Zootaxa 1749: 27–38 (2008)
www.mapress.com/zootaxa/

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Description of a remarkable new species of ant in the genus *Daceton* Perty (Formicidae: Dacetini) from South America

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Abstract

A remarkable new species in the ant genus *Daceton,* which has remained monotypic for 205 years, is described from Brazil and Peru. The new species, *Daceton boltoni* sp. nov., is similar to its sister species, *D. armigerum,* but differs from it mainly in the form of the pronotal lateral spines and in the pilosity of the first gastral segment. The taxonomic history and biology of the genus is reviewed.

Key words: Ants, Brazil, *Daceton armigerum*, *D. boltoni*, Myrmicinae, Peru

Resumen

Una nueva especie de hormiga en el género *Daceton,* el cual ha permanecido monotípico por 205 años, se describe de Brasil y Perú. La nueva specie, *Daceton boltoni* sp. nov., es similar a *D. armigerum*, pero difiere de ésta, principalmente, en la forma de las espinas pronotales y en la pilosidad en el dorso del primer segmento del gaster. Una revisión de la historia taxonómica y biología del género es presentada.

Palabras clave: Brasil, *Daceton armigerum*, *D. boltoni*, hormigas, Myrmicinae, Perú

Introduction

The monotypic ant genus *Daceton* Perty (Myrmicinae: Dacetini), and its hitherto known sole species *D. armigerum* (Latreille), is restricted to South American rainforests (Kempf 1972, Fernández & Sendoya 2004, Bolton *et. al.* 2007). In this region, *Daceton* and the larger species of the genus *Cephalotes* Latreille are arguably the most morphologically striking arboreal ants. *Daceton* usually nests in cavities in the branches and trunks of trees previously bored by beetles and other insects. Blum and Portocarrero (1966) and Moffet and Tobin (1991) state that colonies of *D. armigerum* contain up to 2500 individuals, whereas Wilson (1962) and Hölldobler & Wilson (1990) estimate that colonies contain between 5000 to 10000 workers. *Daceton armigerum* has a complex continuously polymorphic caste system, in which smaller workers nurse the brood and larger workers hunt, dismember prey items, and defend the nest (Wilson 1962; Oster & Wilson 1978; Hölldobler & Wilson 1990). Wilson (1962) reports that workers of this highly predaceous myrmicine ant hunt

Accepted by J. Longino: 24 Feb. 2008; published: 14 Apr. 2008

individually for a variety of live insects, including flies, grasshoppers, larvae and adults of moths and beetles, and fulgorids. In addition, some workers have been observed tending coccids (Bodkin in Crawley 1916; Brown & Wilson 1960; Wilson 1962). (Refer to Wilson [1962] for further information on the behavior of *D. armigerum*.) Recently, Yanoviak *et al.* (2005) found that individuals of *D. armigerum* show controlled aerial descent behavior. The genus has been considered primitive with respect to other members of the Dacetini (Brown and Wilson 1959; Bolton 1998, 1999, 2000), but a phylogenetic analysis of the tribe is necessary to fully understand the relationships of its constituent species and genera. Current molecular phylogenetic evidence suggests that Dacetini may not be monophyletic (Brady *et al.* 2006).

Although workers of *Daceton* are conspicuous and commonly encountered and collected, there has been no evidence of more than one species in the genus. A study of specimens collected in recent and past biodiversity surveys in Peru and Brazil has revealed the existence of a second remarkable species. Herein we describe this new species and provide a review of the genus.

Material and methods

Study sites

Specimens of the new species were collected from the canopies of two rainforests in the Amazon watershed, one in Peru and one in Brazil. The Peruvian samples were collected in Iquitos, Loreto. Individual workers were attracted to a bait consisting of a mixture of honey and tuna placed approximately 25 m above the ground on a branch of a *Sloanea* sp. (Elaeocarpaceae) tree. Collections were conducted during both day and night. The Brazilian samples were collected by insecticide fogging of a Terra Firma canopy forest within 70 km of Manaus during the dry season (July–August 1979) by T. L. Erwin and co-workers. The canopy-fogging technique utilized by Erwin consisted of a radio-controlled Dyna-fog machine suspended in the canopy and rotated through a 90° angle while discharging insecticide into the surrounding vegetation (Erwin 1983). Insects and other arthropods falling from the canopy were collected at ground level into 4 oz Nalgene bottles containing 70% alcohol that were mounted on the bottoms of funnel-shaped sheets (Erwin 1983).

Entomological Collections

Specimens for this study have been examined from or have been deposited in the following institutions:

BMNH	The Natural History Museum, London, United Kingdom.
CPDC	Centro de Pesquisa do Cacau, CEPEC/CEPLAC, Ilheus, Bahia, Brazil.
IAvH	Instituto de Investigación de Recursos Biológicos “Alexander von Humboldt,” Villa de Leyva, Colombia.
ICN	Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, Colombia.
MCZC	Museum of Comparative Zoology, Cambridge, Massachusetts, U.S.A.
MUSM	Museo de Historia Natural “Javier Prado,” Universidad Nacional Mayor de San Marcos, Lima, Perú.
MZSP	Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil.
USNM	National Museum of Natural History, Smithsonian Institution, Washington DC, U.S.A.
ZMUC	Zoological Museum, University of Copenhagen Universitetsparken 15, DK-2100, Denmark.

