

**A NEW SPECIES OF THE ANT GENUS *ACANTHOSTICHUS* MAYR
(HYMENOPTERA: FORMICIDAE) FROM PARAGUAY, AND A
DESCRIPTION OF THE GYNE OF *A. brevicornis* EMERY**

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Abstract.—I describe a **new species** of *Acanthostichus* from the Department of Chaco in Paraguay. *Acanthostichus longinodis*, described from the worker, is a member of the *brevicornis* species complex. It differs from the workers of all of the other South American species in having an elongate petiole, a relatively small subpetiolar process and a swollen posterior femur. I also describe the gyne of *A. brevicornis* Emery and provide new information on the worker.

Resumen.—Describo una nueva especie del género *Acanthostichus* encontrada en el departamento de Chaco, Paraguay. *Acanthostichus longinodis* es descrita basada en la obrera, y es miembro del complejo de especies *brevicornis*. Se diferencia en que el pecíolo es muy largo, el proceso subpetiolar es relativamente pequeño, y el fémur posterior es ancho. También describo la hembra de *A. brevicornis* Emery y presento nueva información de la obrera de esta especie.

Key Words: Neotropical, Cerapachyinae, Chaco region

The ant genus *Acanthostichus* Mayr is an interesting, rarely-collected group of ants. They are probably common, but rarely encountered due to their subterranean habits. Most worker specimens are collected under stones or other objects, while males are attracted to lights. The genus is found throughout the Americas, from the southern part of the United States south to Paraguay, Uruguay, and northern Argentina, and recently has been revised (Mackay 1996).

***Acanthostichus longinodis* Mackay,
new species
(Figs. 1–4, 10)**

Diagnosis.—This initially appears to be a typical South American *Acanthostichus* species, but can be distinguished from other South American species by the combination of the elongate petiole (Fig. 4), the small

subpetiolar process (Fig. 1) and the incrassate posterior femur (Fig. 3). It can be separated from two Mexican species with elongate petioles, *A. quirozi* Mackay and *A. skwarrae* Wheeler as the sides of the petiole are sharply separated from the dorsal surface by an abrupt bend which nearly forms a carina. The elongate petiole would preclude confusion with any other species in the genus.

Description.—*Worker* (n = 3, all measurements in mm): HL (Head Length) 0.76–0.78, HW (Head Width) 0.58–0.60, SL (Scape Length) 0.28–0.30, SW (maximum Scape Width) 0.10–0.11, EL (maximum Eye Length) 0.04–0.05, WL (Weber's Length, anterior edge of pronotal shoulder to posterior edge of metapleural lobe) 1.08–1.14, PL (Petiole Length) 0.35–0.40, PW (Petiole Width) 0.23–0.26, SI (Scape index,

SL/HL \times 100) 35–40, CI (Cephalic Index, HW/HL \times 100) 76–77, PI (Petiolar Index, PL/PW \times 100) 150–153, SL/SW 2.78–2.88.

Mandible without teeth; anterior border of clypeus weakly concave, nearly straight; frontal carinae closely spaced, slightly overhanging anterior margin of clypeus with head in full face view (Fig. 2); sides of head nearly straight, slightly widened anteriorly (Fig. 2), posterior border of head slightly concave; scape short; eye tiny, apparently composed of three ommatidia; malar groove well marked; mesosoma basically rectangular in shape as seen from side and as seen from above, narrowed posteriorly (seen from above), with narrowest part being posterior edge of propodeum; propodeal spiracle slightly below midline (Fig. 1); petiole greatly elongated (Fig. 4), anterior face nearly straight, slightly widened posteriorly; posterior femur incrassate (Fig. 3).

Moderately hairy, with erect hairs on scape, mandible, dorsal surface of head, posterior border of head, ventral surface of head, dorsum of mesosoma, dorsum of petiole, and all surfaces of gaster.

All surfaces smooth and glossy.

Ferrugineous red, appendages and gaster slightly lighter.

