

A Revision of the Ant Genus *Acanthostichus* (Hymenoptera: Formicidae)

by

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ABSTRACT

The genus *Acanthostichus* is found exclusively in the New World and consists of predominantly subterranean, predaceous ants that are rarely collected. Eleven new species are described, of a total of 22 species in the genus. Keys are provided for the workers and males. The new species and species with synonyms include: *Acanthostichus arizonensis* **new species** of USA (south eastern Arizona), *A. bentoni* **new species** of Brazil (Amazonas and Mato Grosso), *A. brevicornis* Emery of Guiana, Brazil and Argentina, *A. brevinodis* **new species** of central eastern Brazil, *A. concavinodis* **new species** of Bolivia, *A. emmae* **new species** of Mexico (Oaxaca?), *A. femoralis* Kusnezov of Argentina and Brazil, *A. flexuosus* **new species** of southern Brazil, *A. fuscipennis* Emery of Colombia, Ecuador, Venezuela and Brazil, *A. kirbyi* Emery of Peru, Brazil and Bolivia south to Argentina, *A. laevigatus* **new species** of Venezuela, *A. laticornis* Forel (= *A. laticornis* var. *obscuridens* Bruch) of Brazil, Uruguay, Paraguay and Argentina, *A. lattkei* **new species** of Venezuela, *A. punctiscapus* **new species** of USA (New Mexico), *A. quadratus* Emery (= *A. serratulus* var. *niger* Santschi **new syn.**) of Ecuador south to Argentina, *A. quirozi* **new species** of Mexico (Vera Cruz), *A. sanchezorum* MacKay of Colombia, *A. serratulus* (F. Smith) of Argentina and Brazil, *A. skwarrae* Wheeler of Mexico (Vera Cruz), *A. texanus* Forel (= *Ctenopyga townsendi* Ashmead) of USA (southern Texas) and Mexico (Nuevo León) and *A. truncatus* **new species** of Colombia. A species based on fossils also exists. The genus *Ctenopyga* is synonymized with *Acanthostichus*.

INTRODUCTION

The genus *Acanthostichus* is a member of the subfamily Cera-
pachyinae, which is a monophyletic group and should be considered
distinct from the subfamily Ponerinae (Bolton 1990a, 1990b, Baroni
Urbani et al. 1992). *Acanthostichus* can be defined by two synapomor-
phies in the workers and females: the presence of peculiar metatibial
glands (Bolton 1990b) and the malar groove present below the eye

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(Brown 1975). The functions of these two structures are unknown, and the groove has apparently been secondarily lost in the female of *A. quadratus*, but not in 3 other species in which the female is known. It may be lost in unknown females of other species. Males also possess the malar groove, although it is difficult to see in some species as the distance between the base of the mandible and the eye may be very short.

The genus has been subjected to a few inadequate revisions. Kusnezov (1962) repeated the mistakes of Wheeler (1934) and added several of his own, some of which were pointed out by Kempf (1964). Kusnezov's revision (1962) is thus completely unreliable and, except for the description of *A. femoralis*, should be disregarded. As a consequence of these works, most identifications in museums are incorrect.

This is a difficult genus which presently contains only twenty two known species. There are few differences among species; the mesosoma and gaster are nearly identical in most species. The petiole is the most important structure for the identification of workers. The form of the subpetiolar process is also very important. Many characters associated with the head are useless. The shape of the scape and the form of the anterior margin of the clypeus are important in some species. Identifications depend on very careful measurements, especially of the petiole and the scape. Without access to a good reference collection, identifications may be impossible. Hopefully this revision will resolve most of the taxonomic tangles and identifications of specimens will be possible with the keys provided.

Members of this genus are rarely collected. They are probably common, but due to their below ground activity and secretive habitats, they are seldom seen. Many species are known from a single series or even a single specimen. Due to the scarcity of material, it is difficult to judge the variability that may occur within a single species. As a consequence, several new species are described in this paper that may prove to be synonyms at a later time when more abundant material from several localities becomes available. On the other hand, some of what I regard to be species may actually be species complexes. I expect there are numerous species yet undescribed. Many species seem to have restricted distributions, thus locality is often important for identifications and distributions are included in the key.

Mixed species are common in series, especially collections of males, which are often taken at lights. This makes identifications impossible unless such mixed series are detected. The key to the males may be easier to use than the worker key, but a number of males that appear different may key to the same couplet. Apparently there are additional

undescribed species that would be difficult to characterize without the associated workers.

MATERIALS AND METHODS

Specimens were borrowed from various institutions, supplemented with specimens from my personal collection. Those institutions and curators who loaned specimens are as follows (most abbreviations from Arnett and Samuelson 1986):

AMNH American Museum of Natural History, Marjorie Favreau, Eric Quinter.

BMNH British Museum of Natural History, Barry Bolton.

CPCB Centro de Pesquisas do Cacau, CEPEC, Jacques Delabie (Brazil).

CFFC Collection of Fernando Fernández C. (Colombia).

CWEM Collection of William and Emma MacKay (Texas).

EMAU Ernst-Moritz-Arndt Universität Greifswald, G. Müller (Germany). (Mayr collection).

IMLA Fundación e Instituto Miguel Lillo, Universidad Nacional de Tucumán, Abrahan Willink and Colomo de Correa (Argentina).

INPA Instituto Nacional de Pesquisas da Amazonia, Ana Yoshi Harada and José Albertino Rafael (Brazil).

LACM Los Angeles Co. Museum of Natural History, Roy Snelling (USA).

MACN Museo Argentino de Ciencias Naturales, Axel Bachman.

MCSN Museo Civico di Storia Naturale, Valter Raineri (Italy). (Emery collection).

MCZC Museum of Comparative Zoology, Harvard University, Stefan Cover.

MHNC Museo de Historia Natural, Universidad Nacional de Colombia, Fernando Fernández, Isabel de Arévalo and Rubén Restrepo.