Morphology and measurements

Examination and measurement of specimens were completed at various magnifications using a light stereomicroscope (Leica MZ16) and were recorded to the nearest 0.001 mm. All measurements are given in millimeters unless noted otherwise. Specimens were photographed using a JVC KY-F70B video camera mounted

on a Leica Z16 APO microscope with a Leica Motor-focus System attached to an IBM Intellistation M Pro computer, on which composite images were assembled using Auto-Montage Pro Version 5.03.0018 BETA software® (Synoptics Ltd.). Scanning electron micrographs were taken using an Amray 1810 Scanning Electron Microscope (SEM) with LaB6 electron source. Specimens were sputter-coated with 20–30 nm gold/palladium alloy 60:40 wt% in a Cressington Scientific 108auto/SE. During the coating process, the samples were tilted and rotated to ensure uniform coverage. Images were cropped and enhanced using Photoshop CS2 Version 9.0.2® (Adobe Inc.). Morphological terminology employed throughout follows Bolton (1994) with modifications where noted. Anatomical abbreviations are as follows:

EL	Eye Length: maximum diameter of compound eye in full-face view.
GL	Gaster Length: the length of the gaster in lateral view from the anteriormost point of first gastral segment (fourth abdominal segment) to the posteriormost point.
HL	Head Length: the length of the head proper, excluding the mandibles; measured in full-face view from the midpoint of the anterior clypeal margin to a line drawn across the posterior margin of cephalic lobes.
HW	Head Width: the maximum measurable width of the head in full-face view.
ML	Mandible Length: in ventral view, the distance from a line drawn across the lateral condyles where the mandibles attach the cephalic capsule to the apical tooth with the mandibles closed.
ML'	Mandible length: in full-face view, the distance from the anterior margin of the clypeus to the apical tooth with the mandibles closed.
MW	Mandible Width: in full-face view, the maximum measurable width of the mandible.
PL	Petiole Length: the straight line from the posteriormost margin of the petiole to the posteriormost margin of the metapleural lobe, in lateral view.
PPL	Postpetiole Length: the maximum length of the postpetiole in lateral view.
PSL	Propodeal Spine Length: the distance from the tip of the propodeal spine to the nearest border of the propodeal spiracle.
PW	Pronotal Width: the maximum width of the pronotum in dorsal view, measured as the distance between the tips of the lateral pronotal spines.
SL	Scape Length: the maximum length of the antennal scape excluding the condylar bulb.
TL	Total Length: HL+ML+WL+PL+PPL+GL.
WL	Weber's Length: in lateral view, the distance from the posteriormost border of the metapleural lobe to the anteriormost border of the pronotum.
CI	Cephalic Index: (HW/HL) X 100.
MI	Mandibular Index: (ML/HL) X 100.
PI	Petiolar Length Index: (PL/WL) X 100.
PSI	Propodeal Spine Index: (SpL/WL) X 100.
SI	Scape Index: (SL/HW) X 100.

Systematic treatment

Daceton Perty

Daceton Perty, 1833: 136. Type-species: *Formica armigera* Latreille, 1802: 244, by monotypy.
Dacetum Agassiz, 1848: 332, unjustified emendation of *Daceton*. [Synonymy by Brown, 1973: 179.]

A complete diagnosis of the genus is provided by Bolton (1999, 2000).

***Daceton armigerum* (Latreille)**
(figs. 1, 3, 5, 7, 17–19)

Formica armigera Latreille, 1802: 244, pl. 9, fig. 58. Syntype(?) worker, Brazil (not seen).
Myrmecia cordata Fabricius, 1804: 425. Syntypes, 2 workers, America Meridionali [South America]. (Synonymy by Roger, 1862: 290.) (seen)
Daceton armigerum (Latreille); Perty, 1833: 136 (combination).
Atta(?) *armigera* (Latreille); Guérin-Méneville, 1844: 421 (combination).
Daceton armigerum (Latreille); F. Smith, 1853: 226 (revived combination).

Worker. Measurements (mm): EL 0.44–0.87, GL 1.89–4.50, HL 1.44–4.06, HW 1.58–4.17, ML 0.79–3.32, PL 0.78–1.93, PPL 0.26-0.51, PSL 0.32-1.59, PW 1.38-4.60, SL 0.94-2.77, TL 6.91-17.8, WL 1.70–4.24. Indexes: CI 102–113, MI 55–88, PI 41–52, PSI 18–39, SI 59–73 (17 measured).

