A New Species of Myrmecina (Hymenoptera: Formicidae) from Southeastern North America

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A new species of *Myrmecina* (Hymenoptera: Formicidae) from southeastern North America

*Mark Deyrup**

Abstract

A new species of ant, *Myrmecina cooperi* **sp. nov.** (Hymenoptera: Formicidae: Myrmecinae) is described and illustrated from specimens collected in Florida and Alabama, USA. This species is characterized by its small size (under 2 mm length), shagreened gastral tergites, and a strong ventral protrusion on the underside of the postpetiole. It is presently known from a small area in the Florida Panhandle and adjacent Alabama. Habitus illustrations and an identification key are provided for the 3 eastern species of *Myrmecina*.

Key Words: ant; southeastern endemism

Resumen

Se describe e ilustra una nueva especie de hormiga, *Myrmecina cooperi* **sp. nov.** (Hymenoptera: Formicidae: Myrmecinae) de especimenes recolectados en la Florida y Alabama, EE.UU. Esta especie se caracteriza por su pequeño tamaño (menos de 2 mm de longitud), los tergitos de gastro granulados, y una fuerte protuberancia ventral en la parte inferior del pospetiole. Actualmente, se localiza en una área pequeña en el noroeste de Florida y a adyacente Alabama. Se provee ilustraciones del habitus y una clave de identificación para las 3 especies orientales de *Myrmecina.*

Palabras Clave: hormiga; endemismo del sudeste

Members of the genus *Myrmecina* (Hymenoptera: Formicidae: Myrmecinae) may be distinguished from other Nearctic ants by the more or less cylindrical petiole that lacks a dorsal node (Figs. 1–3), and by a sharp ridge running along each side of the head demarking the ventral side of the head, visible as a fine lamina in Figs. 1 to 3 (Fisher & Cover 2007). Most of the about 51 described species of *Myrmecina* (AntWeb 2015) live in Southeast Asia (Brown 1967) and the Australian region (Shattuck 2009), but there are several northern species that might represent a limited evolutionary radiation associated with temperate Arcto-Tertiary forests. The number of North American species is small but uncertain, in spite of analyses by Smith (1948), Brown (1949, 1951, 1967), Creighton (1950), and Snelling (1965). Brown (1967) recognized 2 species, 1 from Mexico and 1 widespread Nearctic species. A 3rd, apparently parasitic species remains undescribed (Fisher & Cover 2007), and further analysis may support reinstatement of a western species, *M. californica* Smith. In Nearctic *Myrmecina*, the chief impediment to taxonomic clarity is intraspecific variability in the widespread species *M. americana* Emery (Brown 1967). The new species described below appears to be rare and was probably never seen by Brown or other myrmecologists working on *Myrmecina* taxonomy.

The diet of 2 species of *Myrmecina* has been studied by Masuko (1994) in Japan. These species are general predators of soil microinvertebrates that have specializations for attacking a particular type of prey, hard-bodied mites of the family Oribatidae. These specializations include serrate and scoop-shaped jaws of the worker, used for peeling open oribatid mites, and the elongate head of the larva, used for reaching into the interior of partially shelled mites. The worker mandibles of North American *Myrmecina* are similar to those of the Japanese species illustrated by Masuko (1994), and it is probable that North American species, including the species described below, also feed on oribatid mites.

Materials and Methods

Specimens collected by the author were extracted from leaf litter, using #2831 Berlese funnels (BioQuip Products, Inc., Gardena, California, USA). Leaf litter was brought back intact to the laboratory and sifted with a coarse screen just before extraction. A few additional specimens were sifted from litter in the field. Two specimens were extracted by other collectors, using some type of Berlese funnel. Type material was deposited in the ant collection of the Harvard Museum of Comparative Zoology (MCZ) (Cambridge, Massachusetts, USA) and the arthropod collection of the Archbold Biological Station (ABS) (Venus, Florida, USA).

