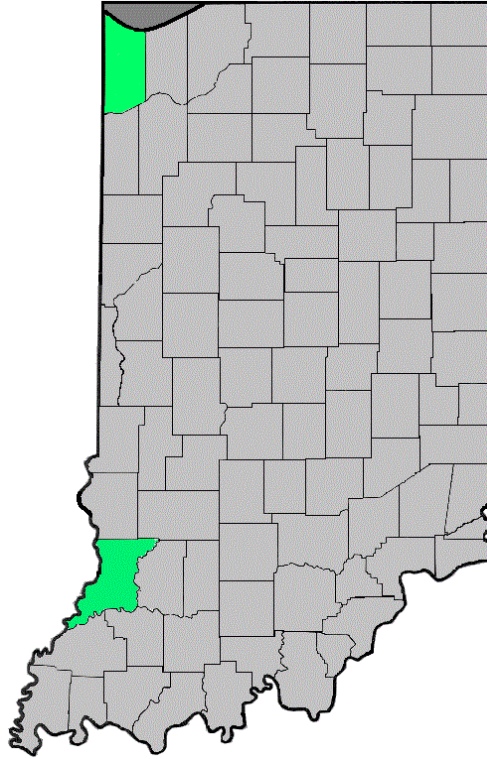


Figure 4.111 *S. texana* distribution

#### Indiana References

Lake (Rericha, 2007).

#### Comments

This species represents a new state record for Indiana.

*Stenamma brevicorne* (Mayr)

#### Previous Names and Synonyms

*Aphaenogaster brevicornis* Mayr 1886

*Stenamma brevicorne* (Mayr)

*Stenamma nearcticum* Mayr

*Stenamma neoarcticum* Mayr

*Stenamma westwoodi* subsp. *nearcticum* Mayr

#### Taxonomy

See Smith (1957).

**Identification**

The body is 3.0-3.9 mm long. This species is reddish-brown to dark brown in color with the gaster being paler on the apex and base so it appears banded transversely. The antennae and legs are paler in color. The head and alitrunk have finely rugose/reticulated sculpturing and the surface is weakly glossy. This species is easily identified by its large size, larger eyes, notched clypeus, and darker coloration.

**Biology and Behavior**

This species can be found in wooded areas, the edges of old fields, edges of grasslands, fens, and occasionally in swamp forests. Workers can be found foraging on the ground and under small rocks and pieces of wood (Covert, 2005). They are probably carnivorous but may also be predaceous (Smith, 1957). Rericha (2007) reported collecting workers catching the perigynia of *Carex albicans* on the ground under a Black Oak leaf fragment.

**Nest and Colony Structure**

Nests of this species can be found in the soil under stones, rotting wood, and other various objects (D.R. Smith, 1979). Colonies are small with anywhere from a few dozen to a hundred workers (Smith, 1957). Talbot (1975) reported nests with only a single queen. Male and female reproductives can be found from May to June and again from October to September (Covert, 2005; Kanno, 1958; Talbot, 1975). The wide range for winged reproductives may indicate that this species produces them twice annually.

**Range**

Nova Scotia, Quebec south to Virginia, west to Ontario, Minnesota, Nebraska; Colorado.

**Indiana Distribution**

Rare. Recorded from 3 counties in Indiana.



Figure 4.112 *S. brevicorne* distribution

#### **Indiana References**

Indiana (Morris, 1967; Munsee, Jansma, & Schrock, 1986), Lake, Porter (Gregg, 1944), Parke (Morris, 1943).

#### **Comments**

This species seems to be restricted to the northwestern portion of the state.

*Stenamma diecki* EmeryFigure 4.113 *Stenamma diecki***Previous Names and Synonyms***Stenamma westwoodi diecki* Emery 1895*Stenamma westwoodi subsp. diecki var. impressum* Emery 1895*Stenamma brevicorne diecki var. impressum* Emery*Stenamma brevicorne r. Diecki var. impressum* Emery*Stenamma brevicorne st. diecki* Emery*Stenamma brevicorne subsp. diecki* Emery*Stenamma brevicorne subsp. diecki var. impressa* Emery*Stenamma brevicorne subsp. diecki var. impressum* Emery*Stenamma brevicorne subsp. impressum* Buren*Stenamma impressum* Buren*Stenamma westwoodi subsp. diecki* Emery**Taxonomy**

This species was constantly confused with other species of the genus. See Creighton (1950) and Smith (1957).

**Identification**

The body is 3.0-3.7 mm long. This species is brownish-yellow to reddish-brown in color with the gaster being paler at the base and apex. The mandibles, antennae, and legs are paler than the body. The head and alitrunk have fine rugose or reticulated sculpturing and the surface is weakly glossy with the sides of the pronotum being glossier. The eyes are small and have smooth, glossy facets. The overall glossy surface of this species is characteristic. Coover (2005) notes that the postpetiole in side view is more strongly swollen than the petiole and is usually mostly smooth and glossy dorsally.

**Biology and Behavior**

This species can be found in various habitats but is usually associated with wooded areas (D.R. Smith, 1979). In Michigan, Talbot (1975) reported this species in swamps and at the edges of swamps. Workers are very timid and will feign death when disturbed (Smith, 1957). Rericha (2007) reported collecting this species in leaf litter analysis and Berlese Funnel extraction.

**Nest and Colony Structure**

Nests of this species can be found in the soil beneath rocks, logs, humus, and moss or in rotting wood (Smith, 1957). Colonies are small in size with up to 376 adults and are usually monogynous (have a single queen) (Smith, 1957; Talbot, 1975). Talbot (1975) reported male reproductives from mid July to early September and female reproductives from late July to late August.

**Range**

Quebec, Maine, west across southern Canada and the northern states to British Columbia, Washington, Oregon, California, south to North Carolina, Tennessee, Indiana, Illinois, Iowa.

**Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.

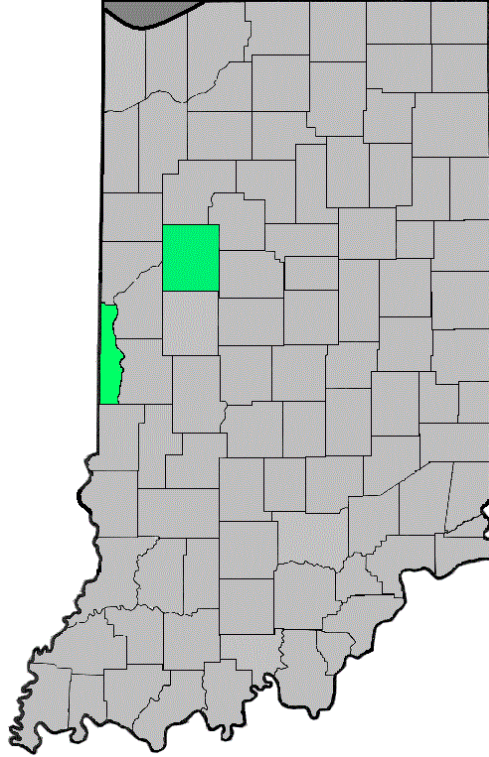


Figure 4.114 *S. diecki* distribution

#### Indiana References

Indiana (Munsee, Jansma, & Schrock, 1986) Vermillion (Munsee, 1967).

#### Comments

This species may be more common than records indicate but due to its small size and timid tendencies it may be difficult to find.

#### *Stenamma impar* Forel

#### Previous Names and Synonyms

*Stenamma brevicorne impar* Forel 1901

*Stenamma brevicorne subsp. impar* Forel

*Stenamma brevicrone r. impar* Forel

*Stenamma impar* Forel

#### Taxonomy

This species was originally described as a subspecies of *Stenamma brevicorne*. See Creighton (1950) and Smith (1957).



**Identification**

The body is 2.5-3.0 mm long. This species is brownish-yellow to dark brown in color with the gaster being paler on the base and apex usually making it appear banded transversely. The mandibles, antennae, and legs are paler in color than the body. The head and alitrunk have fine rugose or reticulated sculpturing and the surface is weakly glossy with the sides of the pronotum being glossier with reduced sculpturing. The eyes are large and have very few facets.

**Biology and Behavior**

This species can be found in wooded areas and forests. Wheeler et al., 1994) reported this species in moist woods in Michigan. Workers can be found foraging on the ground in leaf litter in the woods (Covert, 2005). Workers were collected foraging in a rotting log in LaPorte County.

**Nest and Colony Structure**

Nests of this species can be found in the soil or in decaying wood (D.R. Smith, 1979). Colonies are small with up to 109 adults and a single queen (D.R. Smith, 1979).

**Range**

Quebec, Massachusetts south to North Carolina, west to Michigan, Illinois, Missouri, North Dakota.

**Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.



Figure 4.115 *S. impar* distribution

#### Indiana References

None.

#### Comments

This is the smallest species of *Stenamma* in Indiana and it represents a new state record.

#### *Stenamma meridionale* Smith

#### Previous Names and Synonyms

*Stenamma meridionale* Smith 1957

#### Taxonomy

See Smith (1957).

#### Identification

The body is 3.6-4.3 mm long. This species is dark brown to nearly black in color with the anterior portion of the head and apical portion of the gaster being paler. The antennae and legs are paler than the body. The head and alitrunk have fine rugose or reticulated sculpturing and the surface is weakly glossy. The large eyes of this larger species are helpful in identification.

### **Biology and Behavior**

This species can be found in wooded areas (D.R. Smith, 1979). In Illinois DuBois & LaBerge (1988) reported them in deciduous forests usually near streams. Workers were found foraging in Grant County in leaf litter.

### **Nest and Colony Structure**

Nests of this species can be found in the soil (D.R. Smith, 1979). Colonies are small in size (Smith, 1957).

### **Range**

Virginia south to South Carolina, Georgia, west to Illinois, Missouri, Arkansas.

### **Indiana Distribution**

Rare. Recorded from 4 counties in Indiana.

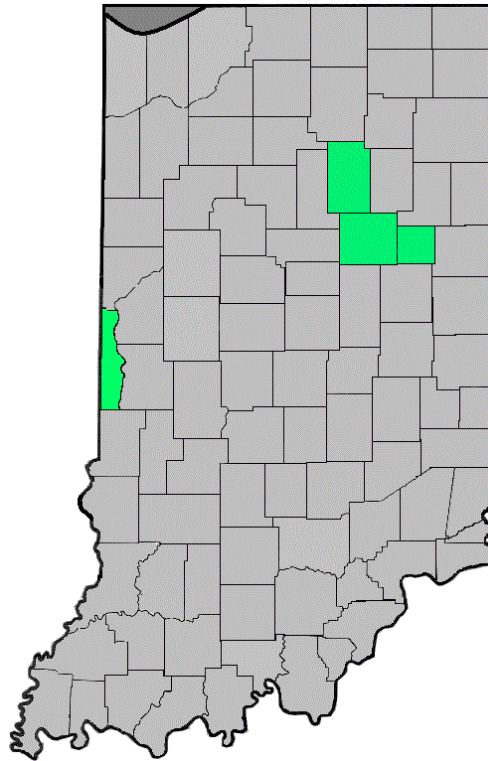


Figure 4.116 *S. meridionale* distribution

### **Indiana References**

Indiana (Munsee, Jansma, & Schrock, 1986), Vermillion (Munsee, 1967).