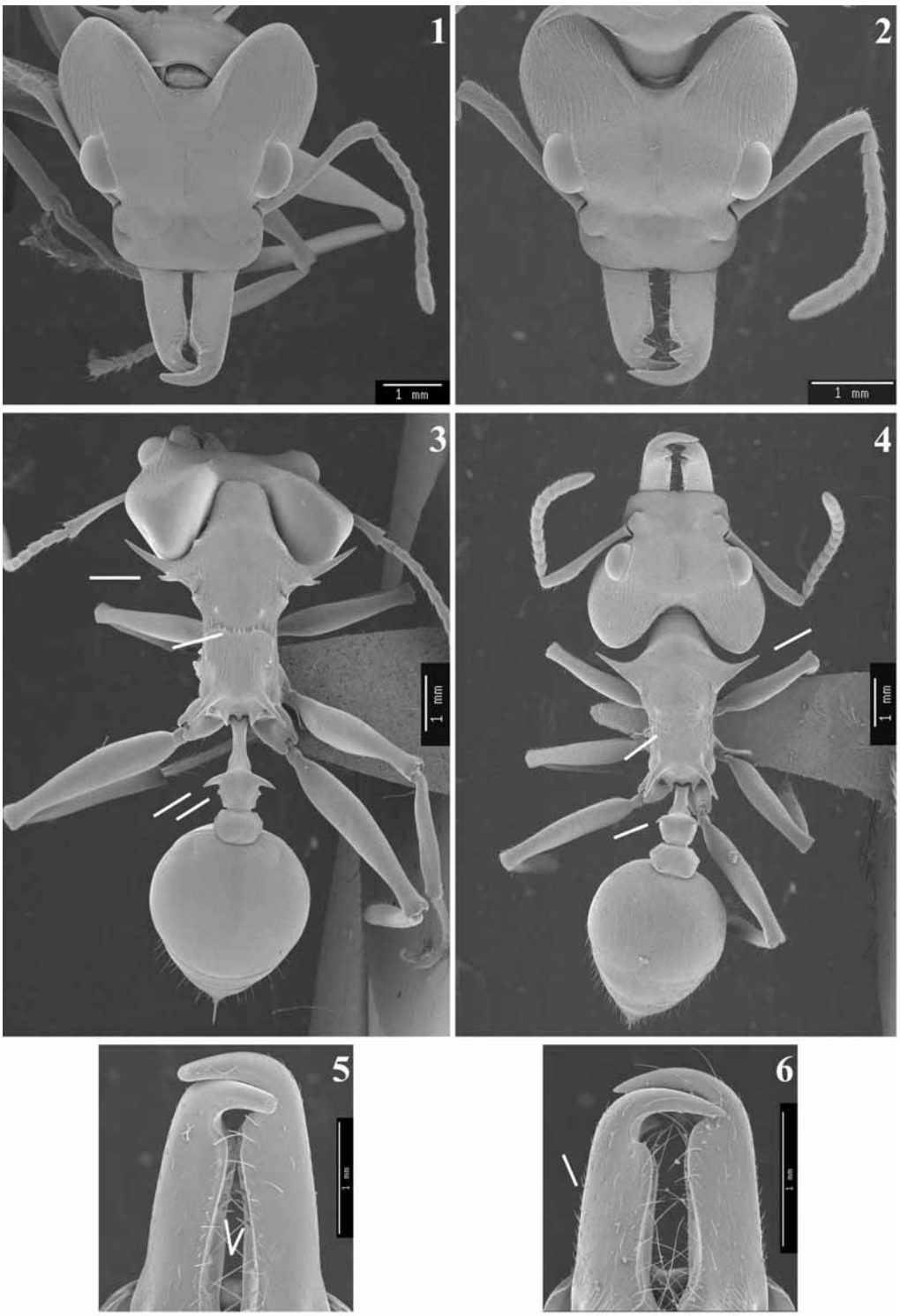
Polymorphic. Head wider than long, heart-shaped. Mandibles linear and elongate, each with an apical fork of two teeth that overlap at full closure, of which the ventral tooth is the largest. Inner (masticatory) margin of mandibles lacking any dentition but with a series of short, thick setae that differ from any other pilosity present on mandibles. Outer margin of mandibles lacking hairs completely or with very short, appressed hairs. Mandibles, in full-face view, somewhat long and narrow [(MW/ML')*100= 25–40] (fig. 23). Palp formula 5,3. Depressions, adjacent to and ventral to the mandibular insertion, deep. Clypeus without standing hairs. Pronotal humeri with acute tubercles. Lateral pronotal spines bifurcate, the anterior tips larger than the posterior ones. Metanotal groove deeply impressed. Mesosoma glabrous. Petiolar node with an anterior-lateral pair of long spines and a pair of small but sharp tubercles, located underneath the anterior-lateral spines. First gastral tergite finely reticulate and devoid of any erect or semi-erect pilosity, sometimes with very short, appressed hairs. Color of head, mesosoma, and metasoma, usually red-brown to red-yellowish, sometimes dark red-brown or rarely bicolored; petiole, postpetiole, and gaster darker than rest of body.

Range. This species is known to occur in the Terra Firma and flooded forests of Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, Trinidad, and Venezuela.

The material examined conforms perfectly to the description given by Latreille (1802: 244). *Daceton armigerum* has been studied extensively by Wheeler & Wheeler (1954, description of larvae), Wilson (1962, ecology and behavior), Blum & Portocarrero (1966, trail pheromone and venom), Hölldobler *et al.* (1990, chemical communication), Moffet & Tobin (1991, physical castes), Groenenberg (1996, mandibular mode of action), and Bolton (1999, 2000, classification).

Material examined. *Myrmecia cordata* Fabricius, Syntypes, 2 workers, labeled: "Essequibo [possibly Guyana], Smidt. Mus. de Sehestedt. Armigerum, Latr. [Latreille] *Myrmecia cordata*, worker, Fabr. [Fabricius]." Deposited in ZMUC.

Bolivia: 8 workers, Beni, Cavinas, i.1954 (*W.M. Mann*) [USNM]; 4 workers, Beni, Cavinas, ii.1954 (*W.M. Mann*) [USNM]; 3 workers, Beni, Huachi, ix.1954 (*W.M. Mann*) [USNM]; 5 workers, Beni, Rurrenabaque, x.1954 (*W.M. Mann*) [USNM]; 18 workers, Rosario, Mulford Biological Station, (L Rocagua) xi.1921–1922, (*W.M. Mann*) [USNM]. **Brazil**: 55 workers, Amazonas, Hwy ZF 2, Km 19, ca 60 Km N. Manaus, 02°30'S 60°15'W, 17.viii.1979, Terra Firma (*T.L. Erwin et al.*) [USNM]; 2 workers, Amazonas, Rio Taruma Mirim, 20 Km NW Manaus, 02°53'S 60°07'W, 2.iii.1979 (*T.L. Erwin et al.*) [USNM]; 1 worker, Amazonas, Rio Taruma Mirim, 2 Km from Rio Negro, 03°02'S 06°17'W, 29.vii.1979, Igapo black water inundation, forest canopy (*T.L. Erwin et al.*) [USNM]; 9 workers, Amazonas, Itacoatiara (*Mann and Baker*); 1 workers, Manaus, Reserva Ducke, 9.vi.1971, rainforest, (*W.L. and D.E. Brown*) [MCZC]; 4 workers, Pará, vii.1962, B-253 (*W.L. Brown*) [USNM]; 8 workers, Para, (*W.M. Mann*) [USNM]; 2 workers, Mato Grosso, Tangará da Serra, 30.v.2003 (*P.R. Marla*) [CPDC]. **Colombia**: 1 worker, Guaviare, R. Nukak, Cr. Moyano, Caño Cucuy. Ban 02º10'35"N 71º10'58"W, ii.1996, elev. 250 m, exc. humano (*F. Escobar*) [IAvH]; 4 workers, Meta, PNN Sierra de la Macarena, Cabaña Cerrillo, 3º21'N 73º56'W, 21.xii.2002 to 4.i.2003, elev.460 m,



FIGURES 1–6. Scanning Electron Micrographs of workers of: *Daceton armigerum* (1, 3, 5) and *Daceton boltoni* (2, 4, 6). 1–2 full-face view; 3–4 dorsal view; 5–6 mandibles in ventral view.