MHNG Muséum d'Histoire Naturelle, Genève, Cl. Besuchet (Switzerland). (Forel collection).

MIZA Instituto de Zoología Agrícola, John Lattke (Maracay, Venezuela).

MNHN Museum National d'Histoire Naturelle (France)

MZSP Museu de Zoologia da Universidade de São Paulo, Carlos Roberto Brando (Brazil).

NHMB Naturhistorisches Museum Basel, Michel Brancucci (Switzerland). (Santschi collection).

UAIC Department of Entomology Collection, University of Arizona, Tucson, Diana Wheeler

UNAM Instituto de Biología, Universidad Nacional Autónoma de

México, Harry Brailovsky

USNM United States National Museum, Smithsonian Institution,
David Smith.

ZSMC Zoologisches Staatssammlung des Bayerischen Staates,
München, Erich Diller (West Germany).

Specimens were measured using an ocular micrometer in a dissecting microscope. The following abbreviations are used (all measurements in mm):

HL Head length, anterior of median lobe of clypeus (disregarding median clypeal tooth, if present) to occiput.

HW Head width, maximum excluding eyes. (Measured immediately posterior to eyes in males.)

EL Eye length, maximum dimension.

SL Scape length, excluding basal condyle.

SW Maximum scape width.

WL Weber's length, anterior border of pronotum to posterior border of lobe of metapleural gland.

FL Maximum length of hind femur

FW Maximum width of hind femur

PW Maximum width of node of petiole (dorsal view, often less than total width of petiole).

PL Maximum length of petiolar node (top view, with anterior vertical face hidden from view, to posterior edge of petiole).

CI Cephalic Index, $HW/HL \times 100$

OI Ocular index, $EL/HL \times 100$ (note HL used instead of HW).

SI Scape index, $SL/HL \times 100$ (note HL used instead of HW).

FI Femoral index, hind femur $FL/FW \times 100$.

PI Petiolar index, $PL/PW \times 100$

Genus *Acanthostichus*

Typhlopone F. Smith, 1858:111 worker, (*serratulus*).

Acanthostichus Mayr, 1887:549, worker, male, type species *A. serratulus* (monobasic). Emery 1895:748-752; Wheeler, 1934 (key to species); Kusnezov 1952 (position of subfamily Cerapachyinae), 1962 (key to species); Kempf, 1964 (taxonomic notes); Brown 1975:41-42 (taxonomic discussion).

Ctenopyga Ashmead, 1906:29-30, female, male, (*townsendi*). Brown, 1975:42-43; **new synonymy**.

Acanthostichus (*Ctenopyga*): Emery, 1911:13.

Acanthostichus (*Acanthostichus*): Emery, 1911:13. Type species: *Typhlopone serratula* F. Smith, 1858 (by monotypy).

Diagnosis of the genus *Acanthostichus*.**Description.**

Worker: Clypeus with broadly concave medial anterior border, lateral teeth present in many species; frontal carinae usually not covering insertions of antennae; scapes short, antenna with 12 segments; maxillary palps 2 segmented, labial palps 3 segmented; smooth, glossy and shining throughout (unless otherwise mentioned), except for the dorsum of petiole and sides of mesosoma and petiole, which are usually at least lightly sculptured; few erect, simple hairs scattered over most of body surface; mandible without teeth (in most species), except for the apical angle or tooth; malar groove present, extending from base of mandible posteriorly to area below eye; eye usually very small (relatively large in *A. texanus*), but present, consisting of a single (or few) ommatidium; metatibial glands present; claws simple; postpetiole (third abdominal segment) separated from remainder of gaster; pygidium with numerous large, upwardly directed teeth (Fig. 2); small to moderate sized ants, often polymorphic in size. Almost invariably reddish-brown to dark brown.

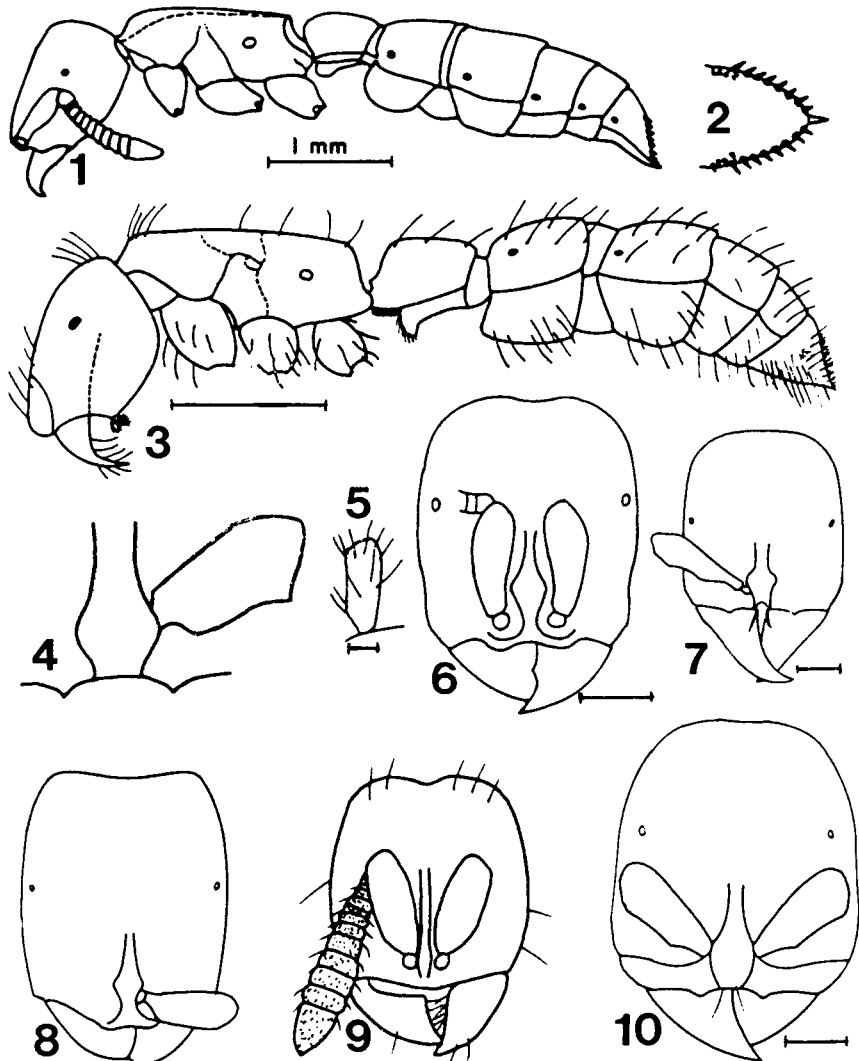
Female: Only known from four species (*A. emmae*, *A. laticornis*, *A. quadratus*, and *A. texanus*). That of *A. texanus* is very similar to worker in size and form; ocelli well developed; winged. The unknown worker of *A. emmae* is probably similar to the female. The females of the other two species (*A. quadratus* and *A. laticornis*) are subdichthadiiform (possess ocelli, have large eyes, have full complement of flight sclerites, see Bolton 1990b), much larger than worker; wingless; petiole much wider than long; covered with long, flexuous hairs. The malar groove (Fig. 53) is present in three of these species (*A. emmae*, *A. texanus* and *A. laticornis*), but absent in the fourth (*A. quadratus* - Fig. 50). The pygidium toothed in *A. emmae* and *A. texanus* (Fig. 53), but not in *A. laticornis* and *A. quadratus* (Fig. 50). Mandibles with or without teeth. A key is not provided as females of few species are known and few would be collected without the presence of workers.