### **Comments**

This is a southeastern species that reaches its northern range limit in Indiana. Very little is known about its ecology and populations difficult to find.

*Stenamma schmitti* Wheeler

**Previous Names and Synonyms**

*Stenamma brevicorne schmittii* Wheeler 1903

*Stenamma brevicorne subsp. schmittii* Wheeler

*Stenamma schmitti* Wheeler

**Taxonomy**

This species was once thought of as a subspecies of *Stenamma brevicorne*. See Creighton (1950) and Smith (1957).

**Identification**

The body is 2.7-3.9 mm long. This species is yellowish-brown to brown in color with the anterior portion of the head and the base and apex of the gaster being paler. The alitrunk may also be paler ventrally. The mandibles, antennae, and legs are also paler than the body. The head and alitrunk have fine rugose or reticulated sculpturing and the surface is dull to weakly glossy. This species is easily identified by its small eyes and micropunctuation which gives it a dull appearance. In addition to this, the mesopropodeal suture is very broad and deep. The body surface of this species is duller than that of *S. diecki* and the eye facets are coarser.

**Biology and Behavior**

This species can be found in wooded dunes, dry-mesic woodland (Rericha, 2007), and moist woods (Wheeler et al., 1994). Workers can be found foraging in leaf litter. They are carnivorous on various arthropods and are more active in the cooler months of March and October to December (Smith, 1957).

**Nest and Colony Structure**

Nests of this species can be found in the soil under rocks, logs, rotten wood, moss, leaf litter, and other debris and can be difficult to find (Wesson & Wesson, 1940a; Smith, 1957; D.R. Smith, 1979). Colonies are small in size with up to 310 workers, 60 winged reproductives, and a single queen (Smith, 1957). Coovert (2005) reported reproductive males in mid October.

**Range**

Quebec, Main south to North Carolina, west to Minnesota, Iowa, Missouri, Tennessee.

**Indiana Distribution**

Rare. Recorded from 6 counties in Indiana.

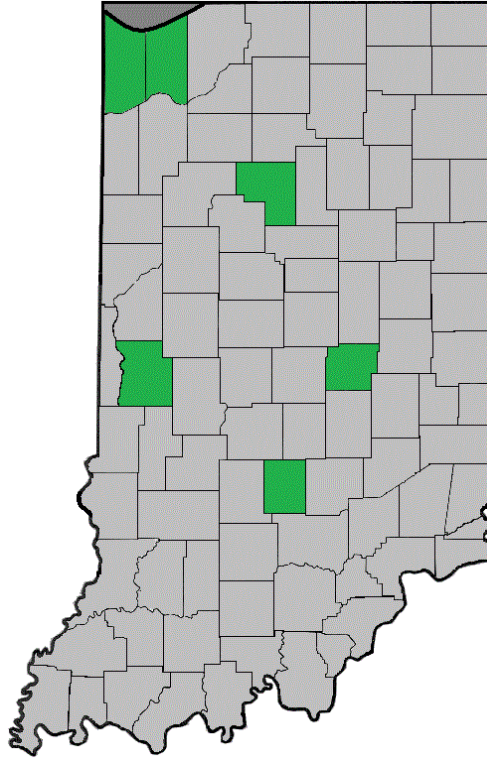


Figure 4.117 *S. schmitti* distribution

#### Indiana References

Brown (Rericha, 2007), Lake, Porter (Gregg, 1944).

#### Comments

Gregg (1940) reported this species from the state, however it was not included by Munsee, Jansma, & Schrock (1986) in their checklist of Indiana ants. This species was named after Rev. P. Jerome Schmitt who was the creator of the familiar Schmitt boxes that are used to store insect specimens.

#### *Pyramica abdita* (Wesson & Wesson)

#### Previous Names and Synonyms

*Strumigenys* (*Cephaloxys*) *abdita* Wesson & Wesson 1939

*Pyramica abdita* (Wesson & Wesson)

*Smithistruma abdita* (Wesson & Wesson)

*Strumigenys* (*Trichoscapa*) *abdita* Wesson & Wesson

*Strumigenys abdita* Wesson & Wesson

**Taxonomy**

See Brown (1953).

**Identification**

The body is 2.0-2.35 mm long. This species is yellowish-brown to orangish-brown to reddish-brown in color with the gaster being darker. The head and alitrunk are reticulately or punctately sculptured and dull. The sides of the mesothorax and propodeum are very smooth and glossy. The uniform covering of the spatulate and reclinate hairs on the clypeus are characteristic for this species.

**Biology and Behavior**

This species can be found in shaded to somewhat open areas (Brown, 1953). Munsee, Jansma, & Schrock (1986) found this species on a coal spoil bank in Indiana and Wesson & Wesson (1939) found the type series of this species under boards and pieces of slate in a backyard.

**Nest and Colony Structure**

Nests of this species can be found in the soil under stones or other objects (Brown, 1953). Not much is known of the nest organization or reproductive flights.

**Range**

Pennsylvania, Virginia, North Carolina, Ohio, Indiana, Illinois, Iowa.

**Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.



Figure 4.118 *P. abdita* distribution

#### Indiana References

Parke (Brown, 1953), Vermillion (Munsee, Jansma, & Schrock, 1986).

#### Comments

This small species is uncommon in Indiana and was originally described from Ohio. It may be more common than records indicate, but due to its secretive nature it is difficult to find.

#### *Pyramica filitalpa* (Brown)

#### Previous Names and Synonyms

*Smithistruma* (*Smithistruma*) *filitalpa* Brown 1950

*Pyramica filitalpa* (Brown)

*Smithistruma filitalpa* Brown

*Strumigenys filitalpa* (Brown)

#### Taxonomy

A member of the *talpa* group. See Brown (1953).

### Identification

The body is 2.0-2.1 mm long. This species is pale orangish-brown to reddish-brown in color. The head is dull and the alitrunk has weak sculpturing dorsally and is moderately glossy. The sides of the mesothorax and propodeum are very smooth and glossy. The uneven outline of the head (it is not wedge shaped) and numerous marginal clypeal hairs are characteristic for this species.

### Biology and Behavior

This species can be found in open grassy areas. Brown (1953) called this species a “grass sod dweller and best collected with the Berlese funnel.” Munsee, Jansma, & Schrock (1986) collected this species from a coal spoil bank. Little is known about the behaviors of this species.

### Nest and Colony Structure

Nests of this species are probably found in grassy soil. Brown (1964) reported nests under stones in lawns.

### Range

Indiana, Arkansas.

### Indiana Distribution

Rare. Recorded from 2 counties in Indiana.



Figure 4.119 *P. filitalpa* distribution



### Indiana References

Brown (Munsee, 1967), Vermillion (Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986).

### Comments

This rare species may be more common than records indicate. Due to its small size and secretive nature it may be difficult to find.

## Pyramica ohioensis (Kennedy & Schramm)

### Previous Names and Synonyms

*Strumigenys ohioensis* Kennedy & Schramm 1933

*Strumigenys (Cephaloxys) manni* Wesson & Wesson 1939

*Pyramica manni* (Wesson & Wesson)

*Smithistruma ohioensis* (Kennedy & Schramm)

*Strumigenys (Trichoscapa) manni* Wesson & Wesson

*Strumigenys (Trichoscapa) ohioensis* Kennedy & Schramm

*Strumigenys manni* Wesson & Wesson

### Taxonomy

See Brown (1953).

### Identification

The body is 2.25-2.5 mm long. This species is yellowish-brown to usually dark reddish-brown in color with the gaster being darker, sometimes nearly black and paler apically. The head and alitrunk are darkened dorsally, while the antennae and legs are slightly paler than the body. The head and alitrunk are dull with the sides of the mesothorax and propodeum being very smooth and glossy. The J-shaped marginal clypeal hairs and the relatively large mandibles with a very small diastema are characteristic for this species.

### Biology and Behavior

This species can be found in wooded areas and forests. DuBois & Laberge (1988) report this species in deciduous forests in Illinois. Not much is known about the behaviors of this species.

### Nest and Colony Structure

Coovert (2005) found a nest of this species in an acorn in the woods. Brown (1953) reported that "it is definitely a dweller in the soil cover and upper soil layers, often utilizing such

shelters as are afforded by small chips and twigs lying on, or wood partly buried in, the soil.”  
 DuBois & LaBerge (1988) reported nests in soil under stones and in rotten logs in Illinois.

**Range**

New Jersey south to Georgia, west to Illinois, Arkansas, Louisiana.

**Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.

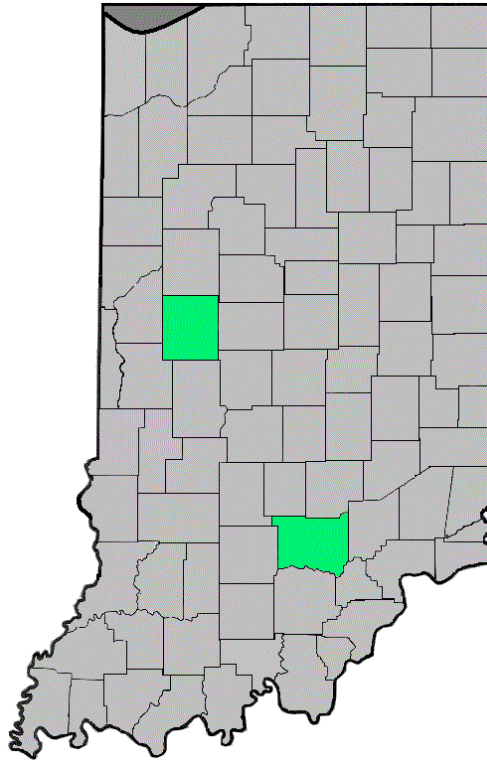


Figure 4.120 *P. ohioensis* distribution

**Indiana References**

None.

**Comments**

This species was originally described from Ohio. It may be more common than records indicate but due to its secretive nature and small size it is difficult to find.

*Pyramica ornata* Mayr

**Previous Names and Synonyms**

*Smithistruma ornata* (Mayr) 1887

*Strumigenys (Trichoscapa) ornata* Mayr

*Strumigenys ornata* Mayr

### **Taxonomy**

This species keys out in the *ornata* species group. See Brown (1953).

### **Identification**

The body is 1.95-2.25 mm long. This species is medium orangish-brown with the gaster being darker medially. The antennae and legs are slightly paler than the body. The head is dull with the pronotum being moderately glossy and the sides of the mesothorax and propodeum being very smooth and glossy. This species has a group of 8 to 10 long hairs that radiate out near the front of the clypeus above the jaws.