Malaise trap, (*A. Herrera and W. Villalba*) [IAvH]; 3 workers, Meta, PNN Sierra de la Macarena, Caño Curia, parcela, 3º21'N 73º56'W, 9–24.ix.2003, elev. 460 m, Malaise trap, (*W. Villalba*) [IAvH]; 9 workers, Meta, La Macarena, 10.i.1977, in a tree (*C. Kugler*) [IAvH]; 3 workers, Meta, Fundación Yamato, Río Meta, Caño Miti-Miti, 1.iv.1997 (*J. Madrid*) [IAvH]; 3 workers, Meta, PNN Tinigua, Caño Nevera, 02º11'N 73º48'W, 23.xi.2002 to 7.i.2003, elev. 390 m, Malaise trap (*C. Sanchez*) [IAvH]; 1 worker, Meta, PNN Tinigua, Vda.

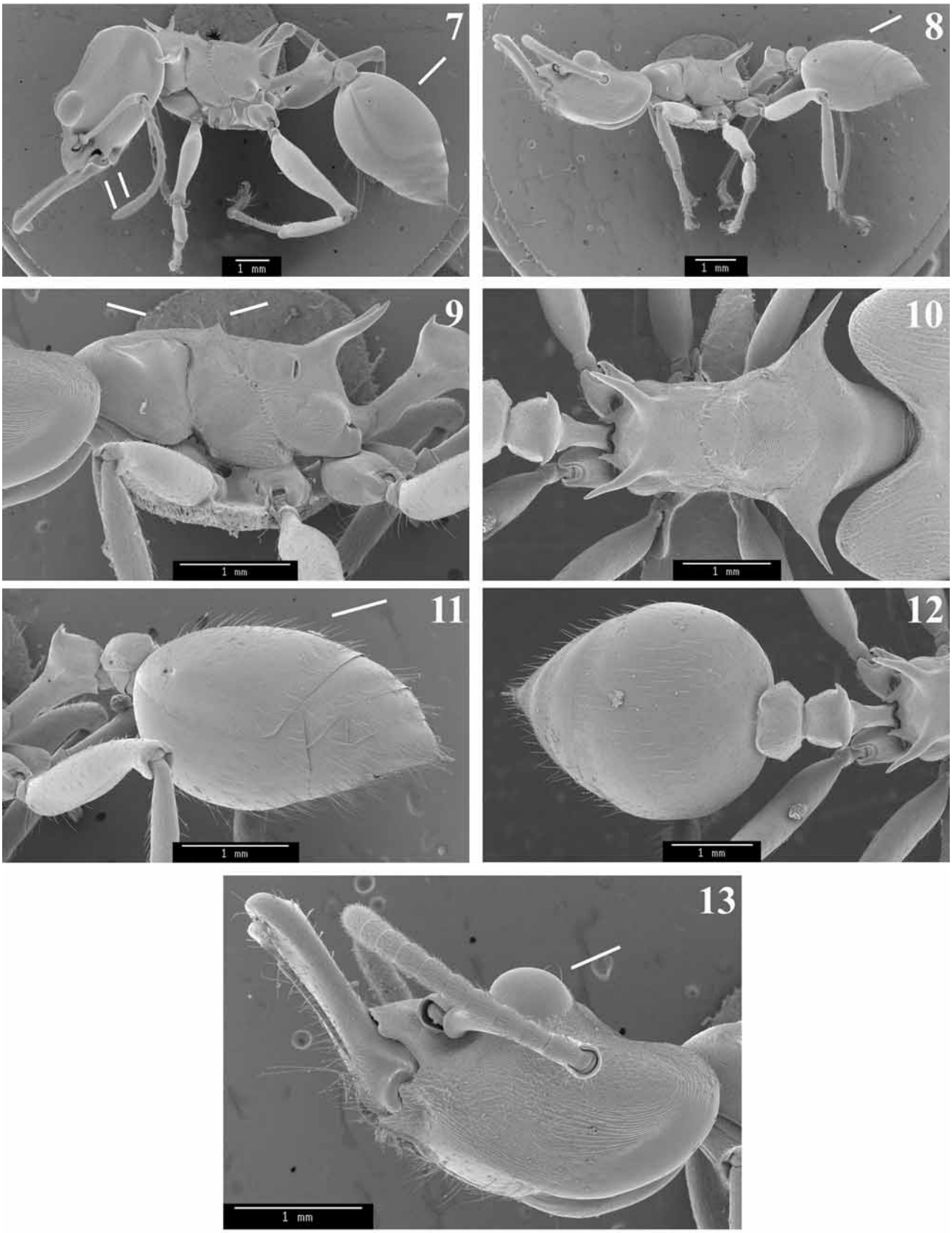
Bajo, 02º16'N 73º48'W, 12.xi.2002 to 5.i.2003, elev. 460 m, Malaise trap (*C. Sanchez*) [IAvH]; 2 workers, Meta, Villavicencio, iii.1984 (*N. Ruiz*) [USNM]; 1 worker, Vichada, Cumaribo, Cgto. Santa Rita, PNN El Tuparro, 05º19' 54"N 67º53'27"W, 10.ii.2004, elev. 135 m, mata de monte, hand collecting (*I. Quintero*) [IAvH]. **Ecuador**: 6 workers, Napo, Prov. Limoncocha, 10.vi.1977 (*D.L.Vincent*) [USNM]; 1 worker, Prov. Sucumbios, Garza Cocha-Anyagu, 175 Km ESE Coca, 25.ii–2.iii.1994, (*P.J. Devries*) [MCZC]. **French Guiana**: 2 workers, Les Nouragues, iii.2006 (*A. Delean*) [CPDC]; 2 workers, Paracou, Lisière de Forêt, xi.1996 (*B. Corbara et al.*) [CPDC]; 3 workers, Petit Sant Basse Vie, vi–vii.2000 (*S. Durou et al.*) [CPDC]. **Guyana**: 1 worker, Iwokrama, Island in Essequibo River, 4° 43.890'N 58° 50.992'W, 10.iv.1996, elev. ~60 m, hand collecting, 1° forest, tree, (*T.R. Schultz and U.G. Mueller*) [USNM]; 1 worker, Rupununi, Upper-Essequibo River, Kwatata, 3° 38.192'N 59° 27.217'W, 25.x.2002, elev. 115 m, hand collecting, bush island, (*T.R. Schultz*) [USNM]. **Peru**: 1 worker, Loreto, Iquitos, 12 Km W, 16.ii.1984 (*W. Mathis*) [USNM]; 1 worker, Loreto, Explornapo Camp on Rio Sucusari, 2 Km upstream from Rio Napo, 160 Km NE Iquitos, 20.vii.1990 (*Menke and Awertschenko*) [USNM]; 5 workers, Loreto Region, 37 Km SSW of Iquitos, 04.049°S, 73.445°W, 28.viii.2004 (*S. Yanoviak*) [USNM]; 7 workers, Madre de Dios, 30 Km SW Puerto Maldonado, 7.ix.1982 (*J.J. Anderson*) [USNM]. **Suriname**: 1 worker, Temomairem Cosh Toemoeh Hoemak, 25.viii.1939 (*Geijskes*) [USNM]; 1 worker, Lely Mountains, 4°16'13"N 54°44'18"W, 28.x.2005 (*J. Sosa-Calvo*) [USNM]. **Trinidad**: 6 workers, Cumuto Village, 10–16.iv.1961, semi-deciduous forest in the Aripo savanna, (*E.O. Wilson*) [MCZC]; 1 worker, 20.ii.1929, (*J.G. Myers*) [USNM]. **Venezuela**: 3 workers, Orinoco Delta, i–ii.1935, (*N.A. Weber*) [MCZC]; 1 worker, Suapure, Caura River, 2.iv.1900, (*E.A. Klages*) [MCZC]; 3 workers, T.F. Amazonas, Cerro de la Neblina, Basecamp, 0°50'N 66°9'44"W, 140 m., 1–10.iii.1984 (*Davis and McCabe*) [USNM].