Male: The males of most species are very similar and difficult to distinguish. Therefore, descriptions are limited to characteristics which can be used to separate species. I am providing a key which may be of little use for identifying some species. Size variable within a species, with no constant size differences between species. The males of many species are unknown. The following characteristics fit most species. HL 0.73 - 1.16, HW 0.80 - 1.18, SL 0.18 - 0.38, SW 0.10 - 0.18, EL 0.39 - 0.58, WL 1.60 - 2.45, PW 0.33 - 0.68, PL 0.43 - 0.48, SI 24 - 35, CI 99 - 115, PI 70 - 131. Mandible lightly punctate, usually without teeth on

masticatory border (except apical angle); scapes short, often in shape of "drum stick" (Fig. 65), insertion of scapes completely exposed; frontal carinae closely placed; malar groove (between anterior edge of eye and mandible) well developed, although difficult to see in some species due to short distance between eye and base of mandible; eyes very large, covering most of sides of head; three ocelli large, well developed; antenna with 12 segments (Fig. 60) (13 in *A. texanus* - Fig. 62), those of funiculus difficult to count due to roughened sculpture and numerous small setae; scutum elongate and together with remainder of mesothorax, cause the fore and mid coxae to be widely spaced; shape of petiolar node variable between species, seems to bear no relationship to corresponding shape of node of worker of same species; subpetiolar process poorly developed; with two lateral "felt" lines of fine hair on underside of petiole (poorly developed in *A. texanus*); femora not incrassate; pygidial teeth poorly developed or absent; aedeagus well developed, usually elongate, toothed, with well developed apical tooth; volsella also well developed, usually with ventrally directed, apical tooth, which is often twisted laterally; stipites absent; paramere relatively small, usually smaller than volsella; hypopygium forklike with two teeth (Figs. 77 & 78). Partially or primarily shining, concolorous dark brown, with scattered erect hairs on most or all bodily surfaces, unless otherwise indicated.

Key for species identifications of workers:

1. Subpetiolar process large, well developed (Fig. 3), apex usually sharply angulate (occasionally truncate - see Fig. 26) (specimens of *A. texanus* from Texas and Mexico and a fossil taxon from Dominican Republic often have large, rounded lobes which are not angulate, have relatively large eyes in *A. texanus* - go to couplet 11), top of petiole usually sculptured; anterior edge of scape usually concave (Fig. 7); femur never notably incrassate (Fig. 49); relatively common species 2
- Subpetiolar process consisting of a small, rounded lobe (Fig. 1), usually not sharply angulate or truncate, (occasionally angulate posteriorly), dorsum of petiole usually smooth and glossy; anterior edge of scape usually convex (Fig. 6) (slightly concave in *A. quirozi* and probably *A. skwarrae*); hind femur often incrassate (Fig. 44); rarely collected species (*brevicornis* species complex) 13
- 2(1). Anterior edge of scape concave, with angle near apex (Fig. 7); relatively common; South America (*serratulus* species complex) 3
- Anterior edge of scape convex (or straight), without well defined angle



Figs. 1 - 10. *Acanthostichus* workers: 1) *A. sanchezorum* holotype, side view, 1 mm scale; 2) *A. sanchezorum*, dorsum of pygidium of holotype; 3) *A. texanus*, side view, 1 mm scale; 4) *A. laticornis* antennal scape of lectotype; 5) *A. quirozi* holotype antennal scape, 0.125 mm scale; 6) *A. arizonensis* head of holotype, 0.5 mm scale; 7) *A. bentoni* head of holotype, 0.5 mm scale; 8) *A. brevicornis* head of lectotype; 9) *A. femoralis* head of cotype; 10) *A. kirbyi* head of lectotype, 0.25 mm scale.

at apex (Fig. 16); North America (including Mexico) or fossil from Dominican Republic; rarely collected 11
 3(2). SL/SW < 2.40 (mean = 2.19); angle on anterior edge of scape very large (Fig. 4) *laticornis* Forel