### **Biology and Behavior**

This species can be found in moist forests. DuBois & LaBerge (1988) reported this species from deciduous forests in Illinois. Carter (1962) lists various forest types in North Carolina. Wesson & Wesson (1939) and Brown (1953) reported this species often being found on the nests of other, larger species of ants.

### **Nest and Colony Structure**

Nests of this species can be found in leaf litter or other debris in forested areas. They can also be found under or at the bases of rotten stumps (Brown, 1953).

### **Range**

Delaware, Maryland south to Florida, west to Michigan, Ohio, Illinois, Missouri, Oklahoma, Texas.

### **Indiana Distribution**

Rare. Recorded from 1 county in Indiana.



Figure 4.121 *P. ornata* distribution

#### Indiana References

None.

#### Comments

This rare species represents a new state record for Indiana. The species name means “decorated or adorned,” which is in reference to the radiating hairs on the clypeus. Like all *Pyramica*, this species may be more common than records indicate, but due to its secretive nature and small size it is difficult to find.

#### *Pyramica pergandei* (Emery)

#### Previous Names and Synonyms

*Strumigenys pergandei* Emery 1895

*Smithistruma* (*Wessonistruma*) *pergandei* (Emery)

*Smithistruma pergandei* (Emery)

*Strumigenys* (*Trichoscapa*) *pergandei* Emery

*Strumigenys Pergandei* Emery

**Taxonomy**

This species was once put in the subgenus *Wessonistruma* based on the structure of the mandibles. See Brown (1953).

**Identification**

The body is 2.6-2.9 mm long. This species is brownish-orange to reddish-brown in color with the gaster being at most slightly darker. The antennae and legs are slightly paler than the body. The head and alitrunk are dull, with the sides of the mesothorax and propodeum being very smooth and glossy. The unusually long mandibles with a long, toothless area at the base are characteristic for this species.

**Biology and Behavior**

This species can be found in open woods. Wesson (1936) reported this species on top of a sandstone bluff that had scattered pines. They are a specialized predator of myrmecophilous springtails (Wesson, 1936). This species is almost always found in or near nests of other ants (Wesson, 1936; Wesson & Wesson, 1939).

**Nest and Colony Structure**

Nests of this species can be found in rotten logs, in the soil, or under rocks in the soil (Brown, 1953). Wesson (1936) reported a nest under reindeer moss among pine needles. Gregg (1944) reported a nest on the side of a decaying log in a floodplain forest. Colonies are small to moderate in size, with up to 300 workers (Brown, 1953). Wilson (1953) reported a colony of 146 workers and a single queen. Male and female reproductives were found in August in Illinois (Smith, 1931).

**Range**

Massachusetts, New York, Ontario south to North Carolina, Tennessee, west to Michigan, Iowa, Missouri, Kansas.

**Indiana Distribution**

Rare. Recorded from 1 county in Indiana.



Figure 4.122 *P. pergandei* distribution

#### Indiana References

Porter (Gregg, 1944)

#### Comments

This is the largest species of *Pyramica* in Indiana. It is easily identified by the large mandibles. Like other *Pyramica*, this species may be more common than records indicate, but due to its secretive nature and small size it is difficult to find.

#### *Pyramica pulchella* (Emery)

#### Previous Names and Synonyms

*Strumigenys pulchella* Emery 1895

*Smithistruma pulchella* (Emery)

*Strumigenys (Trichoscapa) pulchella* Emery

#### Taxonomy

See Brown (1953)

**Identification**

The body is 1.95-2.1 mm long. This species is yellowish-brown to light reddish-brown in color with the gaster being darker medially. The antennae and legs are slightly paler than the body. The head is dull with the pronodum being moderately glossy and the sides of the mesothorax and propodeum being smooth and glossy. The hairs radiating out from the lateral margins of the clypeus are broadly spatulate to spoon-shaped, and most of them are curved anteriorly and usually form a regular fringe. The humeral hair on the pronotum is flagellate, elongate, and fine, and the mesonotum has a pair of erect fine flagellate hairs.

**Biology and Behavior**

This species can be found in hardwood swamp forests, deciduous forests (DuBois & LaBerge, 1988), and moist woodlands (Kennedy & Schramm, 1933). Workers may be found foraging for springtails in leaf litter.

**Nest and Colony Structure**

Nests of this species can be found in decaying wood (Brown, 1953) or in moist frass under well-rotted pine stumps and logs. They may also be found in the soil under rocks and various other objects (Smith, 1931). Colonies are small in size, ranging anywhere from 6 to 60 workers (Smith, 1931).

**Range**

New York, Pennsylvania south to Florida, west to Michigan, Ohio, Illinois, Kansas, Iowa, Louisiana.

**Indiana Distribution**

Rare. Recorded from 1 county in Indiana.



Figure 4.123 *P. pulchella* distribution

#### Indiana References

None.

#### Comments

This rare species may be more common than records indicate, but due to its secretive nature and small size it is difficult to find.

#### *Pyramica rostrata* (Emery)

#### Previous Names and Synonyms

*Strumigenys rostrata* Emery 1895

*Smithistruma rostrata* (Emery)

*Strumigenys (Trichoscapa) rostrata* Emery

#### Taxonomy

This species has its own group. See Brown (1953).

#### Identification

The body is 2.4-2.75 mm long. This species is dark reddish-brown in color with the gaster being darker with the apex being pale. The head and alitrunk are darker dorsally, while the



antennae and legs are paler than the body. The head and alitrunk are dull, with the sides of the mesothorax and propodeum being smooth and glossy. The fully toothed mandibles and broad, truncate, or shallowly concave anterior border of the clypeus are characteristic for this species.

### **Biology and Behavior**

This species can be found in moist to dry woods and at the edges of woods (Wesson & Wesson, 1939). The main food source is springtails in the families Entomobryidae and Isotomidae (Brown, 1953). Wilson (1953) also lists Sminthuridae as a food source.

### **Nest and Colony Structure**

Nests of this species can be found in humus, decaying wood, and occasionally in decaying hickory nuts (Wesson & Wesson, 1939). They are occasionally found near nests of other ants but not in as close a relationship as other *Pyramica*. Colonies are moderate in size with roughly 200 workers and multiple queens (Brown, 1953).

### **Range**

New Jersey, Pennsylvania south to Florida, west to Ohio, Illinois, Missouri, Louisiana.

### **Indiana Distribution**

Rare. Recorded from 1 county in Indiana.



Figure 4.124 *P. rostrata* distribution

### Indiana References

None.

### Comments

This species of *Pyramica* is much larger than others in this genus and represents a new state record for Indiana. Like other *Pyramica* it is secretive and may be difficult to find.

### *Pyramicas talpa* (Weber)

### Previous Names and Synonyms

*Strumigenys* (*Cephaloxys*) *talpa* Weber 1934

*Strumigenys* (*Cephaloxys*) *venatrix* Wesson & Wesson 1939

*Pyramica venatrix* (Wesson & Wesson)

*Smithistruma talpa* (Weber)

*Strumigenys* (*Trichoscapa*) *talpa* Weber

*Strumigenys talpa* Weber

### Taxonomy

This species is in the *talpa* group. See Brown (1953).

### Identification

The body is 20-2.4 mm long. This species is medium orangish-brown in color with the gaster being slightly darker medially and paler apically. The antennae and legs are paler than the body. The head and alitrunk are dull dorsally while the sides of the propodeum are smooth and glossy. The uneven wedge-shaped head and the numerous marginal clypeal hairs are characteristic for this species.

### Biology and Behavior

This species can be found in dry open woods, openings in wooded areas, and thickets in fields (Wesson & Wesson, 1939). The main food sources for this species are springtails and diplurans (Wesson & Wesson, 1939; Wilson, 1953).

### Nests and Colony Structure

Nests of this species can be found in the soil or in humus (Wesson & Wesson, 1939). The type colony of this species had about 60 workers (Wesson & Wesson, 1939).

### Range

North Carolina, Florida, Ohio, Tennessee, Alabama, Illinois, Louisiana.

### Indiana Distribution

Rare. Recorded from 1 county in Indiana.



Figure 4.125 *P. talpa* distribution

#### Indiana References

None.

#### Comments

This rare species represents a new state record for Indiana. It may be more common than records indicate.

#### *Tapinoma sessile* (Say)

##### Previous Names and Synonyms

*Formica sessilis* Say 1836

*Bothriomyrmex dimmocki* Wheeler

*Formica gracilis* Buckley

*Formica parva* Buckley

*Tapinoma boreale* Provancher

*Tapinoma boreale* Roger

*Tapinoma dimmocki* (Wheeler)

*Tapinoma gracilis* (Buckley)

*Tapinoma parva* (Buckley)

*Tapinoma sessile* var. *boreale* Roger

*Tapinoma sessilis* (Say)

### **Taxonomy**

See Smith (1929)

### **Identification**

The body is 2.1-3.5 mm long. This species is medium yellowish-brown to blackish-brown in color with the alitrunk being ventrally paler in some individuals. The legs are paler apically. The head, alitrunk, and gaster have microscopic appressed pubescence which gives it a whitish sheen, while the surface is otherwise glossy. This species is easily recognized by the characteristics given for the genus.

### **Biology and Behavior**

This species can be found in woods, at the edges of woods, in open fields, meadows, lawns, gardens, and in homes. D.R. Smith (1979) reported that workers forage mainly for honeydew which they collect from tended honeydew excreting insects. These insects include aphids, membracids, and mealybugs. In homes they feed on sugary substances. Workers can be found on the ground, tree trunks, foliage, leaf litter, and under bark where they forage in files. Kistner (1982) reported the staphylinid *Myrmoecia lauta* in the nest of this species. They are also host to *Microdon globosus* (Duffield, 1981).

### **Nest and Colony Structure**

Nests of this species can be found in a variety of areas, including leaf litter, under bark, in stumps, under rocks, in hollow plant stems, in nut shells, in wall voids, and many other areas. Nest sites are moved frequently (Smith, 1928). Colonies may be very large with thousands of workers and multiple queens (polygynous). Smith (1928) reported a colony with as many as 200 dealated females. New colonies are established by a mated queen or by budding. Male and female reproductives can be found from late May to early July (Smith 1928). Thompson (1990) reported that mating usually occurs within the nest.

### **Range**

Transcontinental. Nova Scotia, Quebec south to Florida, west to Washington, California; Mexico.

### **Indiana Distribution**

Common and widespread. Recorded from 82 counties in Indiana.