Distribution.—Known only from the type locality (Fig. 10).

Type series.—Holotype worker (MNHP, Museo Nacional de Historia Natural del Paraguay), 2 paratype workers (CWEM, William and Emma Mackay collection; MCZC, Museum of Comparative Zoology, Harvard University), PARAGUAY: Dpto. Chaco: Parque Nacional Defensores del Chaco: Cerro León: zona pelada: Sitio #11; 9–15-viii-1983, Colr. J. A. Kochalka.

Material examined.—Type series.

Etymology.—From Latin, *longus* for long and *nodus* for swelling, describing the elongate petiole.

Discussion.—This species would not be confused with any other South American species, based on the small subpetiolar pro-

cess, the incrassate posterior femur, and the elongate petiole. The elongate petiole could cause confusion with two species from Mexico: *A. quirozi* and *A. skwarrae*. However, it can be separated from the geographically distant Mexican species as the sides of the petiole are sharply separated from the dorsal surface by an abrupt bend which nearly forms a carina.

A modified key to include this new species will be placed at www.utep.edu/leb/antgenera.htm.

Biology.—The type series was collected under a stone.

Acanthostichus brevicornis Emery
(Figs. 5–9, 10)

Acanthostichus brevicornis Emery 1894: 142, worker, French Guiana.

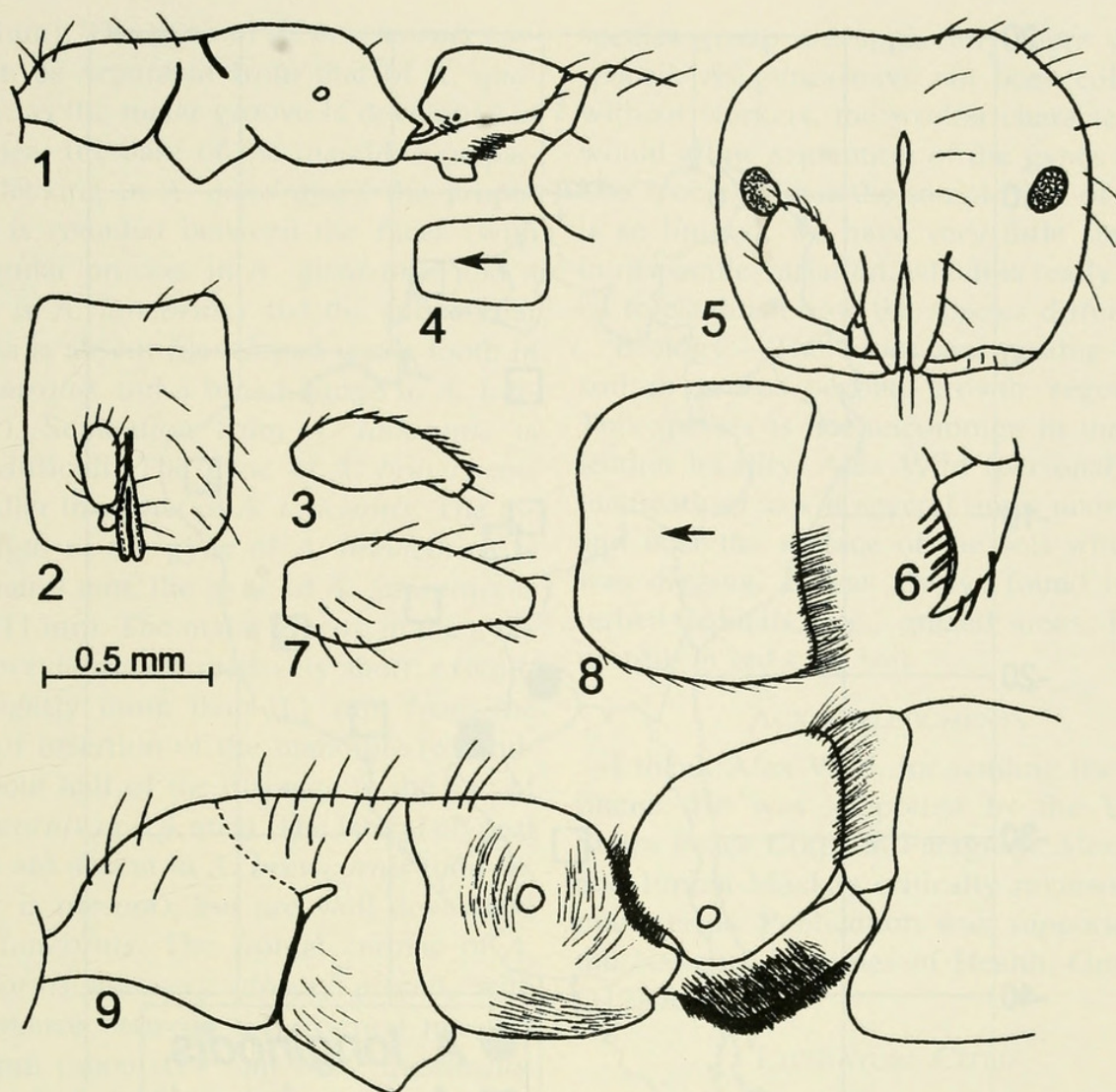
This is one of the most common species in the genus, being previously found in Brazil, Argentina, and French Guiana. I report the first record from Paraguay, provide new information on the worker, and describe the gyne.