- $SL/SW > 2.25$ (usually > 2.5); angle on scape moderately well developed (Figs. 7) 4
- 4(3). Dorsum of petiole completely glossy and strongly shining, occasionally with small, elongate depressions; scape relatively long (mean $SL/SW = 2.94$, range = $2.80 - 3.08$); Venezuela *laevigatus* MacKay
- Dorsum of petiole roughened and sculptured, if somewhat shining, then long, longitudinal troughs or depressions are located near lateral edges, sides parallel (Fig. 37) or posterior half wider than anterior half (Fig. 24); scapes usually shorter; widely distributed in South America 5
- 5(4). Petiole elongate, $PI > 110$ ($PL/PW * 100$), if less, lateral clypeal teeth poorly developed; posterior half of petiole usually wider than anterior half (Fig. 24) 6
- Petiole quadrate or subquadrate (Fig. 32), $PI < 110$; sides of petiole usually parallel (or only slightly narrowed anteriorly) 9
- 6(5). Subpetiolar process strongly truncate (Fig. 26); Colombia *truncatus* MacKay
- Subpetiolar process not truncate, usually with posteriorly directed toothlike process (Fig. 25); widely distributed, including Colombia 7
- 7(6). Carinae on sides of petiole well developed, or at least sides of petiole meet at right angle; lateral clypeal teeth usually poorly developed (Fig. 13); dorsum of petiole lightly punctate and usually with well developed, longitudinal troughs; rarely collected 8
- Lateral edges of petiole rounded, with little or no evidence of carinae; lateral clypeal teeth well developed (Fig. 10), especially in larger workers; dorsum of petiole moderately punctate, longitudinal troughs poorly developed or absent; widely distributed, common species ... *kirbyi* Emery
- 8(7). Anterior face of petiole strongly concave (Fig. 21), dorsum of petiole mostly smooth and shining *concauinodis* MacKay
- Anterior face of petiole not strongly concave (Fig. 37), although may be somewhat concave, dorsum of petiole roughened *serratulus* (Smith)
- 9(5). Carinae on sides of petiole usually developed; dorsum of petiole lightly punctate with well developed lateral longitudinal troughs; medial lobe of clypeus excised (Fig. 13), often with blunt tooth; scape usually short (SL/SW range = $2.45 - 3.07$); relatively common (Ecuador to Argentina)(and rarely collected *A. flexuosus* MacKay from southern Brazil) *quadratus* Emery
- Lateral edges of petiole broadly rounded, if well developed carinae

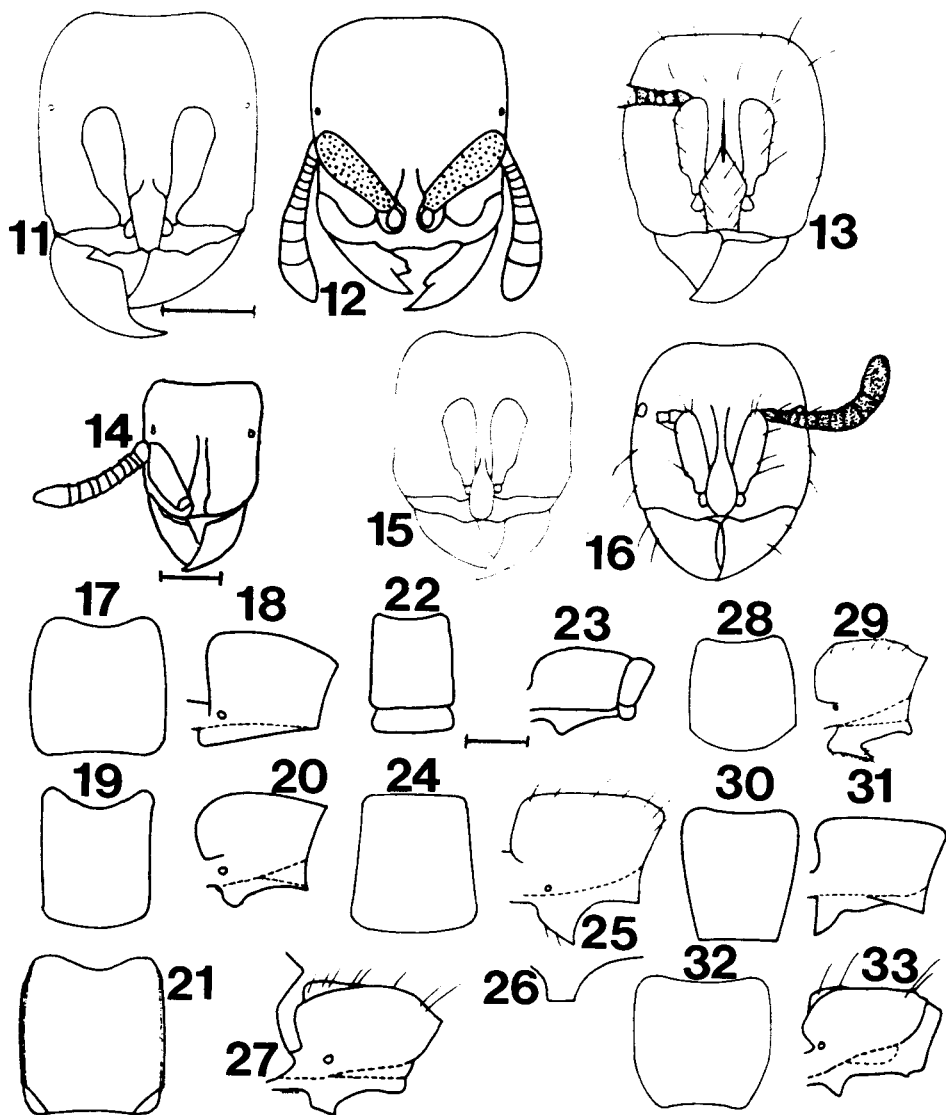
- present, medial lobe of clypeus excised and usually without a tooth (Fig. 13); dorsum of petiole longitudinally striate, without longitudinal troughs; scape normally longer (SL/SW range = 2.53 - 3.29); rarely collected 10
- 10(9). Anterior medial border of clypeus with blunt tooth (Fig. 11); Venezuela *lattkiei* MacKay
- Anterior medial border of clypeus strongly concave, without tooth (Fig. 7); Brazil *bentoni* MacKay
- 11(2). Maximum eye diameter often nearly as long as length of second and third funicular segments combined (Fig. 16) (usually more than ½ length); subpetiolar lobe of petiole with a posterior angle or is a large, broadly rounded lobe (Fig. 42); dorsum of petiole smooth and glossy; extreme southern Texas and eastern Mexico (*texanus* species complex) *texanus* Forel
- Maximum eye diameter equal to or smaller than length of second funicular segment (Fig. 6) 12
- 12(11). Subpetiolar process with a ventrally directed, sharp tooth (Fig. 31); dorsum of petiole and scape heavily punctate; New Mexico (*brevicornis* species complex, in part) *punctiscapus* MacKay
- Subpetiolar process without ventrally directed tooth; fossil taxon from Dominican Republic species A
- 13(1). Dorsum of petiole densely punctate; subpetiolar process poorly developed (Fig. 18); Arizona *arizonensis* MacKay
- Dorsum of petiole smooth and shining; subpetiolar process consisting of a broadly rounded lobe which may be angulate anteriorly (Fig. 40) 14
- 14(13). Petiole somewhat wider posteriorly than anteriorly (Fig. 39), much longer than broad (PI = 129); Mexico (Vera Cruz) 15
- Sides of petiole parallel or slightly wider posteriorly (Fig. 36); petiole usually only slightly longer than broad (103 > PI > 135); South America 16
- 15(14). Pronotum with less than five erect hairs; petiole with less than six erect hairs; gaster essentially without erect hairs *skwarrae* Wheeler
- Pronotum with six or more long, pointed, erect hairs (0.1 - 0.2 mm); petiole with more than ten erect hairs; gaster abundantly hairy ... *quirozi* MacKay
- 16(14). Propodeal spiracle located on upper half (Fig. 1); petiole usually only slightly longer than broad (103 < PI < 112) 17
- Propodeal spiracle located at midline or below; petiole usually somewhat longer than broad (108 < PI < 135) *brevicornis* Emery
- 17(16). Outer surface of scape completely convex; dorsum of petiole very