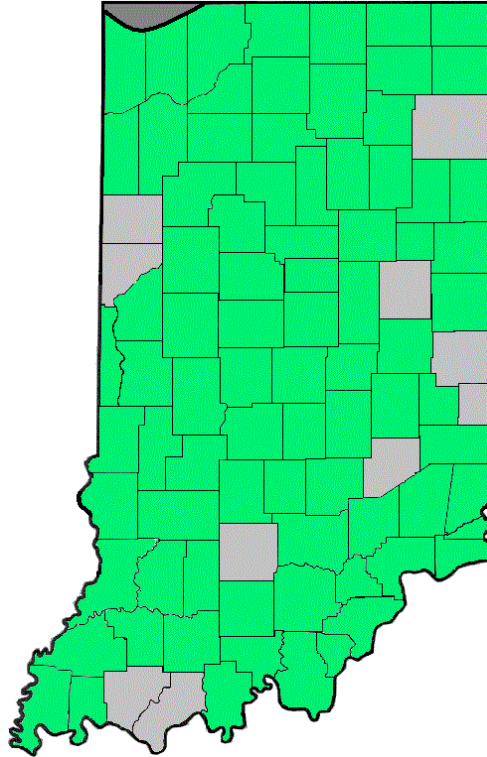


Figure 4.126 *T. sessile* distribution

#### Indiana References

Indiana (Gregg, 1944; Morris, 1943; Munsee, 1967; Munsee & Schrock, 1983; Munsee, Jansma, & Schrock, 1986; Wheeler, 1916).

#### Comments

This tramp species can be found throughout the state. Known as the odorous house ant, when crushed this ant emits the smell of rotting coconut. They can be a serious house pest and may be difficult to get rid of due to the size of the colony and multiple queens and nests sites.

#### *Temnothorax ambiguus* (Emery)

#### Previous Names and Synonyms

*Leptothorax (Leptothorax) curvispinosus ambiguus* Emery 1895

*Leptothorax foveata* Smith 1934

*Leptothorax ambiguus* var. *pinetorum* Wesson & Wesson 1940

*Leptothorax (Myrafant) ambiguus* Emery

*Leptothorax ambiguus* Emery

*Leptothorax curvispinosus ambiguus* Emery

*Leptothorax curvispinosus subsp. ambigua* Emery

*Leptothorax curvispinosus subsp. ambiguus* Emery

### **Taxonomy**

See Creighton (1950).

### **Identification**

The body is 2.2-2.6 mm long. This species is pale brownish-yellow to dark orangish-brown in color with the legs and gaster being slightly paler and lacking distinct spots. The head and alitrunk are minutely punctate, with the genae being weakly rugose, the alitrunk weakly rugose dorsally, and the surface dull to weakly glossy.

### **Biology and Behavior**

This species can be found in fens, wet prairies, oak savanna, open woods, open fields and meadows. Workers can be found foraging on the ground and on foliage for honeydew and other nectar sources. Bristow (1983) reported this species tending membracids (*Publilia reticulata*) in New Jersey. They are occasionally the host of *Temnothorax duloticus*.

### **Nest and Colony Structure**

Nests of this species can be found in galls, under tree bark, in the ground, and in the mound nests of *Formica glacialis* (Rericha, 2007). Wesson & Wesson (1940) reported this species nesting in the hollow dead stems of grass tufts. Colonies are small and may occupy multiple nests (polydomous). They may also have multiple queens (polygynous) and workers can reproduce in queenless nests (Holldobler & Wilson, 1990). Male and female reproductives can be found from late June to mid July (Coover, 2005).

### **Range**

Quebec to Virginia, west to Michigan, North Dakota, South Dakota, Iowa, Nebraska.

### **Indiana Distribution**

Somewhat uncommon. Recorded from 16 counties in Indiana.

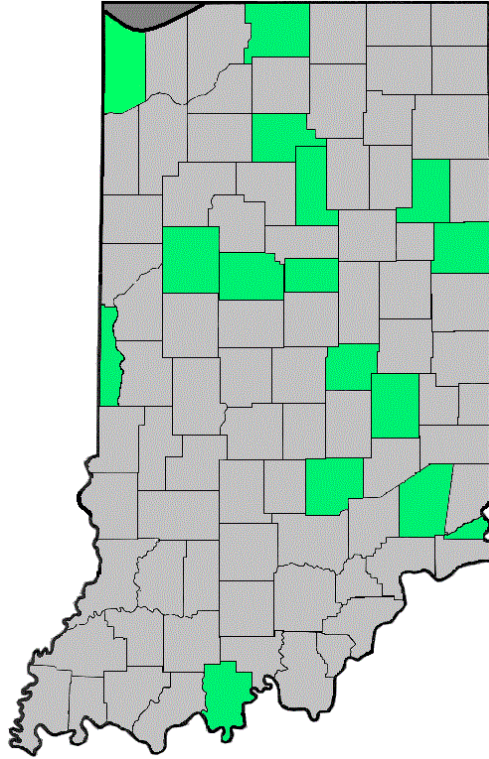


Figure 4.127 *T. ambiguus* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Lake (Rericha, 2007).

#### Comments

This small ant is commonly found in the galls of goldenrod plants in open fields.

#### *Temnothorax curvispinosus* (Mayr)

#### Previous Names and Synonyms

*Leptothorax curvispinosus* Mayr 1866

*Leptothorax* (Myrafant) *curvispinosus* Mayr

*Stenamma gallarum* Patton

*Temnothorax gallarum* (Patton)

#### Taxonomy

See Wesson & Wesson (1940) and Creighton (1950).

#### Identification

The body is 2.0-3.0 mm long. This species is orangish-yellow to brownish-yellow in color with the legs being slightly paler. The first segment of the gaster has a large, subtriangular

dark brown spot on each side which is fused in some individuals to form a posterior band. The head and alitrunk are minutely punctate with the genae and dorsal alitrunk being rugose and the surface dull to weakly glossy. The dark brown spots on the gaster of this species are characteristic.

### **Biology and Behavior**

This species can be found in woods, black oak savanna, or at the edge of woods. Workers can be found foraging on the ground, logs, and tree trunks for honeydew. They have also been reported feeding on extrafloral nectariferous (Davis & Bequart, 1922; Fellers, 1987). The myrmecophilous beetle *Limulodes parki* can be found in their nests on occasion (Seevers & Dybas (1943). They may be found as slaves in mixed colonies of *Temnothorax duloticus* and *Protomognathus americanus* (Covert, 2005). See Alloway (1980), Stuart & Alloway (1988), and Holldobler & Wilson (1990) for more detail on slave associations.

### **Nest and Colony Structure**

Nests of this species can be found in acorns, hickory nuts, walnuts, hollow twigs, and goldenrod stem galls. Most nests have a single queen, however Covert (2005) reported a nest with 8 dealated females. Headley (1943b) recorded an average population of about 83 workers per acorn with a maximum of 367 workers and a single queen. Colonies may be polydomous and polygynous. In nests where the queen is absent, workers are able to reproduce (Holldobler & Wilson, 1990). Male and female reproductives can be found from mid June to early August (Covert, 2005).

### **Range**

Maine south to Florida, west to Michigan, Iowa, Kansas, Oklahoma, Texas, Arizona.

### **Indiana Distribution**

Fairly common. Recorded from 33 counties in Indiana.



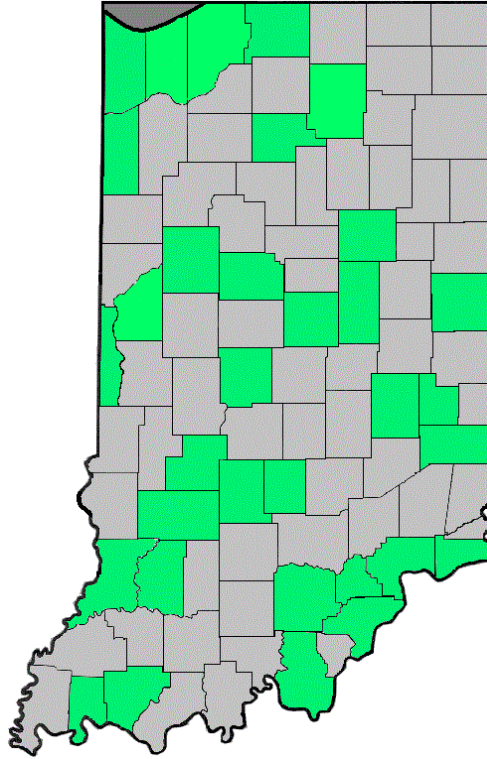


Figure 4.128 *T. curvispinosus* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Fountain, Kosciusko (Wheeler, 1916), LaPorte, Rush (Morris, 1943), Porter (Gregg, 1944), Vermillion (Munsee & Schrock, 1983).

#### Comments

Because it is commonly found nesting in acorns, this species is known as the little yellow acorn ant. One or both of the propodeal spines may be malformed.

*Temnothorax duloticus* (Wesson)

#### Previous Names and Synonyms

*Leptothorax* (*Mychothorax*) *duloticus* Wesson 1937

*Leptothorax duloticus* Wesson

#### Taxonomy

See Wilson (1975a).

**Identification**

The body is 2.4-2.8 mm long. This species is brownish-yellow to yellowish-brown in color with the head being darkened dorsally and the first gastral segment darkened on the apical three-fourths. The mandibles, antennal scapes, and legs are paler. The head is finely reticulate or punctate with the surface being dull. The alitrunk is weakly rugose or punctate and the surface is dull to weakly glossy. The abundant scattered, short appressed pubescence on the gaster in addition to erect hairs is characteristic for this species (Coover, 2005).

**Biology and Behavior**

This species can be found in open woods and at the edge of wooded areas. The type species was found in dry oak woods (Talbot, 1957). The food preference is that of the host species. Workers can be found foraging on the ground (Coover, 2005). See Wesson (1937, 1940a), Alloway (1979), and Wilson (1975a) for slave raiding behavior. Unlike *Protomognathus americanus*, raiders of this species often kill many of the opposing workers during raids (Alloway, 1979).

**Nest and Colony Structure**

Nests of this species can be found in acorns with *Temnothorax curvispinosus* and *T. longispinosus*. Wesson (1940a) reported nests in hollow dead sticks on the ground and Talbot (1957) reported nests in acorns. Colonies are small with up to 70 workers and 3 times as many slaves (Talbot (1957).

**Range**

Michigan, Indiana, Ohio.

**Indiana Distribution**

Rare. Recorded from 1 county in Indiana.



Figure 4.129 *T. duloticus* distribution

#### Indiana References

None.

#### Comments

This rare slave making species represents a new state record for Indiana. It can be found in mixed colonies with its host species in old acorns.

#### *Temnothorax longispinosus* (Roger)

##### Previous Names and Synonyms

*Leptothorax longispinosus* Roger 1863

*Leptothorax* (*Leptothorax*) *longispinosus* subsp. *iowensis* Buren

*Leptothorax* (*Leptothorax*) *longispinosus* subsp. *laeviceps* Buren

*Leptothorax* (*Myrafant*) *longispinosus* Roger

*Leptothorax longispinosus* subsp. *iowensis* Buren

*Temnothorax longispinosus iowensis* (Buren)

*Temnothorax longispinosus laeviceps* (Buren)

### **Taxonomy**

This distinctive species has no major taxonomic issues.

### **Identification**

The body is 2.4-3.0 mm long. This species is blackish-brown to nearly black in color with the mandibles, antennae, and legs being paler. The genae are rugose and the sides of the head are minutely striate, while the surface is dorsally and medially smooth and glossy with scattered punctures. The alitrunk is rugose and weakly glossy. This black species of *Temnothorax* has long propodeal spines that are characteristic.