Worker variation. Most of the within-species morphological variation in *D. armigerum* workers is manifested in the form of the promesonotum and, to a lesser degree, in the forms of the petiole, postpetiole, and gaster. This variation includes: (i) Lateral spines bifurcate, the posterior spine projecting upwards and curving at the tip in major workers, whereas in small or median workers this spine not curving at the tip. In small workers the posterior spine is very short, almost vestigial when viewed in profile, but conspicuous in dorsal view. (ii) Short, simple, and appressed hairs present on the first gastral tergite in some individuals from Brazil and Peru. On other workers, hairs on the first gastral segment are absent. (iii) Humeral spines, in smaller workers, vestigial or present as very low carinae. Median and larger-sized workers with humeral tubercles that are spinose or acute. (iv) The posterior pair of petiolar tubercles reduced, rounded and low in smaller workers, whereas tubercles acute in larger workers. (v) Large workers with posterior promesonotal tubercles truncate and flattened in profile. (vi) Anterior spines of petiole long and diverging with intervening space concave or with intervening space discontinuous. Anterior spines of petiole in smaller workers shorter than in other castes.

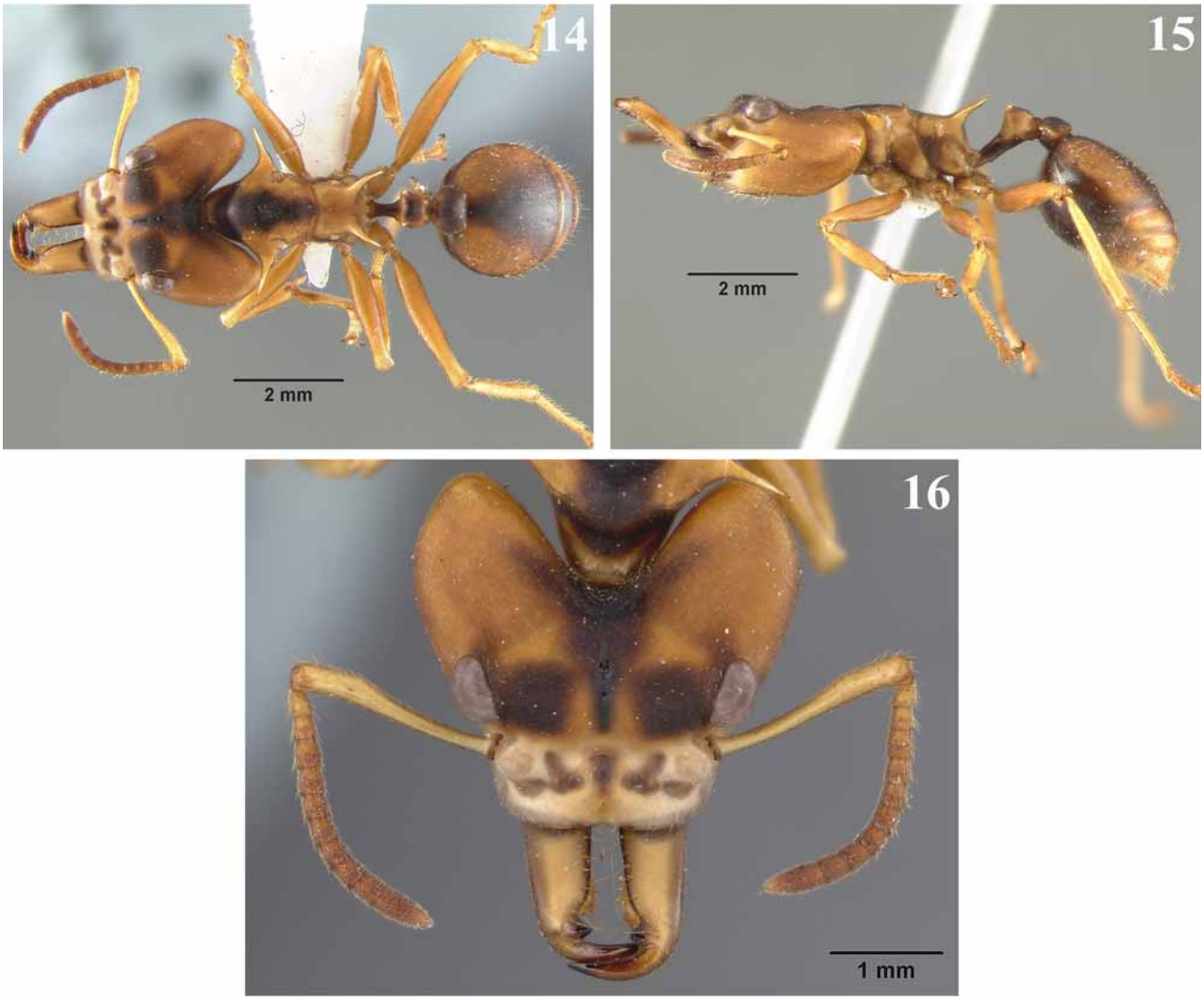
***Daceton boltoni* Azorsa and Sosa-Calvo, new species**
(figs. 2, 4, 6, 8–16, 20–22)