- glossy and strongly shining; Argentina and Brazil *femoralis* Kusnezov
 — Outer surface of scape angulate near apex (Fig. 14); dorsum of petiole smooth, but not strongly shining; Colombia *sanchezorum* MacKay

Key for species identification of males*:

1. Teeth of subgenital plate thickened (Fig. 77); northeastern Mexico and extreme southeastern Texas (and probably unknown male of *A. emmae* MacKay) *texasus* Forel
- Teeth of subgenital plate elongate and spiniform (Fig. 78); primarily South America 2
- 2(1). Petiole (from above) subquadrate, or at least usually broader than long (Fig. 70), often wider anteriorly than posteriorly 3
- Petiole much longer than broad (Fig. 71) 5
- 3(2). Petiole with paired, oblique, strongly constricted regions extending from nearly the top of node posteriorly along side of node (Fig. 69) *femoralis* Kusnezov
- Sides of petiole without strongly constricted regions 4
- 4(3). Body (especially propodeum and petiole) usually with shiny bluish or purplish reflections; node of petiole rounded anteriorly (Figs. 59, 70); widely distributed, commonly collected *fuscipennis* Emery
- Body without bluish reflections; node of petiole truncate anteriorly (Figs. 67, 68); rarely collected (Brazil) *brevinodis* MacKay
- 5(2). Head and alitrunk with numerous, long, flexuous hairs, at least some on alitrunk about 2/3 times as long as maximum diameter of eye (Fig. 61); southern Brazil, rarely collected *flexuosus* MacKay
- Head and alitrunk with shorter, scattered, mostly straight hairs, most less than 1/2 length of maximum diameter of eye (Fig. 59); commonly collected 6
- 6(5). Small (WL < 1.90 mm); volume of first segment of funiculus about 1/2 volume of scape (Fig. 63); without bluish reflections *brevicornis* Emery
- Usually larger (WL > 1.90 mm); if smaller, volume of first segment of funiculus about 1/4 or less volume of scape (Fig. 64); body usually with bluish reflections, at least on pronotum and head 7
- 7(6). Apices of volsellae not strongly curved outward (Fig. 82); dorsum of petiole with long, lateral, depressed areas; usually light yellowish-brown 8
- Apices of volsellae strongly curved away from midline of body (Fig. 83); dorsum of petiole without depressed areas (except possibly at ante-

* Use with caution, males of many species are unknown.



Figs. 11 - 33. Heads and petioles of *Acanthostichus* workers. Figs 11 - 13, 15 and 16 drawn to same scale, Figs. 17 - 33 drawn to same scale: 11) *A. latkei* head of holotype, 0.5 mm scale; 12) *A. punctiscapus* Head of holotype; 13) *A. quadratus* head of lectotype; 14) *A. sanchezorum* head of holotype, 0.5 mm scale; 15) *A. serratulus* head of lectotype; 16) *A. texanus* head; 17 & 18) *A. arizonensis* petiole of holotype, top and side views; 19 & 20) *A. brevicornis* petiole of lectotype, top and side views; 21) *A. concavinodis* petiole of holotype; 22 & 23) *A. femoralis* petiole of cotype, top and side views, 0.25 mm scale; 24 & 25) *A. kirbyi* petiole of lectotype, top and side views; 26) *A. truncatus* lower outline of petiole of holotype; 27) *A. laticornis* side view of petiole of lectotype; 28 & 29) *A. latkei* petiole of holotype, top and side views; 30 & 31) *A. punctiscapus* petiole of holotype, top and side views; 32 & 33) *A. quadratus* petiole of lectotype, top and side views.