### **Biology and Behavior**

This species can be found in open woods, oak forests, and at the edge of wooded areas. Workers can be found foraging on the ground, tree trunks, foliage, and logs for honeydew droplets on the surface of leaves (Herbers & Cunningham, 1983) Davis & Bequart (1922) also noted this species feeding on extrafloral nectaries of bigtooth aspen. This species has been known to be enslaved by *Temnothorax duloticus* and *Protomognathus americanus*.

### **Nest and Colony Structure**

Nests of this species can be found in acorns or in the thick, corky bark of living white oaks. Wesson & Wesson (1940) reported this species “in crevices and under moss and lichen on dry boulder or rock outcrops. We have also found colonies nesting in hollow nuts and acorns on dry wooded hilltops, and in the bark at the base of trees.” Nests are small with 40 to 50 workers and usually a single queen in an acorn. This species is polydomous and may have numerous nests, each with its own queen and therefore it is also polygynous. If queens are absent workers may reproduce (Holldobler & Wilson, 1990). Male and female reproductives can be found in July (Wesson & Wesson, 1940).

### **Range**

Quebec, Ontario south to Georgia, Alabama, west to Michigan, Iowa.

### **Indiana Distribution**

Rare. Recorded from 7 counties in Indiana.

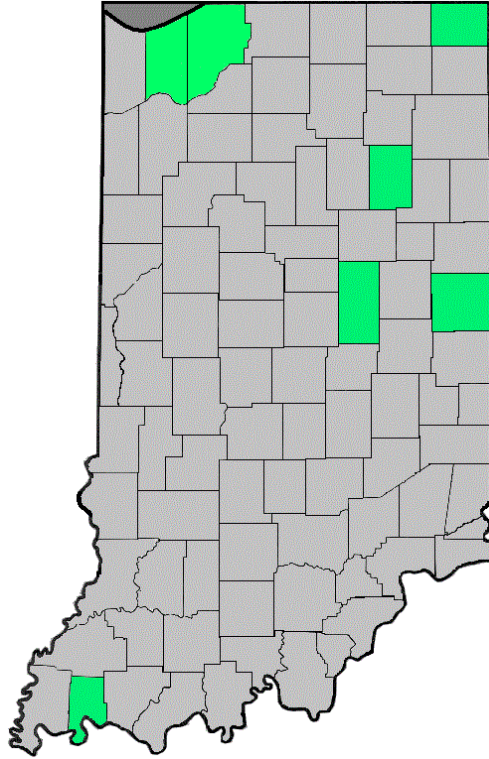


Figure 4.130 *T. longispinosus* distribution

#### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), LaPorte (Gregg, 1944), Porter (Morris, 1943; Talbot, 1934).

#### Comments

This small black species has long propodeal spines and may be more common than records indicate but due to its small size it is difficult to find.

#### *Temnothorax pergandei* (Emery)

#### Previous Names and Synonyms

*Leptothorax* (*Dichothorax*) *pergandei* Emery 1895

*Leptothorax* (*Dichothorax*) *manni* Wesson 1935

*Leptothorax* (*Dichothorax*) *floridanus* Emery

*Leptothorax* (*Dichothorax*) *pergandei floridanus* Emery

*Leptothorax* (*Dichothorax*) *pergandei* subsp. *flavus* Smith

*Leptothorax* (*Dichothorax*) *pergandei* subsp. *floridanus* var. *spinosus* Smith

*Leptothorax* (*Dichothorax*) *pergandei* var. *flavus* Smith

*Leptothorax floridanus* Emery

*Leptothorax pergandei* Emery

*Leptothorax pergandei* subsp. *floridanus* Emery

*Leptothorax pergandei* subsp. *floridanus* var. *spinosus* Smith

*Temnothorax floridanus* (Emery)

*Temnothorax pergandei flavus* (Smith)

### **Taxonomy**

See Creighton (1950).

### **Identification**

The body is 2.8-3.3 mm long. This species is blackish-brown to nearly black in color with the mandibles, antennal scapes, and legs being paler than the body. The genae are rugose and the head is dorsally and medially smooth and glossy with scattered punctures. The alitrunk is weakly sculptured and moderately glossy with the sides of the mesothorax and propodeum being rugose or punctate and less glossy. The 12 segmented antennae, strongly convex promesonotum, long petiole, and long antennal scapes with suberect hairs are characteristic for this species.

### **Biology and Behavior**

This species can be found in dry prairies, open areas, and barren areas. Wesson & Wesson (1940) reported this species in dry, sunny fields and meadows, sometimes occurring in dry open wooded areas. Workers can be found foraging on the ground in the open.

### **Nest and Colony Structure**

Nests of this species can be found in the soil in the root zones of plants. D.R. Smith (1979) reported this species as ground nesting. Colonies are small (Wheeler, 1903). Cole (1940b) reported a colony of less than 25 workers. Wesson (1935) reported 75 to 250 workers in Tennessee. Winged reproductive males and females can be found in nests in July (Wesson & Wesson, 1940).

### **Range**

District of Columbia south to Georgia, Tennessee, west to Illinois, Iowa, Missouri, Nebraska, Texas.

### **Indiana Distribution**

Uncommon. Recorded from 7 counties in Indiana.

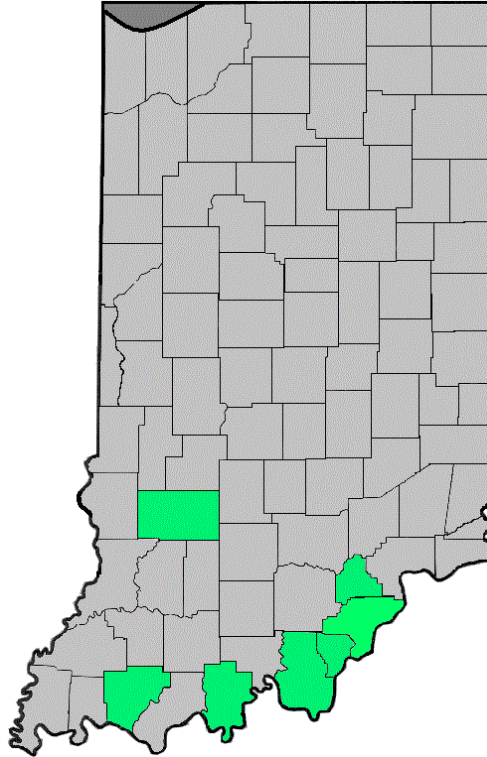


Figure 4.131 *T. pergandei* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Crawford (Wheeler, 1916).

#### Comments

This small black species can be found in open dry areas. It may be more common than records indicate, but due to its small size and small colonies it may be difficult to find.

#### *Temnothorax schaumii* (Roger)

##### Previous Names and Synonyms

*Leptothorax schaumii* Roger 1863

*Leptothorax fortinodis* Mayr 1886

*Leptothorax fortinodis* var. *gilvus* Wheeler 1903

*Leptothorax fortinodis* var. *melanoticus* Wheeler 1903

*Leptothorax* (Myrafant) *fortinodis* Mayr

*Leptothorax* (Myrafant) *schaumii* Roger

*Leptothorax fortinodis melanoticus* Wheeler

*Leptothorax fortinodis* var. *gilva* Wheeler

*Leptothorax fortinodis* var. *melanotica* Wheeler

*Leptothorax fortinodus* Mayr

*Temnothorax gilvus* (Wheeler)

*Temnothorax melanoticus* (Wheeler)

### **Taxonomy**

See Wesson & Wesson (1940) for more detail on the two color morphs.

### **Identification**

The body is 2.2-3.2 mm long. This species has two color forms: Yellow to orangish-brown with the legs being paler or dark reddish-brown to brownish-black with the mandibles being paler. The genae are rugose or punctate with the sides of the head being minutely striate and the head is dorsally and medially smooth and glossy with scattered punctures. The alitrunk is punctate and moderately dull to weakly glossy. The reduced propodeal spines are characteristic for this species.

### **Biology and Behavior**

This species can be found in open woodlands or at the edge of wooded areas. Workers can be found foraging on the ground, tree trunks, logs, and foliage.

### **Nest and Colony Structure**

Nests of this species can be found in the bark of white oaks. Coovert (2005) reported nests under the bark of a dead oak branch. Wesson & Wesson (1940) reported that nests were collected from living or recently felled trees, especially oak. The entrance to the nest is a small hole that is similar to that of *T. longispinosus*. Colonies are small and have a single queen (monogynous) (Headley, 1943a). Cole (1940b) reported that nests usually have a hundred or less workers.

### **Range**

Maine to Georgia, west to Michigan, Iowa, Kansas, Texas.

### **Indiana Distribution**

Somewhat common. Recorded from 29 counties in Indiana.



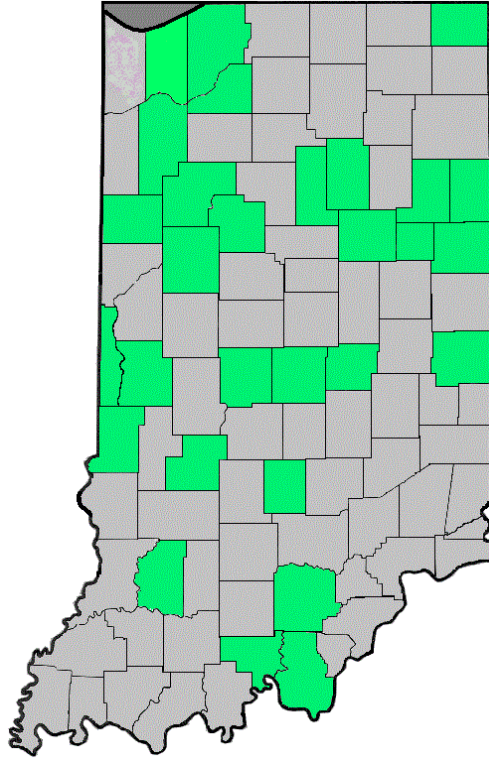


Figure 4.132 *T. schaumii* distribution

#### Indiana References

Indiana (Morris, 1943; Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Crawford (Wheeler, 1916), LaPorte, Porter (Gregg, 1944).

#### Comments

This small species is most commonly found in standing oak trees across the state because it is primarily arboreal.

*Temnothorax smithi* (Baroni Urbani)

#### Previous Names and Synonyms

*Leptothorax wheeleri* Smith 1929

*Leptothorax smithi* Baroni Urbani 1978

*Leptothorax (Myrafant) smithi* Baroni Urbani

#### Taxonomy

See Creighton (1950). This species was previously known as *Leptothorax wheeleri*.

**Identification**

The body is 3.4-4.4 mm long. This species is orangish-yellow to brownish-orange in color with the gaster and legs being paler. The head and alitrunk are distinctly finely rugose or striate with the surface being weakly glossy. The large size and coarse sculpturing on the head are characteristic for this species.