Holotype worker. Measurements (mm): EL 0.66, GL 3.29, HL 3.21, HW 3.47, ML 2.34, PL 1.40, PPL 0.55, PSL 1.05, PW 3.13, SL 2.01, TL 13.9, WL 3.07. Indexes: CI 108, MI 73, PI 46, PSI 34, SI 58.

Polymorphic. Head heart-shaped; wider than long. Mandibles elongate and linear with apical fork consisting of two teeth of which the ventral one is the largest. Mandibles finely reticulate-punctate. Inner (masticatory) margin of mandibles with long hairs, lacking any short, thick hairs. Outer margin of mandibles with some decumbent hairs. Mandibles, in full-face view, somewhat short and stout [(MW/ML')*100= 34–44] (fig. 23). Dorsum of clypeus with suberect to subdecumbent hairs. In some intermediate and major castes, dorsum of head with a small but conspicuous ocellus. Ocular carina absent. Ocular crest, in lateral view, with 1–3



FIGURES 7–13. Scanning Electron Micrographs of workers of: *Daceton armigerum* (7) and *Daceton boltoni* (8–13). 7–8 lateral view; 9–10 mesosoma in lateral and dorsal views, respectively; 11–12 gaster in lateral and dorsal views, respectively; 13 head in lateral view.



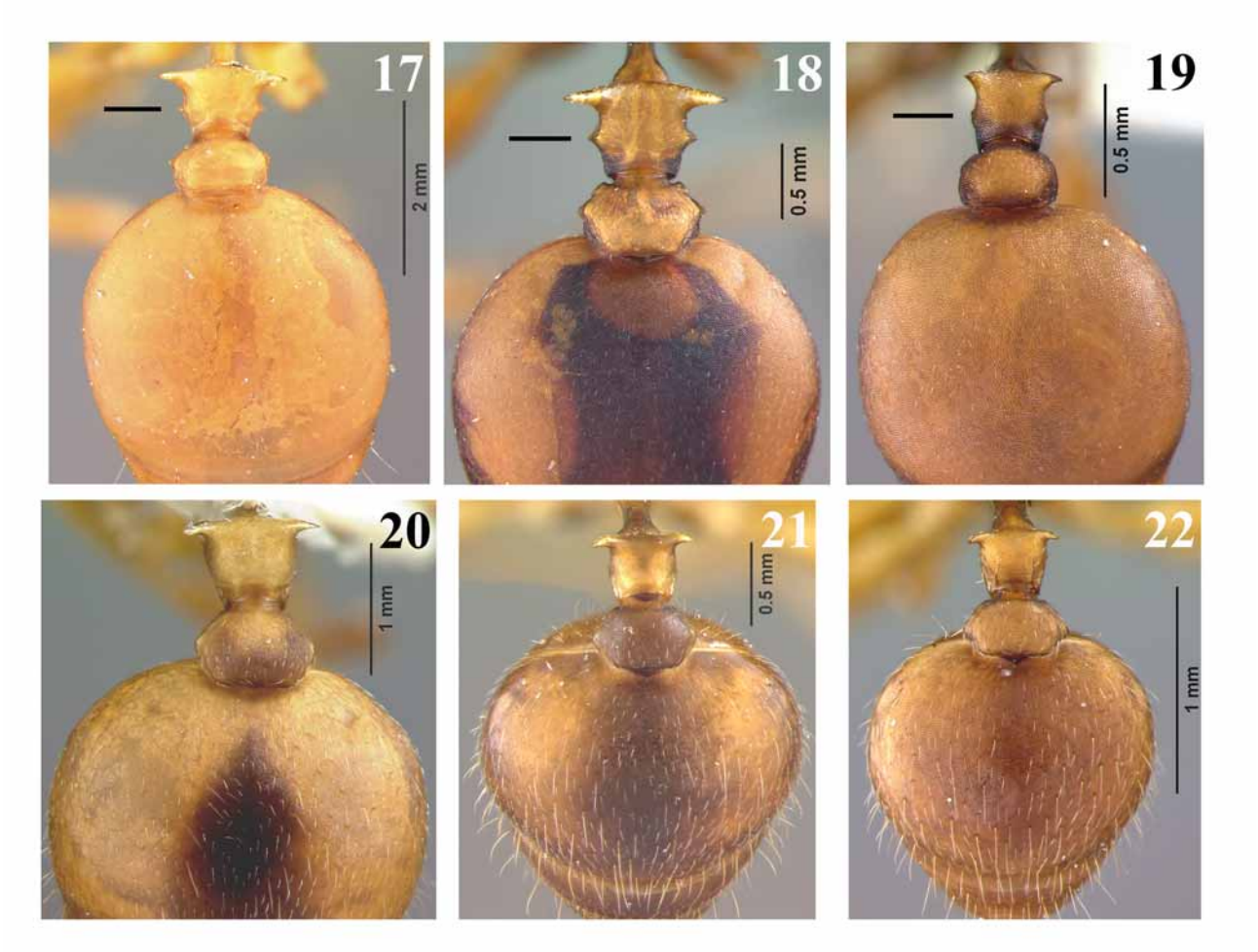
FIGURES 14–16. Automontage photographs of *Daceton boltoni*, holotype worker. 14 body, dorsal view; 15 body, lateral view; 16 head, full-face view.