- rior of node - Fig. 72); concolorous dark brown 9
- 8(7).Anterior edge of petiolar node truncate, edge straight and perpendicular to long axis of petiole (as seen from above) *kirbyi* Emery
- Anterior edge of petiolar node pointed, petiole in shape of bullet (as seen from above) *serratulus* Smith
- 9(7).Scape not noticeably thickened (Fig. 65, SW/SL < 0.6), somewhat “drumstick” shaped; dorsal face of propodeum smooth and glossy, descending face finely leather-like *quadratus* Emery
- Scape very broad (Fig. 64, SW/SL > 0.6), not “drumstick” shaped; dorsal face of propodeum usually leather-like, descending face with transverse costulae *laticornis* Forel

CHARACTERISTICS OF THE SPECIES COMPLEXES

***brevicornis* species complex**

Head elongate; frontal carinae closely placed, exposing basal condyle and base of scape; anterior face of scape convex, rarely slightly concave and with angle near apex present or absent; masticatory border of mandible without teeth, (except at apex) or with a single tooth (*A. punctiscapus* and *A. arizonensis*); lateral and medial clypeal teeth not developed; petiole often somewhat elongate, wider posteriorly than anteriorly, usually with strongly concave anterior face, subpetiolar process consisting of a broadly rounded lobe, rudimentary in *A. arizonensis* and consisting of a ventrally directed, sharp tooth in *A. punctiscapus*. The femur is often incrassate, at least in the larger workers. Not strongly polymorphic as in members of the *serratulus* species complex. The females of this species complex are unknown. The males can be distinguished from those of the other species complexes as the petiole is subquadrate (at least in two species) and the teeth of the subgenital process are long and thin.

Members include *A. arizonensis*, *A. brevicornis*, *A. brevinodis*, *A. femoralis*, *A. fuscipennis*, *A. punctiscapus*, *A. quirozi*, *A. sanchezorum*, *A. skwarrae* and possibly a fossil species currently being described by Ms. Maria de Andrade.

***serratulus* species complex**

Frontal carinae wide, covering at least part of the basal condyle and often part of the base of scape; anterior face of scape concave with well defined angle near apex; masticatory border of mandible without teeth, or occasionally with several small denticles; petiole usually subquadrate (or slightly longer than broad) with weakly concave anterior face; subpetiolar process consisting of a large lobe which is sharply angulate (with a posteriorly directed tooth) or truncate ventrally; femur is never

incrassate (except occasionally in smaller workers); workers are strongly polymorphic, smallest workers often bearing little resemblance to larger workers, and appearing in some ways similar to those of the *brevicornis* species complex. The females of two of the species are subdichthadiiform; the others are unknown. The males of this species complex can be distinguished as the petiole is elongated, much longer than broad.

Members include *A. bentoni*, *A. concavinodis*, *A. flexuosus*, *A. kirbyi*, *A. laevigatus*, *A. laticornis*, *A. lattkei*, *A. quadratus*, *A. serratulus* and *A. truncatus*.

texanus species complex

Large species with relatively well developed eyes; no median tooth on mandibles; hind femora not incrassated; petiole elongated, wider posteriorly; ventral process of petiole angulate posteriorly. *Acanthostichus texanus* and *A. emmae* are the only known members of the complex and are the only species known to have winged females. The male of *A. texanus* is similar to that of other species in most respects, although the genitalia are quite different (see discussion of *A. texanus*). Species *A.*, a fossil taxon, is presently being described by Ms. Maria L. de Andrade and may possibly be related to *A. texanus*. It has rudimentary eyes and a median tooth on the mandibles.

DESCRIPTIONS AND DISCUSSIONS OF SPECIES

***Acanthostichus arizonensis* new species**

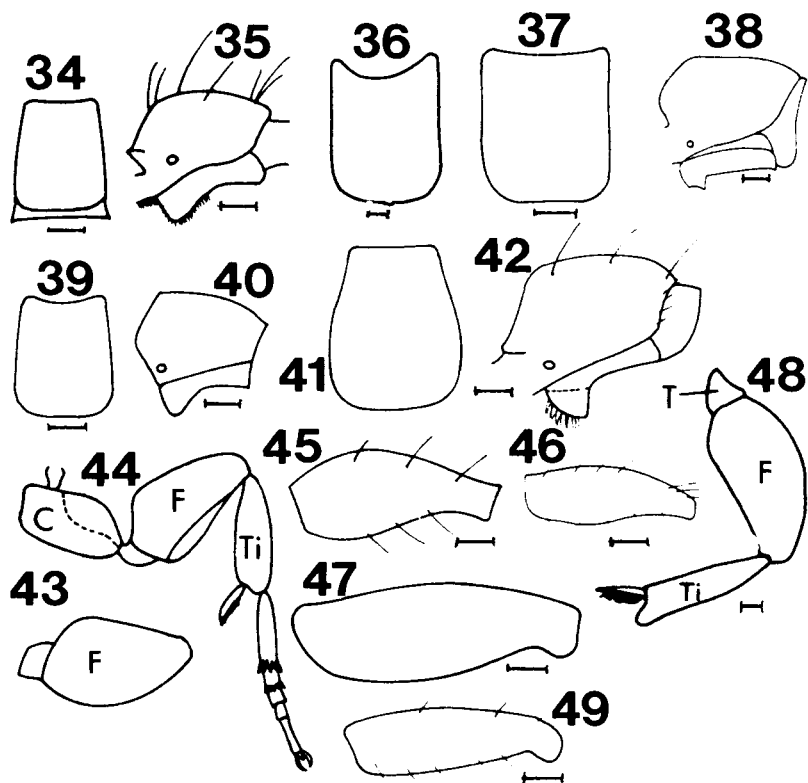
Figs. 6, 17, 18; Map 1, p. 47

Description.