**Biology and Behavior**

This species can be found in forests or at the edge of wooded areas. Wesson & Wesson (1940) reported workers of this species feeding on the exuviae of wood boring beetles. Workers will frantically try to hide themselves if a nest is disturbed (Smith, 1929b).

**Nest and Colony Structure**

Nests of this species have been found in the galleries of weathered logs on old log cabins. They have also been found on large oak trees in dead stobs (Wesson & Wesson, 1940). Smith (1929b) reported that nests were found in the cavities of trees and under bark. Colonies are small with 2 to 3 dealated females and 31 to 40 workers (Smith, 1929b). Wesson & Wesson (1940) reported reproductive males and females in August.

**Range**

North Carolina, Georgia, Florida, Ohio, Indiana, Tennessee, Alabama, Mississippi.

**Indiana Distribution**

Rare. Recorded from 2 counties in Indiana.

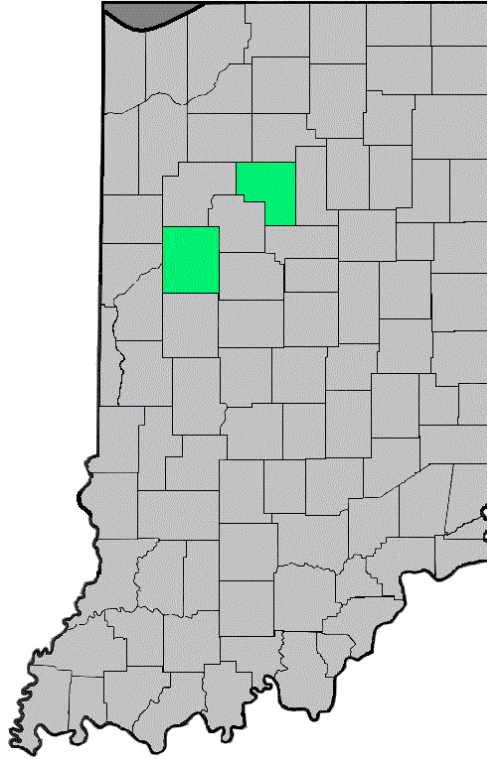


Figure 4.133 *T. smithi* distribution

#### Indiana References

None.

#### Comments

This is the largest species of *Temnothorax* in Indiana and represents a new record for the state where it reaches its northern range limit.

#### *Temnothorax texanus* (Wheeler)

#### Previous Names and Synonyms

*Leptothorax texanus* Wheeler 1903

*Leptothorax (Myrafant) texanus* Wheeler

#### Taxonomy

See Smith (1952) and MacKay (2000).

#### Identification

The body is 2.5-2.7 mm long. This species is medium to dark brown in color with the alitrunk, petiole, and postpetiole being slightly paler. The mandibles and legs are also paler than the body. The head is minutely striate or punctate and the surface is weakly glossy. The alitrunk

is rugose dorsally with the sides being rugose or punctate and the surface being weakly glossy. The postpetiole is rugose dorsally and the surface is dull.

### **Biology and Behavior**

This species can be found in oak savanna, dry sand prairie, and open grassy areas or open wooded areas. Gregg (1944) reported this species in black oak dunes in Indiana and Illinois. Workers can be found foraging on the ground and are very quick (Wesson & Wesson, 1940).

### **Nest and Colony Structure**

Nests can be found in the soil in the root zone of various plants. Colonies are small in size (Smith, 1952). Wesson & Wesson (1940) reported reproductives in the nest in early July.

### **Range**

Michigan, Ohio, south to North Carolina, Georgia, west to Oklahoma, Texas.

### **Indiana Distribution**

Somewhat rare. Recorded from 11 counties in Indiana.

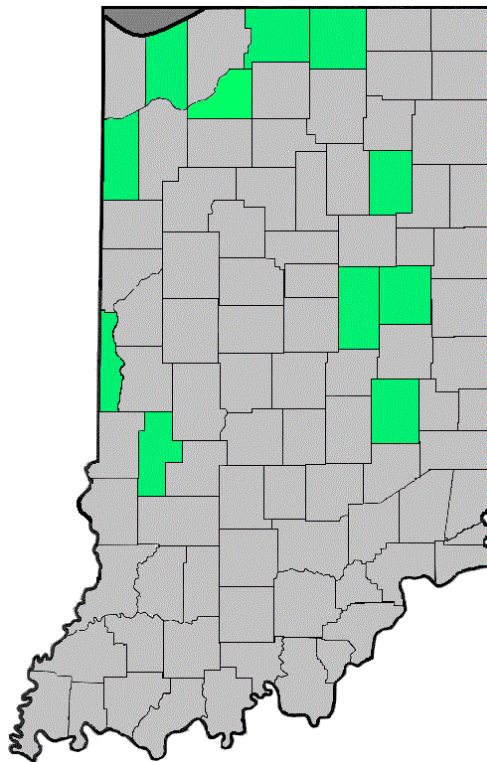


Figure 4.134 *T. texanus* distribution

### **Indiana References**

Porter (Gregg, 1944), Starke (Rericha, 2007).

## Comments

This species was recorded from Gregg (1944) but was not included by Munsee, Jansma, & Schrock (1986).

### *Tetramorium caespitum* (Linnaeus)

#### Previous Names and Synonyms

*Formica caespitum* Linnaeus 1758  
*Atta caespitum* (Linnaeus)  
*Formica (Myrmica) caespitum* Linnaeus  
*Formica Cespitum* Linnaeus  
*Formica binodis* Linnaeus  
*Formica caespitosa* Linnaeus  
*Formica fusca* Leach  
*Formica fusca aculeata* Retzius  
*Manica caespitum* (Linnaeus)  
*Myrmica (Myrmica) brevinodis var. transversinodis* Enzmann  
*Myrmica (Tetramorium) caespitum* (Linnaeus)  
*Myrmica brevinodis var. transversinodis* Enzmann  
*Myrmica fuscula* Nylander  
*Myrmica modesta* Förster  
*Tertramorium caespitum* (Linnaeus)  
*Tetramorium binodis* (Linnaeus)  
*Tetramorium caespitum caespitum var. fusciclava* Emery  
*Tetramorium caespitum himalayanum* Viehmeyer  
*Tetramorium caespitum subsp. himalayana* Viehmeyer  
*Tetramorium caespitum var. fusciclavum* Consani & Zangheri  
*Tetramorium caespitum var. hammi* Donisthorpe  
*Tetramorium caespitum var. immigrans* Santschi  
*Tetramorium caespitum var. indocile* Santschi  
*Tetramorium fusca* (Leach)  
*Tetramorium fusciclavum* Consani & Zangheri  
*Tetramorium fuscula* (Nylander)  
*Tetramorium fusculum* (Nylander)  
*Tetramorium hammi* Donisthorpe

*Tetramorium immigrans* Santschi

*Tetramorium indocile* Santschi

*Tetramorium jiangxiense* Wang & Xiao

*Tetramorium modesta* (Förster)

*Tetramorium semilaeve* subsp. *transbaicalense* Ruzsky

*Tetramorium semilaeve transbaicalense* Ruzsky

*Tetramorium transversinodis* (Enzmann)

### **Taxonomy**

See Smith (1943a) and Bolton (1979).

### **Identification**

The body is 2.6-4.5 mm long. This species is medium brown to nearly black in color with the mandibles, antennae, and legs being paler than the body. The head is distinctly and uniformly finely rugose, the alitrunk is rugose, and the katepisternum is punctate with the surface being weakly glossy. This is the only species for this genus and is easily recognized by the characters given for the genus.

### **Biology and Behavior**

This species can be found in a wide variety of habitats. It is commonly found in areas that are inhabited by humans. Workers can be found foraging on the pavement and ground, under debris, and at the bases of trees. They feed on a variety of foods including fruit, seeds, tubers, roots, honeydew, and the stalks of various plants (D.R. Smith, 1979). In homes they feed on sweet foods and grains. Covert (2005) reported a nest of this species with *Anergates atratulus* at the nest opening. See Holldobler & Wilson (1990) for a detailed description of the battles between colonies.

### **Nest and Colony Structure**

Nests of this species can be found in the soil, in pavement cracks, or under various objects. They are occasionally found nesting in homes. Colonies are large with up to 31,000 workers (Holldobler & Wilson, 1990). Bruder & Gupta (1972) report nests having only a single queen (monogynous). Covert (2005) reported male and female reproductives from mid May to mid June.

### **Range**

Quebec, Ontario, Michigan, Atlantic coastal region of northeastern United States, west to Tennessee, Nebraska, Missouri, Washington, Nevada, California; Eurasia, Africa.

Adventive from the Old World.

### Indiana Distribution

Common and widespread. Recorded from 75 counties in Indiana.

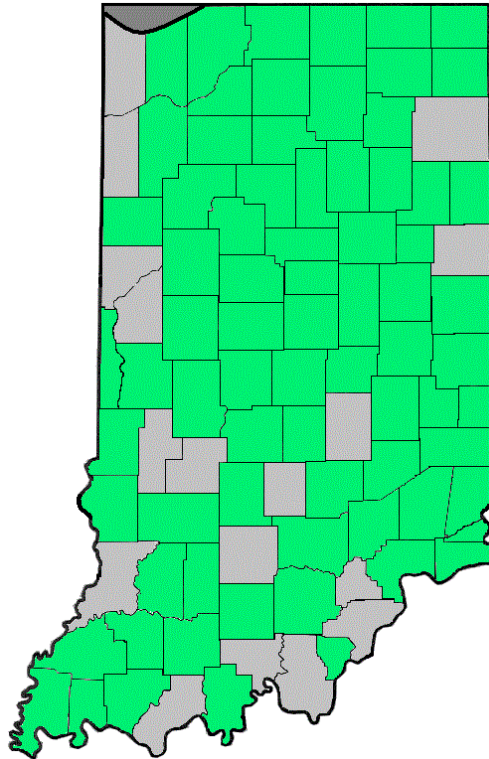


Figure 4.135 *T. caespitum* distribution

### Indiana References

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Porter (Rericha, 2007), Wayne (Morris, 1943).

### Comments

This species is common in areas that humans disturb. It is known as the pavement ant because it is commonly found on sidewalks and pavement. This is a non-native species that occurs throughout the state.