Myrmecina cooperi Deyrup **sp. nov.** (Fig. 1)

Diagnosis of Worker

Length under 2 mm; gastral tergites minutely shagreened (non-glossy); propodeal spines short, triangular; postpetiole with a strong forward-pointing ventral protrusion, color dark reddish brown. Small size and short propodeal spines are also sometimes found in undernourished *M. americana* (Brown 1949); shagreened tergites also occasionally found in *M. americana* (Brown 1949, 1951); postpetiole with a ventral protrusion also found in another undescribed species (Fisher & Cover 2007), but that species lacks carinae on head and pro- and mesonotum, features found in both *M. cooperi* and *M. americana*.

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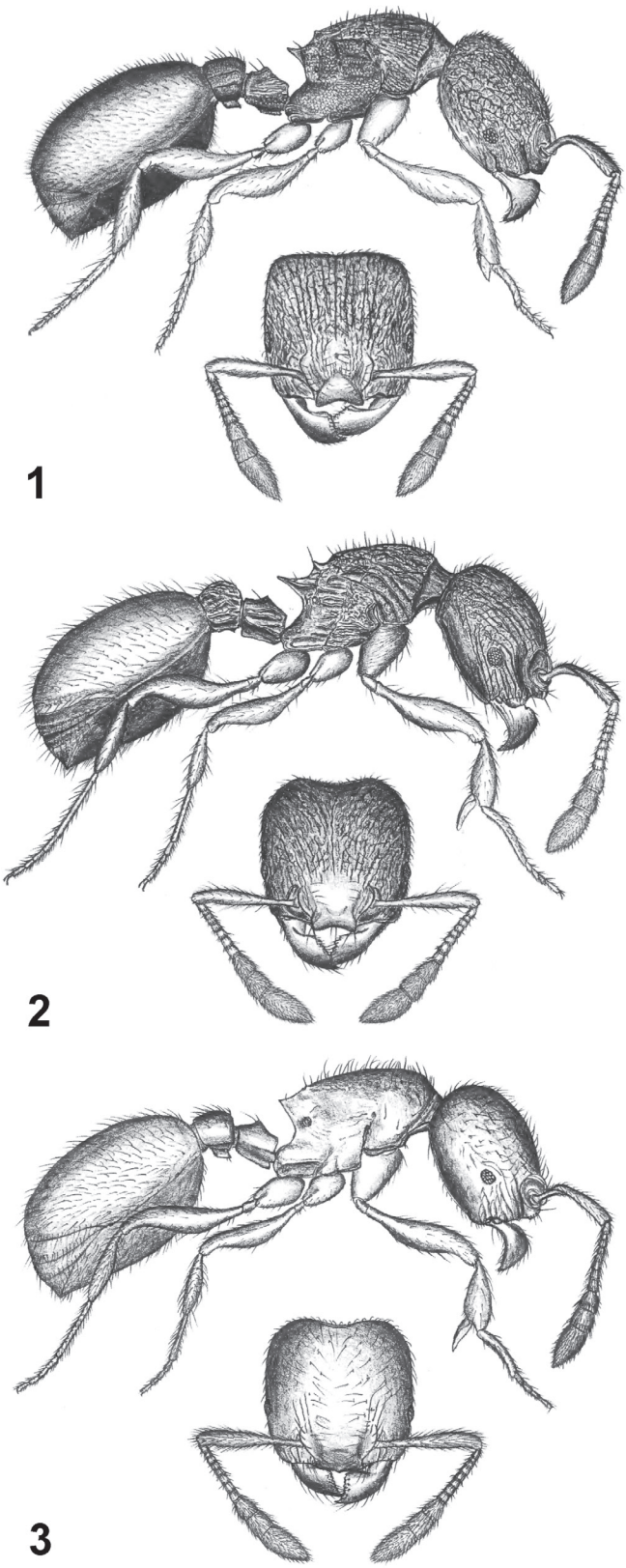

Figs. 1–3. *Myrmecina* species. 1. *Myrmecina cooperi* **sp. nov.**, worker. Length of ant 1.90 mm. 2. *Myrmecina americana* Emery, worker. Length of ant 2.65 mm. 3. *Myrmecina*, undescribed species of Fisher & Cover (2007). Length of ant 2.45 mm.