Worker: HL 0.94 - 0.95, HW 0.79 - 0.83, SL 0.43 - 0.44, SW 0.16, WL 1.28 - 1.32, PW 0.44 - 0.46, PL 0.46 - 0.48, FL 0.58 - 0.60, FW 0.25, SI 45 - 46, CI 84 - 87, PI 103 - 106, FI 2.30 - 2.40, SL/SW 2.62 - 2.69. Mandible with tooth-like protuberance on medial masticatory border (Fig. 6), which may be essentially worn away; lateral clypeal angles well formed; outer edge of scape convex; eye consisting of four or five poorly defined ommatidia; vertex concave; hind femora elongate, not incrassate; petiole slightly longer than broad, slightly wider posteriorly (Fig. 17); subpetiolar process poorly defined (Fig. 18). Sparse erect hairs (most less than 0.1 mm, some as long as 0.25 mm) scattered on all body surfaces. Mandibles, scape, head and mesosoma smooth and glossy, with scattered punctures. Dorsum of petiole and most terga of gaster with dense punctures.

Female: Unknown.

Male: Unknown.



Figs. 34 - 49. Petioles and posterior views of legs of *Acanthostichus* workers, 0.125 mm scales: 34 & 35) *A. quirozi* petiole of holotype, top and side views; 36) *A. sanchezorum* top view of petiole of holotype; 37 & 38) *A. serratulus* petiole of lectotype, top and side views; 39 & 40) *A. skwarrae* petiole of lectotype, top and side views; 41 & 42) *A. texanus* petiole, top and side views; 43) *A. brevicornis* hind femur of lectotype; 44) *A. femoralis* posterior leg of cotype (C = coxa, T = trochanter, F = femur, Ti = tibia); 45) *A. kirbyi* hind femur of lectotype; 46) *A. lattkei* hind femur of holotype; 47) *A. quadratus* hind femur of lectotype; 48) *A. sanchezorum* posterior leg of holotype; 49) *A. serratulus* hind femur of lectotype.

Discussion. This is an easily distinguished species, that was first recognized by Smith (1955). The densely punctate petiolar node will distinguish it from all other species, except *A. punctiscapus*. It can be separated from this latter species in that the scape is predominantly smooth and glossy (not heavily punctate as in *A. punctiscapus*).

Distribution. USA: SE Arizona (Map 1).

Type Series: Holotype worker (MCZC) and 13 paratype workers (BMNH, CWEM, IMLA, INPA, LACM, MCZC, MHNC, MIZA, MZSP, UAIC, USNM), ARIZ., Pima Co., 7 mi SE Sahuarita, Sept 3, 1982, T. C. Myles.

Material examined. USA: SE Arizona, Cochise Co., Chiricahua Moun-

tains, 16 k S Apache, 10 - viii - 1963, V. Roth (1 worker USNM), 8.1 mi SE Sunnyside, 22 - viii - 1971, R. Snelling (1 worker LACM); Pima Co., Baboquivari Mountains, Forestry Cabin, 26 - vii - 1951, W. Creighton (1 worker LACM), Santa Rita Range, 20 - vii - 1982, T. Myles (1 worker LACM), 7 mi. SE Sahuarita, 3 - ix - 1982, T. Myles (14 workers, University of Arizona).

Biology. The type series was associated with termites [*Heterotermes aureus* (Snyder)] in an experimental plot. This species nests under stones from 1070 m to 1780 m (3500'-5850') up to the oak - juniper association.

Etymology. Indicates that this species occurs in Arizona.

***Acanthostichus bentoni* new species**

Fig. 7; Map 10, p. 49

Description.

Worker (holotype in parentheses): HL (1.10) - 1.14, HW (1.06) - 1.14, SL (0.61) - 0.64, EL 0.03 - (0.05), WL (1.48) - 1.58, PW (0.53) - 0.54, PL (0.45) - 0.53, SI 56 (56), CI (97) - 100, PI (86) - 98, SL/SW (3.20) - 3.47. Mandibles toothless, apex pointed; anterior border of clypeus strongly excised between bases of frontal carinae (Fig. 7), lateral teeth moderately well formed (Fig. 7); head slightly narrowed posteriorly; vertex slightly, but broadly concave; eyes small, 4 - 6 poorly defined ommatidia; scape with concave anterior border, not unusually thickened; mesosoma as in others in the species complex; propodeum concave posteriorly, poorly defined tubercles on each corner, united with a weakly defined carina; petiole wider than long, anterior face strongly concave, subpetiolar process large with posteriorly directed point, as others in the complex; gaster as in other species. Sculpture mostly smooth and polished, except the anterior half of the head is rough and costulate, dorsum of petiole finely punctate. Hairs long (over 0.5mm), erect, golden, abundant on most surfaces; decumbent pubescence lacking. Reddish brown, gaster somewhat lighter in color.

Female: Unknown.

Male: Unknown.

Discussion. This species could be confused with *A. lattkei*. It can be easily separated based on three good characters: the anterior half of the head is finely striate or costulate (anterior fourth of head of *A. lattkei* is similar, but more finely sculptured), the anterior medial tooth of clypeus is absent (present in *A. lattkei*) and the medial border is strongly and deeply excised (Fig. 7), and the top of the petiole is finally punctate (lightly longitudinally striate in *A. lattkei*). The petiole is not quadrate with carinae on the lateral edges as in *A. quadratus*. It differs from *A.*

serratulus as there are no carinae on the lateral edges of the petiole. The excised clypeal border easily separates it from workers of essentially all other species.

Distribution. Brazil: Amazonas, Mato Grosso (Map 10).

Type series. Brazil, Amazonas, ZF3, Km41, Res. 41 WWF, 7-viii-1991, F. Benton leg. Holotype worker (INPA) and two paratype workers (MCZC, CPCB). Forbes Benton gave additional specimens from the series to Barry Bolton, which are presumably in the British Museum. The series was collected in Reserve 1501 at km 41 of the ZF-3 road which joins the BR 174 Boa Vista - Manaus Highway at km 64 (64 km N Manaus).