*Trachymyrmex septentrionalis* (McCook)

### Previous Names and Synonyms

*Atta (Acromyrmex) tardigrada* var. *septentrionalis* McCook

*Atta (Trachymyrmex) obscurior* Wheeler

*Atta (Trachymyrmex) septentrioanlis obscurior* var. *crystallina* Wheeler

*Atta (Trachymyrmex) septentrioanlis obscurior* var. *irrorata* Wheeler

*Atta (Trachymyrmex) septentrioanlis obscurior var. seminole* Wheeler  
*Atta (Trachymyrmex) septentrionalis* McCook  
*Atta (Trachymyrmex) septentrionalis subsp. obscurior var. crystallina* Wheeler  
*Atta (Trachymyrmex) septentrionalis subsp. obscurior var. irrorata* Wheeler  
*Atta (Trachymyrmex) septentrionalis var. obscurior* Wheeler  
*Atta (Trachymyrmex) septentrionalis var. vertebrata* Wheeler  
*Atta (Trachymyrmex) subsp. obscurior* Wheeler  
*Atta Virginiana* (Buckley)  
*Atta septentrionalis* McCook  
*Atta septentrionalis subsp. obscurior var. crystallina* Wheeler  
*Atta septentrionalis subsp. obscurior var. irrorata* Wheeler  
*Atta septentrionalis var. obscurior* Wheeler  
*Atta septrionalis* McCook  
*Atta tardigrada var. septentrionalis* McCook  
*Atta virginiana* (Buckley)  
*Cyphomyrmex septentrionalis* (McCook)  
*Cyphomyrmex septentrionalis subsp. obscurior* (Wheeler)  
*Cyphomyrmex septentrionalis subsp. obscurior var. crystallina* (Wheeler)  
*Cyphomyrmex septentrionalis subsp. obscurior var. irrorata* (Wheeler)  
*Cyphomyrmex septentrionalis subsp. obscurior var. seminole* (Wheeler)  
*Cyphomyrmex septentrionalis subsp. septentrionalis* (McCook)  
*Cyphomyrmex septentrionalis subsp. septentrionalis var. vertebrata* (Wheeler)  
*Oecodoma Virginiana* Buckley  
*Oecodoma virginiana* Buckley  
*Trachymyrmex obscurior* (Wheeler)  
*Trachymyrmex septentrionalis obscurior* (Wheeler)  
*Trachymyrmex septentrionalis seminole* Creighton  
*Trachymyrmex septentrionalis subsp. obscurior* (Wheeler)  
*Trachymyrmex septentrionalis subsp. obscurior var. seminole* (Wheeler)  
*Trachymyrmex septentrionalis subsp. seminole* Creighton  
*Trachymyrmex vertebrata* (Wheeler)  
*Trachymyrmex virginiana* (Buckley)

### **Taxonomy**

See Creighton (1950).



### **Identification**

The body is 3.7-6.8 mm long. This species is yellowish-brown to dark reddish-brown in color with the head and gaster being darkened dorsally. The mandibles are paler and edged black while the legs are paler. The entire body surface is microscopically roughened and dull with scattered sharp spines and tubercles of varying sizes. This is the only species from this genus present in the state and is easily identified by the characteristics given for the genus.

### **Biology and Behavior**

This species can be found in semi-open to open wooded areas. Wesson & Wesson (1940) reported this species being found on dry shaly clay hillsides in open woods under stones. Workers were found in scattered woods on limestone soil and on the sandy loam slides of sandstone bluffs. Workers are slow moving and will feign death when disturbed (Wheeler, 1907; Van Pelt, 1958). This species feeds on the fungus that it grows in gardens. The fungus is maintained by caterpillar excrement and bits of fallen oak catkins and plant material (Wheeler, 1907). Hutchins (1967) reported that older colonies cut and carry leaf fragments like the tropical leaf cutter ants.

### **Nest and Colony Structure**

Nests of this species can be found in sandy soil where they appear as semi-circular craters (Wheeler, 1907; Weber, 1972). Colonies are small with 200 to 300 adults (Wheeler, 1907). Cole (1950) reported a nest in Tennessee that had 284 workers, 29 alated females, and 8 dealated females and a second nest with 324 workers, 57 alated females, and 18 dealated females. Wesson & Wesson (1940) reported that winged reproductives can be found in the nests in late August.

### **Range**

New York south to Florida, west to Louisiana, north to Ohio, Illinois, Indiana, Illinois; Texas.

### **Indiana Distribution**

Rare. Recorded from an unspecified location in southern Indiana.

### **Indiana References**

Indiana (Munsee, 1967; Munsee, Jansma, & Schrock, 1986), Southern Indiana (Morris, 1943).

### **Comments**

This is the most northerly occurring fungus growing ant and it reaches its northern range limit in Indiana. Workers are very small and slow moving.

## CHAPTER 5: DISCUSSION

### Biogeography of Indiana Formicidae

Ants are ideal insects for studying diversity and distribution because of their ability to disperse and inhabit a wide variety of niches. For this reason, they occur throughout the various habitats in Indiana and the Midwest. Up to this point, the distribution of ants in Indiana was fairly poorly known. This faunistic study gave insight into the distribution of ants within the state.

When the 1986 revision of the Checklist of Indiana Ants was published (Munsee, Jansma, & Schrock), only 92 species were noted as being present in the state. Local, national, and personal collections containing ants were surveyed, and 67 counties in the state were sampled in. After all the species were identified and catalogued, the number of species present in the state of Indiana has increased to 137. Of the species recorded, 45 are new records for the state. Fourteen of these species were listed by Munsee, Jansma, & Schrock, however they were not found in any of the collections surveyed or during the field study. This presents an interesting find. Because 14 of the species listed in the 1986 paper were not found and 45 new species were found, the total number of species for the state should be 151. However, *Iridomyrmex pruinosus analis* (Andre) and *Iridomyrmex pruinosus pruinosus* (Roger) found in the 1986 list were found to be the same species, *Forelius pruinosus* (Roger), which was recorded as a new species. In addition to this, *Myrmica incompleta sulcinodoides* Emery was found to be the same species as *Myrmica incompleta incompleta* Provancher.

Many species of ants within Indiana restrict themselves to high-quality remnant habitats. *Aphaenogaster mariae* Forel prefers to nest in remnant oak savanna and is only recorded from 2 counties in the state. In both instances, only a single worker was found. Similarly, *Formica ulkei* was only found in 6 counties. This species can only be found in fens and bogs in the state (Rericha, 2007), and due to draining for agricultural and industrial growth, fens and bogs are very rare. Due to the climate in Indiana, the tramp species *Monomorium pharaonis* (Linnaeus), more commonly known as the pharaoh ant, can only be found within buildings or occasionally in urban areas when alates have left the nest in the summer. These outdoor nests cannot withstand the cold weather of winter, and therefore do not persist for more than a summer.

While many species of ants are restricted in their habitats, some species populate larger ranges. Two tramp ant species, *Tapinoma sessile* (Say) and *Tetramorium caespitum* (Linnaeus), have expanded their range to cover the entire state. County records for each species number over 70. Their ability to adapt and disperse suggests that they may be found in every county within the state. Native species like *Camponotus pennsylvanicus* (DeGeer), *Camponotus nearcticus* Emery, *Aphaenogaster fulva* Roger, and *Crematogaster cerasi* (Fitch) also possess great dispersive and adaptive qualities that allow them to cover the state.

The Southern Hills and Lowlands Region produced a variety of interesting species. Because it covers the southern portion of Indiana, many southern species have the opportunity to reach their northern limit there. Shifts in weather patterns and climate are constantly increasing the ranges of southern species. *Crematogaster minutissima* subspecies *missouriensis* Emery was recorded in Floyd County near the Ohio River. This species had a previously known range from Virginia west to Kansas and south to Mexico. With warmer weather and calmer winters, this species has increased its range into the southern portion of Indiana. *Pheidole bilimeki* Mayr and *Pheidole tysoni* Forel are two more examples of this. Neither species was recorded by Munsee, Jansma, & Schrock (1986), but due to warmer climates both are present today in the southern portion of the state.

#### Rare, Threatened, and Endangered Formicidae

Deciding whether or not a species is rare enough to be threatened or endangered can be a difficult task. In the majority of cases, too little is known about the distribution of species of insects to know whether or not the populations are rare enough to be listed as threatened or endangered. Species may be rare in some areas, while in other areas the populations are numerous. The false perception of rarity can be caused by improper collecting techniques, living in a habitat that is infrequently sampled, collecting at the incorrect periods of time (when the species is not present due to its life cycle), or a lack of actively collecting scientists within the geographic range of the species in question (McCafferty & Edmunds, 1997). Consequently, any species thought to be rare, threatened, or endangered should be looked at more thoroughly. However rare species do exist and are often the result of habitat destruction.

In Indiana, there are several species of ants that have been classified as rare, threatened, or endangered by authors. Although some of these species live in areas that are infrequently sampled and some require specialized collecting techniques, many of them are rare in that their habitats have been fragmented and destroyed. As previously mentioned, some ants are found exclusively in certain habitats like bogs and swamps. Due to an increase in the need for agricultural growth these areas are being drained to make way for livestock and crops.

The following species of ants have been listed as rare in Indiana by various authors: *Proceratium pergandei* (Emery), *Myrmica detritinodis* Emery, *Myrmica lobifrons* Pergande, *Neivamyrmex nigrescens* (Cresson), *Stenamma meridionale* Smith, *Aphaenogaster mariae* Forel, *Pheidole morrisii* Forel, *Solenopsis texana texana* Emery, *Leptothorax muscorum* (Nylander) Complex, *Stenamma diecki* Emery, *Protomognathus americanus* (Emery), *Pyramica filitalpa* (Brown), *Trachymyrmex septentrionalis* (McCook), *Lasius minutus* Emery, *Lasius speculiventris* Emery, *Formica ulkei* Emery, *Formica indianensis* Cole, *Camponotus decipiens* Emery, and *Colobopsis mississippiensis* (Smith). The remaining species listed are considered threatened in Indiana: *Proceratium silaceum* Roger, *Stenamma schmitti* Wheeler, *Temnothorax longispinosus* (Roger), *Temnothorax texanus* (Wheeler), *Dolichoderus plagiatus* (Mayr), *Lasius flavus* (Fabricius), *Lasius nearcticus* Wheeler, *Lasius latipes* (Walsh), *Formica glacialis* Wheeler, *Formica subaenescens* Emery, *Polyergus breviceps* Emery, and *Polyergus lucidus* Mayr. There are a variety of reasons that explain these various rare and threatened species.

Several of the species listed above are thought to be rare, but are likely not. *Proceratum pergandei* (Emery) is a subterranean species that only comes above ground to forage. Usually this species forages under the rocks, logs, and various other items it has used to cover the opening of its nest and therefore may be difficult to collect. *Neivamyrmex nigrescens* (Cresson) and *Trachymyrmex septentrionalis* (McCook) are southern species that are in the northern part of their range in Indiana. They are only found at the southern most portions of the state, however with the climate shifting to warmer temperatures they may become more abundant within the state. In addition, *N. nigrescens* (Cresson) is usually most active at night, when most would not think to collect ants. *Colobopsis mississippiensis* (Smith) nests within hollow twigs and branches, which are rarely if ever sampled by myrmecologists. *Polyergus breviceps* Emery, and *Polyergus lucidus* Mayr belong to the slave making group of ants. They survive by gathering other species of ants, usually *Formica* species, to take care of them. Because of this, they are only seen when raiding nests of potential slaves. *Protomognathus americanus* (Emery) is a parasitic species of ant that lives within *Tetramorium caespitum* (Linnaeus) nests. They are rarely seen and usually only collected when nests of *T. caespitum* (Linnaeus) are excavated.