erect, simple hairs. Antennal scapes not surpassing the posterior margin of head. Antennal scapes slightly thickening towards the apex, finely reticulate and shiny, and with most of their lengths covered with sparse decumbent to subdecumbent hairs. Base of mandibles, in lateral view, finely reticulate-punctate and ventrally rugose, rest of lateral margin of mandibles smooth and shiny. Sides of head lacking a broad gap between bases of mandibles and margins of head capsule when mandibles fully closed (except in two minors studied, in which case there is a narrow gap). Depressions, adjacent to and ventral to mandibular insertion, shallow (much deeper in *D. armigerum*).

Pronotum with a pair of humeral tubercles that are more carina-like and a pair of lateral, single-tipped (rather than bifurcate) spines. Propleuron, in lateral view, strongly angulate. Posterior portion of promesonotum with a pair of low tubercles. Promesonotum with at least two pairs of standing simple hairs. Metanotal groove weakly impressed. Propodeal spines long and somewhat curved inwards (U-shaped) when seen in fronto-dorsal view. Propodeal spiracles appearing, in dorsal view, as lateral prominences of propodeum; opening of propodeal spiracle longer than wide (oval).

Peduncle of petiole long. Anterior-lateral margins smooth and shiny. Dorsum of petiole anteriorly with a pair of small spines that project latero-posteriorly. Disc of petiole finely reticulate-punctate, lacking a second pair of tubercles or spines. Postpetiole, in dorsal view, hexagonal. Disc of postpetiole finely reticulate-punc-

tate and with appressed hairs. Posterior margin of postpetiole, in lateral view, angulate. Dorsum of first gastral segment mainly with subdecumbent to decumbent hairs in addition to some appressed hairs.



FIGURES 17–22. Automontage photographs contrasting the waist segments and the dorsum of the first gastral segment of *Daceton armigerum* (17–19) and *Daceton boltoni* (20–22).

Paratype workers. Measurements (mm): EL 0.31–0.79, GL 1.69–3.82, HL 1.08–3.57, HW 1.17–4.13, ML 0.66–2.83, PL 0.67–1.58, PPL 0.24-0.60, PSL 0.28-1.20, PW 0.95-3.60, SL 0.74-2.11, TL 5.68–15.9, WL 1.34–3.55. Indexes: CI 106–116, MI 61–79, PI 41–52, PSI 21–40, SI 51–74, (29 measured).

Holotype worker, **Peru:** Loreto, Iquitos, ACTS Field Station, Canopy Walkway, 03º15’00’’S 72º55'12’’W, 20–24.iii.2006 (*F. Azorsa*). [Deposited in MUSM.]

Paratypes, 14 workers with same data as holotype; 15 workers, **Brazil:** Amazonas, Hwy ZF 2, Km 19, ca 60 Km N. Manaus, 02°30’S 60°15’W, 16.viii.1979, Terra Firma (*T.L. Erwin et al.*). [Deposited in BMNH (1), IAvH (1), ICN (1), MCZC (2), MZSP (2), MUSM (6), USNM (16).]

Non-paratypic material examined. 6 workers, **Brazil:** Amazonas, Manaus, Reserva 41 WWF, iii.1992 (*F.P. Benton*) [CPDC].

Gyne and male. Unknown.

Range. This species is known to occur in Iquitos, Peru, and Manaus, Brazil.

Etymology. It gives us great pleasure to name this ant in honor of Mr. Barry Bolton for his extensive contributions to the study of ant taxonomy and, especially, to the taxonomy of the tribe Dacetini. His worldwide revision of the tribe Dacetini is a monumental, well-documented work containing well-executed SEM micrographs and a very user-friendly taxonomical key that facilitates identification of the many miniscule, curious species of the tribe.

Habitat. This species seems to be an exclusively canopy-dwelling ant. The Peruvian specimens were collected on a *Sloanea* sp. (Elaeocarpaceae) tree.

Worker variation. Among the specimens studied, some morphological variation has been documented, including: (i) All castes with sides of head lacking a broad gap between bases of mandibles and margins of head capsule when mandibles are fully closed, with the exception of the two minor workers studied, in which case there is a narrow gap. (ii) Erect hairs on the ocular crest are present in all workers examined. However, the number of hairs varies among specimens. We suspect that these hairs are fragile and can be easily lost, which may account for the variation observed between specimens. This seems also to apply to the standing hairs on the median promesonotum and behind the posterior tubercles of the promesonotum. (iii) Humeral tubercles are strongly reduced, sometimes forming a carina or absent, especially in smaller workers. (iv) The propodeal spines of all of the Peruvian specimens examined converging at the tips (U-shaped, when seen in fronto-dorsal view), whereas in most of the specimens from Brazil the propodeal spines are diverging, more like the state in *D. armigerum*. (v) Petiolar spines short, almost absent in the smaller castes. The petiolar spines are more developed in the specimens from Brazil.