Description of Holotype Worker (Terminology as in Bolton 1994)

Total length: 1.9 mm, head length excluding mandibles 0.51 mm, head width 0.49 mm. Color: dark reddish brown, mandibles and appendages yellow. Head: supraclypeal area smooth, frons to vertex with fine, irregular but continuous carinae, in frontal view those in median third parallel, those in lateral areas diverging posteriorly; in lateral view eye about half the length of the distance between the eye and mandibular insertion, eye with 12 facets, area between eye and mandibular insertion without distinct carinae or rugae. Mesosoma: pro- and mesonotum with 13 fine, parallel, continuous carinae, only slightly irregular, interspaces smooth, at least twice as wide as carinae; sides of pronotum with 6 irregular fine carinae, interspaces smooth; posterior area of mesopleuron and anterior area of metapleuron with 5 carinae, slightly rugose between carinae; propodeal spines triangular, shorter than anterior dorsal face of petiole. Petiole: indistinctly rugose, with 1 fine, lateral carina. Postpetiole: rugose dorsally and laterally, with a strong ventral process whose anterior border in lateral view juts forward. Gaster: tergites and sternites shagreened, dull; 1st tergite and sternite with fine, tapering subreclinate hairs.

Type Material

HOLOTYPE 1 worker—USA: Florida, Walton County, Eglin Air Force Base, 1 km east of junction road 433 on road 435, 28-IV-1999, edge of steephead, M. Deyrup, S. Cover (MCZ). PARATYPES 3 workers—data same as holotype (MCZ); 1 worker—USA: Alabama, Houston County, Gordon, 9-VII-1965, mesic forest, W. S. Suter (ABS); 1 worker—USA: Florida, Liberty County, Torreya State Park, 22-X-1988, M. Deyrup (ABS); 2 workers—USA: Florida, Okaloosa County, Destin, 4 km east, 28-II-1992, dwarf forest on beach dunes, M. Deyrup (ABS); 1 worker—USA, Nature Conservancy Apalachicola Bluffs Preserve Travelers Tract, 4-V-1996, extracted from leaf litter, C. W. O'Brien, X-C. Zhang (ABS); 1 worker—USA: Florida, Liberty County, Torreya State Park, 12-V-2000, ravine habitat, M. Deyrup (ABS).

Queen and Male: Unknown

Etymology

Named in honor of the Robert J. Cooper family of Palm Beach, Florida, USA, in recognition of strong support for the biodiversity program of the Archbold Biological Station.

Remarks

Although the postpetiolar protrusion clearly differentiates *M. cooperi* from *M. americana*, the small size of this species is, in my experience, diagnostic as well. For this study, I examined 597 specimens of *M. americana* in the Archbold invertebrate collection without finding any specimens 2 mm long or less. These specimens include 54 specimens from the 3 Florida counties where *M. cooperi* was found. The collection of *M. americana* includes specimens from the following additional states: Alabama, Arkansas, Georgia, Kentucky, Illinois, Maryland, Missouri, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, and Washington, District of Columbia. Although the number of specimens of *M. cooperi* is small, they represent 7 separate collections of specimens with the same suite of character states.

The Florida Panhandle and adjacent areas of Alabama and Georgia constitute 1 of the 6 most significant centers of biodiversity in the United States (Chaplin et al. 2000). The hardwood forests of the Florida Panhandle include relict distributions of Appalachian flora that survived the vicissitudes of the Pleistocene in riverine forests and

steepheads (Platt & Schwartz 1990). These southern habitats were protected not only from cold during various glaciations but also from Pleistocene drought because they are on seepage slopes of sandy uplands that continue to release water even during dry periods (Platt & Schwartz 1990). *Myrmecina cooperi* appears to be rare enough that it would be easy to be overlooked if it had a wide range, but at present it can be considered a southeastern endemic with a restricted geographic range.

Key to Species of *Myrmecina* in North America North of Mexico

1.— Postpetiole with a conspicuous forward-pointing protrusion (Figs. 1 and 3) 2

1'.— Postpetiole concave below, lacking a conspicuous protrusion (Fig. 2) . . . . . *americana* Emery

2.— Conspicuous parallel carinae on front of head and pro- and mesonotum; length 2 mm or less; color dark reddish brown . . . . *cooperi* **sp. nov.**

2'.— Lacking parallel carinae on front of head and pro- and mesonotum; length over 2 mm; color pale reddish brown . . . . . *Myrmecina* sp. (Fisher & Cover 2007)

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