It is likely that *Formica ulkei*, *Stenamma meridionale*, *Lasius minutus*, *Solenopsis texana texana* Emery, and *Stenamma diecki* are justly considered rare. Each of these species can only be found within certain habitats, and each of those habitats is rare. *Formica ulkei* Emery is only found in the fens and bogs of central and northern Indiana, which are being drained for agriculture. Old growth forests, swamps, and bogs have been destroyed to make room for the

growth and development of humans. For this reason, many species that can only survive in these habitats are becoming rare and threatened.

### Red-Listed Species of Formicidae

The International Union for Conservation of Nature (IUCN) has created a Red List which is a comprehensive record on the conservation status of various endangered plant and animal species. To date, 6 species of ants found in Indiana have been placed on the Red List: *Crematogaster pilosa* Emery, *Dorymyrmex insanus* (Buckley), *Lasius latipes* (Walsh), *Polyergus breviceps* Emery, *Polyergus lucidus* Mayr, and *Protomognathus americanus* (Emery). These species are all listed with the status VU D2 version 2.3, meaning they are vulnerable species with populations characterized by a severe distribution restriction (usually < 20 km<sup>2</sup>) or by the number of population locations (usually < 5). These species are highly susceptible to the effects of human activity and therefore are capable of becoming critically endangered (CE) or extinct (E) in a relatively short time span (International Union for Conservation of Nature and Natural Resources, 2011). Agriculture, specifically livestock farming & ranching, are the main cause for threat. Although *Polyergus breviceps* Emery, *Polyergus lucidus* Mayr, and *Protomognathus americanus* (Emery) are on the IUCN Red List, it is difficult to say whether or not they are truly threatened, or simply difficult to find. Interestingly enough, *Crematogaster pilosa* Emery is also on this list. This species was found to be present in 23 counties in Indiana and may be recovering. There is also the chance that this species was placed on the Red List when it was unknowingly not threatened but rarely captured.

## CHAPTER 6: SUMMARY

### Review

Indiana has a diverse and speciose ant fauna that is comprised of at least 136 species. This number has increased from the previous species count of 92 by Munsee, Jansma, and Schrock (1986). Eleven species from the 1986 checklist are unaccounted for; some of which have been moved to a different genera or combined with another species. Others such as *Neivamyrmex nigrescens* (Cresson), *Stenammina brevicorne* (Mayr), *Strumigenys abdita* Wesson & Wesson, *Strumigenys filitalpa* (Brown), and *Trachymyrmex septentrionalis* (McCook) may simply be more difficult to find due to their secretive nature and small stature. Keys to the workers of the species present within the state have been constructed as well as a key for common pest species.

The distribution of ants species in Indiana generally conforms to the variety of habitats present. The beautifully unique habitats within the state harbor unique species of ants. *Aphaenogaster mariae* is restricted to the high-quality remnant oak savanna while *Formica ulkei* is restricted to the remnant fens and bogs of Indiana. Other species such as *Camponotus pennsylvanicus*, *Camponotus nearcticus*, *Aphaenogaster fulva*, and *Crematogaster cerasi* (Fitch) can be found throughout the state due to their ability to adapt and disperse. Three well known species of tramp ants (*Monomorium pharaonis*, *Tapinoma sessile*, *Tetramorium caespitum*) can be found within the state.

The status of several species perceived to be rare is discussed. Subterranean, nocturnal, and parasitic species such as *Neivamyrmex nigrescens*, *Proceratum pergandei*, and *Polyergus breviceps* are only rarely collected, but are likely not truly rare. *Formica ulkei*, *Stenammina meridionale*, and *Lasius minutus* are truly rare due to restricted habitat. Six species of ants within the state are listed on the IUCN Red list under VU D2 endangered status. *Crematogaster pilosa* may not belong on this list, but could be recovering or simply under collected.

### Future Work

For future studies, more sampling should be done throughout the state to ensure that all habitats have been represented and thoroughly collected in. Due to time restraints, 25 counties that had a higher number of species were not sampled for this study. These remaining counties should be sampled and included for a more complete representation of the species present in Indiana. Adding a wider variety and number of sampling methods such as sweep netting, pitfall traps, bait stations, and soil samples could also amplify the species representation.

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## APPENDIX

## APPENDIX

The last revision of the checklist of Indiana ants was completed in 1986 by Jansma, Munsee, and Schrock. Appendix contains the most recently revised checklist of Indiana ants which consists of 137 species. Species previously found in the 1986 revision (Munsee, Jansma, & Schrock) are presented in regular type font, while new species added to the list are in bold type font. Species that were noted in the 1986 paper, but not found in collections data or in the field are underlined.

*Amblyopone pallipes* (Haldeman)

*Aphaenogaster fulva* Roger

***Aphaenogaster lamellidens* Mayr**

*Aphaenogaster mariae* (Emery)

***Aphaenogaster picea* (Buckley)**

*Aphaenogaster rudis* Enzmann

*Aphaenogaster tennesseensis* (Mayr)

*Aphaenogaster texana carloinensis*

Wheeler

*Aphaenogaster treatae treatae* Forel

*Brachymyrmex depilis* Emery

*Camponotus americanus* Mayr

*Camponotus caryae* (Fitch)

*Camponotus castaneus* (Latreille)

*Camponotus chromaiodes* Bolton

***Camponotus decipiens* Emery**

*Camponotus discolor* (Buckley)

***Camponotus herculeanus* (Linnaeus)**

*Camponotus nearcticus* Emery

*Camponotus novaeboracensis* (Fitch)

*Camponotus pennsylvanicus* (DeGeer)

*Camponotus subbarbatus* Emery

***Colobopsis impressus* (Roger)**

*Colobopsis mississippiensis* Smith

*Crematogaster cerasi* (Fitch)

*Crematogaster lineolata* (Say)

***Crematogaster minutissima* Mayr**

**subspecies *missouriensis***

***Crematogaster pilosa* Emery**

*Dolichoderus mariae* Forel

*Dolichoderus plagiatus* (Mayr)

*Dolichoderus pustulatus* Mayr

***Dolichoderus taschenbergi* (Mayr)**

***Dorymyrmex grandulus* (Forel)**

*Dorymyrmex insanus* (Buckley)

*Forelius pruinus* (Roger)

- Formica argentea* Wheeler**  
*Formica aserva* Forel  
*Formica dakotensis* Emery  
*Formica dolosa* Buren  
*Formica exsectoides* Forel  
***Formica ferocula* Wheeler**  
***Formica gynocrates* Snelling & Buren**  
***Formica glacialis* Wheeler**  
***Formica indianensis* Cole**  
*Formica integra* Nylander  
***Formica lasioides* Emery**  
*Formica montana* Emery  
*Formica neogagates* Emery  
*Formica nitidiventris* Emery  
*Formica obscuripes* Forel  
*Formica obscuriventris obscuriventris*  
 Mayr  
*Formica pallidefulva* Latreille  
*Formica postoculata* Kennedy & Dennis  
*Formica querquetulana* Kennedy & Dennis  
*Formica rubicunda* Emery  
***Formica subaenescens* Emery**  
*Formica subintegra* Emery  
***Formica subsericea* Say**  
*Formica ulkei* Emery  
***Formica vinculans* Wheeler**  
***Formicoxenus hirticornis* (Emery)**  
*Hypoponera opacior* (Forel)  
*Iridomyrmex pruinosus analis* (Andre)
- Iridomyrmex pruinosus pruinosus*  
 (Roger)  
***Lasius alienus* (Förster)**  
*Lasius claviger* (Roger)  
***Lasius flavus* (Fabricius)**  
*Lasius interjectus* (Mayr)  
*Lasius latipes* (Walsh)  
*Lasius minutus* Emery  
***Lasius mixtus* (Nylander)**  
*Lasius nearcticus* Wheeler  
*Lasius neoniger* Emery  
*Lasius niger* (Linnaeus)  
***Lasius pallitarsis* (Provancher)**  
***Lasius speculiventris* Emery**  
***Lasius subglaber* Emery**  
***Lasius subumbratus* Viereck**  
*Lasius umbratus* (Nylander)  
*Leptothorax muscorum* (Nylander)  
*Monomorium minimum* (Buckley)  
***Monomorium emarginatum* DuBois**  
*Monomorium pharaonis* (Linnaeus)  
*Myrmecina americana* Emery  
***Myrmecina gramincola* (Latreille)**  
*Myrmica americana* Weber  
*Myrmica fraticornis* Forel  
*Myrmica i. incompleta* Provancher  
*Myrmica incompleta sulcinodoides*  
Emery  
*Myrmica latifrons* Stärcke  
*Myrmica lobifrons* Pergande  
***Myrmica nearctica* Weber**



- Myrmica pinetorum* Wheeler  
*Myrmica punctiventris* Roger  
*Myrmica spatulata* Smith  
***Myrmica whymeri* Forel**  
*Neivamyrmex nigrescens* (Cresson)  
*Paratrechina arenivaga* (Wheeler)  
***Paratrechina faisonensis* (Forel)**  
***Paratrechina flavipes* (Smith)**  
*Paratrechina longicornis* (Latreille)  
*Paratrechina parvula* (Mayr)  
*Pheidole bicarinata* Mayr  
***Pheidole bilimeki* Mayr**  
*Pheidole morrisii* Forel  
*Pheidole pilifera* (Roger)  
***Pheidole tysoni* Forel**  
*Polyergus breviceps* Emery  
*Polyergus lucidus* Mayr  
*Ponera pennsylvanica* Buckley  
*Prenolepis imparis* (Say)  
*Proceratium pergandei* (Emery)  
*Proceratium silaceum* Roger  
*Protomognathus americanus* (Emery)  
*Solenopsis molesta* (Say)  
***Solenopsis texana* (Emery)**  
*Stenamma brevicorne* (Mayr)  
*Stenamma diecki* Emery  
***Stenamma impar* Forel**  
*Stenamma meridionale* Smith  
*Stenamma schmitti* Wheeler  
*Strumigenys abdita* Wesson & Wesson  
*Strumigenys filitalpa* (Brown)
- Strumigenys ohioensis* (Kennedy & Schramm)**  
***Strumigenys ornata* Mayr**  
***Pyramica pergandei* (Emery)**  
***Strumigenys pulchella* Emery**  
***Strumigenys rostrata* Emery**  
***Strumigenys talpa* Weber**  
*Tapinoma sessile* (Say)  
*Temnothorax ambiguus* (Emery)  
*Temnothorax curvispinosus* (Mayr)  
***Temnothorax duloticus* (Wesson)**  
*Temnothorax longispinosus* (Roger)  
*Temnothorax pergandei* (Emery)  
*Temnothorax schaumii* (Roger)  
***Temnothorax smithi* (Baroni Urbani)**  
***Temnothorax texanus* (Wheeler)**  
*Tetramorium caespitum* (Linnaeus)  
*Trachymyrmex septentrionalis* (McCook)