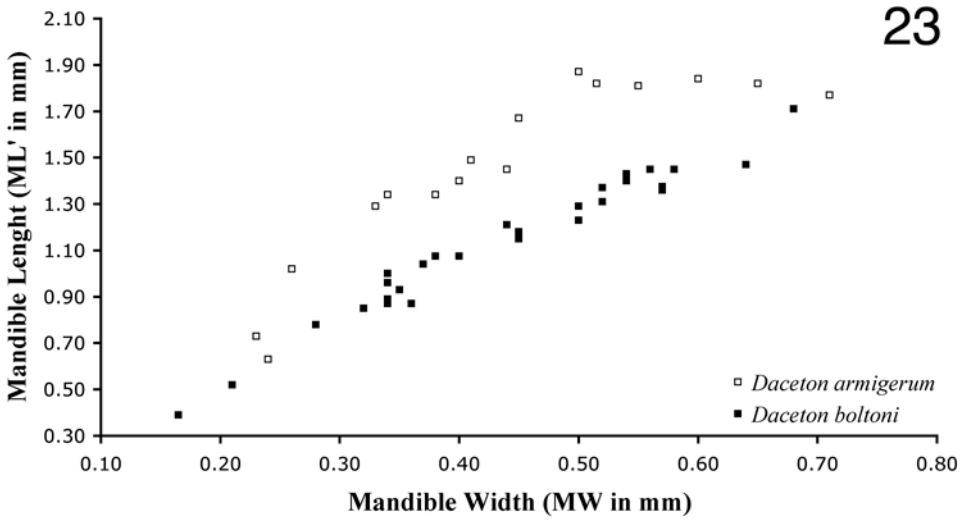


FIGURE 23. Relationship between ML' (mandible length in full-face view) and MW (mandible width) between *Daceton armigerum* and *Daceton boltoni*.

Key to the species of *Daceton*.

Pronotal humeral spines bifurcate, the anterior tip larger than the posterior one (fig. 3). First gastral tergite without standing hairs (sometimes with very short, appressed hairs) (figs. 3, 7, 17–19). Mesonotum and metanotum divided by a strongly impressed metanotal groove (fig. 3). Inner (masticatory) margin of mandibles with a row of short thick setae (fig. 5) ..... *Daceton armigerum*.

-. Pronotal humeral spines long and simple (figs. 4, 10, 14). First gastral tergite with suberect to subdecumbent hairs (figs. 4, 8, 11–12, 14–15, 20–22). Mesonotum and metanotum divided by a weakly impressed metanotal groove (figs. 4, 10, 14). Inner (masticatory) margin of mandibles lacking a row of short thick setae (fig. 6) ..... *Daceton boltoni*.

Discussion

The worker caste of *Daceton boltoni* shares many important character states with that of its sister species *D. armigerum*, including the heart-shaped head, the large eyes located on a low cuticular prominence (Bolton 2000), the number of apical mandibular teeth, and general habitus (figs. 1–8). *Daceton boltoni* differs from *D. armigerum* by the absence of a specialized row of thick setae on the inner (masticatory) margin of the mandibles; by mandibles that are slightly shorter and more stout, which could indicate differences in prey preferences between the two species (B. Bolton, pers. comm.); by a broad gap, when seen in profile, between the bases of the fully-closed mandibles and the margins of the head capsule; by shallow depressions adjacent to and ventral to the mandibular insertions; by long and simple lateral pronotal spines; by a weakly impressed metanotal groove; and by subdecumbent to decumbent hairs on the tergite of abdominal segment IV.

Behaviorally, *D. boltoni* appears to be very similar to *D. armigerum*. However, drop tests conducted at the type locality indicate that *D. boltoni* individuals exhibit weak and inconsistent aerial gliding behavior relative to those of *D. armigerum* (S.P. Yanoviak, pers. comm.).

These characters strongly suggest that *D. boltoni* is a distinct species rather than a variety of *D. armigerum*. These character states are consistent across all 30 specimens examined from two distant localities in South America (Iquitos, Peru, and Manaus, Brazil) where both species co-occur. No intermediate forms were observed to suggest that the two forms are conspecific. Rather, *D. boltoni* is sympatric with *D. armigerum*. Although its known distribution is currently only two locations in the Amazonian forest, it is possible and indeed likely that *D. boltoni* shares a broadly overlapping distribution with *D. armigerum.*

The discovery of a new species in the heretofore monotypic genus *Daceton*, a widely distributed genus of large and conspicuous ants occurring in most South American rainforests, suggests the possibility of a similar pattern in two other ant genera currently regarded as monotypic and likewise widely distributed, *Paraponera* Smith and *Gigantiops* Roger. Individuals of these monotypic genera are, like those of *Daceton*, large and conspicuous. It is well worth considering that, as with *Daceton*, these features may have blinded myrmecologists to the possibility that these "monotypic" genera consist in reality of multiple cryptic species.

Acknowledgments

We thank Sean Brady, Matt Buffington, Fernando Fernández, Janet Gorrell-Sutter, Regan Nally, Carlos Peña, Ted R. Schultz, and Steve P. Yanoviak for commenting on earlier versions on the manuscript. We are indebted to Lars B. Vilhelmsen (ZMUC) for loaning the type specimens of *Myrmecia cordata*, to Stefan Cover (MCZC) for loaning invaluable material and John S. LaPolla for kindly hand-carrying them to USNM, to Diego Perico (IAvH) for allowing JSC to examine material deposited in IAvH, to Jacques H. Delabie (CPDC) for allowing JSC to examine material deposited in CPDC, and to Scott Whittaker (USNM) for coating specimens and assisting with the scanning electronic micrographs. We thank Terry Erwin (USNM) for information about his collecting methods and for the specimens from Brazil. Barry Bolton, John Lattke, and John Longino critically reviewed the manuscript. We thank S. Madigosky and the research board of the Amazon Conservatory for Tropical Studies (ACTS) for allowing us to conduct research on the canopy walkway. We also thank P. Jenson and the staff at Explorama Tours for providing transportation and logistical support. Fieldwork in Peru was supported in part by a grant from the National Geographic Society to S.P. Yanoviak. Idea Wild supported FA with equipment to study the diversity of Peruvian ants. JSC was supported in part by an Ernst Mayr Travel Award in Animal Systematics (Harvard University), a Jacob K. Goldhaber Travel Award (University of Maryland), and a National Science Foundation Grant (IRCEB DEB 0110073) to Ted R. Schultz (USNM).

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