Description.—*Worker*: Additional measurements ($n = 3$): HL 0.71–1.07, HW 0.56–0.82, SL 0.30–0.40, SW 0.11–0.18, EL 0.04–0.06, WL 0.92–1.46, PL 0.29–0.47, PW 0.29–0.46, SI 37–42, CI 76–90, PI 100–106, SL/SW 2.20–2.73.

These workers from Paraguay differ from the “typical” *A. brevicornis* in being strongly dimorphic, increasing the range of worker size (above). Additionally the anterior face of the petiole is nearly straight as seen from above. The shape of the anterior face of the petiole in this species is variable, ranging from nearly straight to strongly concave.

Gyne: HL 1.02, HW 1.01, SL 0.43, SW 0.19, EL 0.18, WL 1.67, PL 0.62, PW 0.83, SI 42, CI 99, PI 50, SL/SW 2.25.

Subdichthadiiform, mandible without teeth (Fig. 6); anterior border of clypeus concave (Fig. 5); frontal carinae closely spaced, posterior border of head concave, sides of head rounded; malar groove poorly



Figs. 1–9. *Acanthostichus longinodis* holotype worker and *A. brevicornis* gyne. 1, Mesosoma and petiole of *A. longinodis*, lateral view. 2, Head of *A. longinodis*, full face view. 3, Posterior left femur of *A. longinodis*, front view. 4, Petiole of *A. longinodis*, dorsal view; arrow points anteriorly. 5, Head of *A. brevicornis*, full face view. 6, Mandible of *A. brevicornis*, front view. 7, Posterior left femur of *A. brevicornis*, front view. 8, Petiole of *A. brevicornis*, dorsal view. 9, Mesosoma and petiole of *A. brevicornis*, lateral view.

developed, extending from base of mandible slightly more than 0.1 mm, remainder of groove marked by very slight indentation; scape thickened; eye large, but failing to reach side of head by about $\frac{1}{2}$ minimum diameter; ocelli absent; mesosoma basically rectangular as seen from side (Fig. 9), and as seen from above; promesonotal suture poorly developed, metanotal suture marked on dorsum of mesosoma; propodeal spiracle placed above midline (Fig. 9), propodeum rounded between faces; subpetiolar process absent (Fig. 9), petiole wider than long as seen from above, slightly wider posteriorly (Fig. 8); posterior femur slightly widened

(Fig. 7), much less so than that of worker; pygidium without spines.

Erect hairs sparse; few hairs along anterior border of clypeus, and on mandible, along frontal carina, dorsum of head, posterior margin of head, dorsum of mesosoma, and legs; hairs on posterior face of propodeum fine, brushlike, with similar hairs on side and posterior margin of petiole; ventral surface of petiole with thick, closely spaced hairs; gaster with similar hairs on dorsal and ventral surfaces.

All surfaces smooth and glossy.

Yellow, mandibles and clypeus slightly darker.

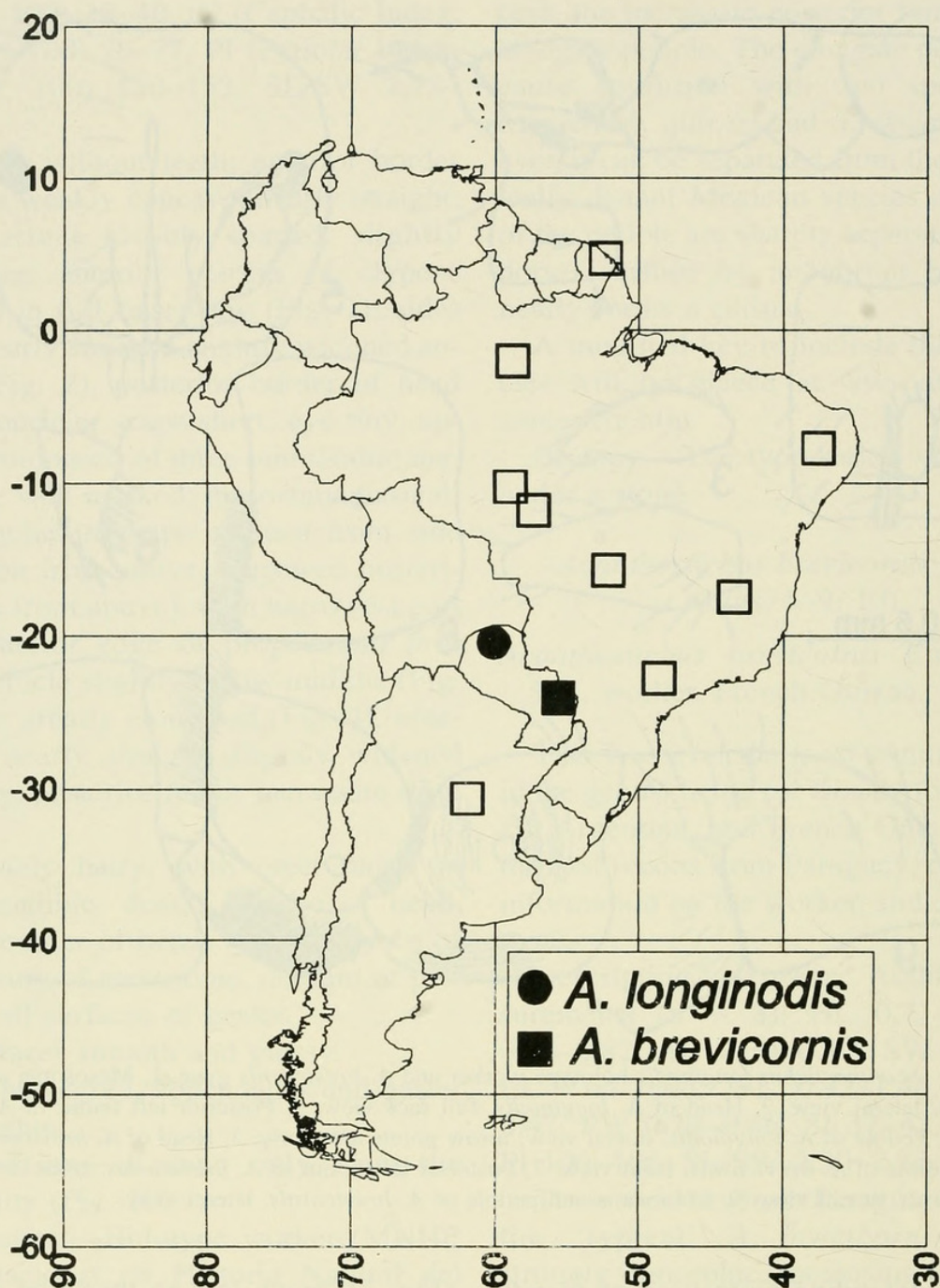


Fig. 10. Distribution of *A. longinodis* and the new locality of *A. brevicornis* in South America. The open squares of *A. brevicornis* are from Mackay (1996).

Material examined.—PARAGUAY, Canindeyú: Col. “11 de Septiembre”, 24°03'S 55°34'W, 19.vii.1997, A. Wild #AW0522 (7 workers, CWEM, MCZC; 1 ♀, MCZC). The full series consists of 43 workers [majority not seen]. Specimens are also deposited in the LACM (Natural History Museum of Los Angeles County), MNHP, in the collection of Sean Brady, and in the collection of Alex Wild.

Discussion.—The gynes of this genus are

known from only five species: *A. emmae* Mackay (*texanus* species complex) and *A. texanus* Forel (*texanus* species complex), which are “normal”, winged gynes, with ocelli, and *A. laticornis* Forel (*serratulus* species complex), *A. quadratus* Emery (*serratulus* species complex) and now *A. brevicornis* Emery (*brevicornis* species complex), which are subdichthadiiform (lacking ocelli, lacking flight sclerites, having a distended gaster, and lacking the teeth on the

pygidium). The gyne of *A. brevicornis* easily can be separated from that of *A. quadratus*, as the malar groove is developed at least near the base of the mandible (apparently lacking in *A. quadratus*), the propodeum is rounded between the faces (with an angular process in *A. quadratus* and a carina in *A. laticornis*) and the subpetiolar process is absent (developed into a tooth in *A. quadratus* and a broad flange in *A. laticornis*). Separation from *A. laticornis* is more difficult. The gyne of *A. brevicornis* is smaller than that of *A. laticornis*. The total length of the gyne of *A. brevicornis* is less than 9 mm, the gyne of *A. laticornis* is about 11 mm. The malar groove in the gyne of *A. brevicornis* is relatively short, extending slightly more than 0.1 mm from the point of insertion of the mandible (extending about half of the distance to the eye of *A. laticornis* or 0.4 mm). The lateral clypeal angles are absent in *A. brevicornis* (convex border is present), but are well developed in *A. laticornis*. The frontal carinae of *A. brevicornis* are very closely placed, with the distance between the external margins 0.23 mm (about 0.4 mm in *A. quadratus*, 0.47 in *A. laticornis*). This suggests an additional characteristic to separate the two species complexes. The frontal carinae of the gynes of the *brevicornis* complex may be closely spaced, those of the *serratulus*

species group are apparently more widely spaced. As gynes have not been collected without workers, the worker characteristics would allow separation of the gynes of the two species. Since the sample size of gynes is so limited, we have very little sense of intraspecific variation, which is really needed to establish how the species differ.

Biology.—The series was nesting in the soil in grazed second growth vegetation. This species is not uncommon in that collection locality. Alex Wild (personal communication) saw it several times under logs and near the surface of the soil where he was digging. It was always found in disturbed habitats, e.g., grazed areas, lawns, nesting in red clay soil.

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LITERATURE CITED

- Emery, C. 1894. Studi sulle formiche della fauna Neotropica. *Bullettino della Società Entomologica Italiana* 26: 137–242 + 4 plates.
Mackay, W. P. 1996. A revision of the ant genus *Acanthostichus* (Hymenoptera: Formicidae). *Sociobiology* 27: 129–179.



Mackay, William P. 2004. "A new species of the ant genus *Acanthostichus* mayr (Hymenoptera: Formicidae) from Paraguay, and a description of the gyne of *A. brevicornis* emery." *Proceedings of the Entomological Society of Washington* 106, 97–101.

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