Material examined. Eight workers, including type series. BRAZIL: Amazonas, (3 type workers), Amazonas, Manaus, Col. St. Antonio, 11-vi-1971 # 6558 (INPA); Mato Grosso, Buriti, 21-vi-1972, J. Panaia, #8789 (MZSP).

Etymology. Named in honor of the collector of the type specimens, Dr. Forbes Benton. The specimens were forwarded to me by Dr. Ana Harada.

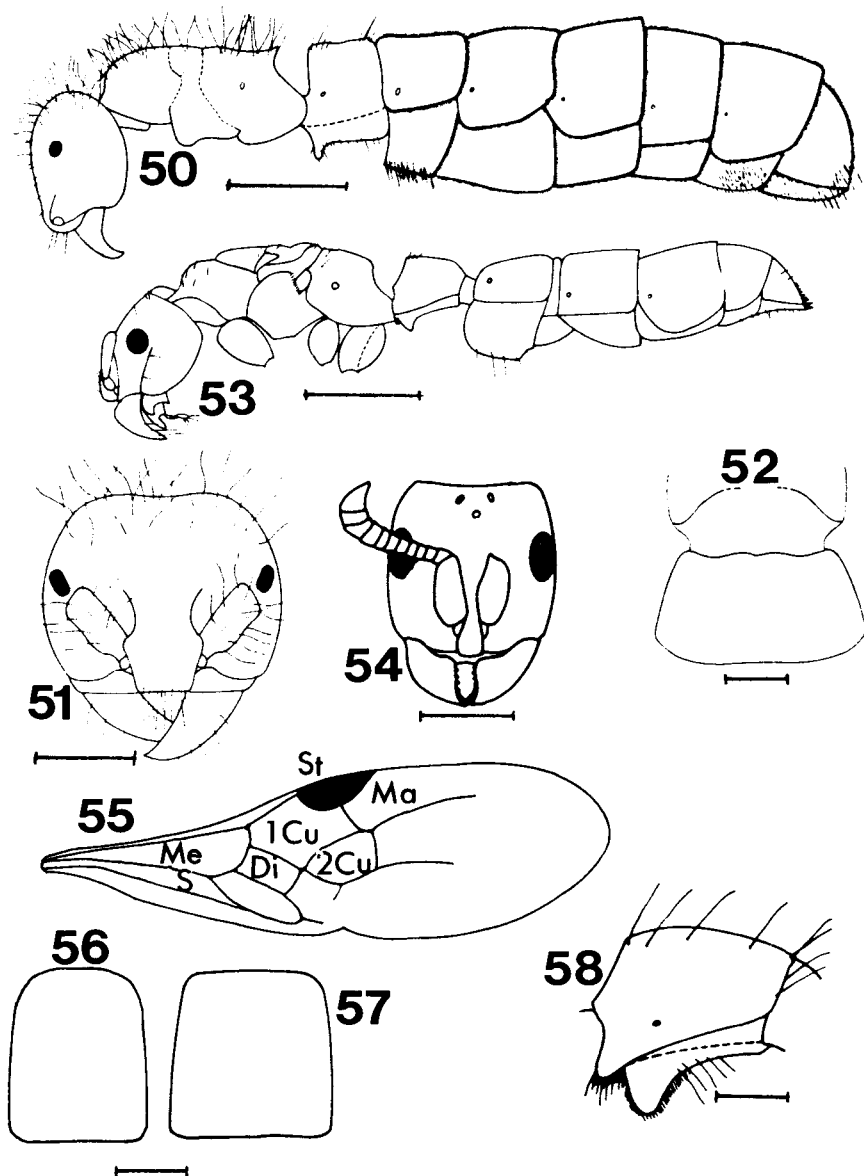
Biology. The type specimens were collected early in the morning in the reserve belonging to the Biological Dynamics of Forest Fragments Project (Smithsonian Institution / World Wildlife / Instituto Nacional de Pesquisas da Amazonia (INPA) Collaborative Project). This reserve is a very large patch of continuous forest and is often referred to by the project participants as "41" reserve (Benton, pers. comm.). Dr. Benton observed a short trail (at most about 1 m long) at night, emerging from a hole in sandy soil in a forest clearing in which the main camp site of the "41" reserve is situated. At the end of the trail the ants were feeding on small pieces of cut earthworm. Dr. Benton was not certain the ants had killed the earthworm or were merely opportunist scavengers.

Acanthostichus brevicornis Emery

Figs. 8, 19, 20, 43, 63, 66, 78; Map 3, p. 48

Acanthostichus brevicornis Emery, 1894: 142, worker, FRENCH GUIANA: Cayenne (MCSN) [seen]. Emery, 1895:750, 752 (Fig. 00 C, worker); Mann, 1916:401-402; Kusnezov, 1962:130-131.

Acanthostichus ramosmexiae Bruch, 1924:260-261, worker, Fig. (without number), ARGENTINA: Rosario (MACN) [seen]. Bruch, 1925:110-114, male, larva + 5 plates; Santschi, 1934:23; Wheeler and Wheeler, 1964:70-71, desc. of larvae [translated from Bruch (1925)]; syn. by Kusnezov, 1962:130.



Figs. 50 - 58. *Acanthostichus* females: 50) *A. quadratus*, side view of paralectotype, 1.0 mm scale; 51) *A. quadratus* head of paralectotype, 0.5 mm scale; 52) *A. quadratus* top of petiole of paralectotype, 0.5 mm scale; 53) *A. texanus*, 1.0 mm scale; 54) *A. texanus* head, 0.5 mm scale; 55) *A. texanus* forewing of lectotype male (Me = median, S = submedian, St = stigma, 1 Cu = first cubital, 2 Cu = second cubital, Di = discoidal, Ma = marginal); 56) *A. texanus* petiole, top view; 57 & 58) *A. emmae* petiole of holotype, top and side views. Scales for Figs. 56 - 58 are 0.25 mm.

Description.

Worker: HL 0.74 - 0.96, HW 0.66 - 0.76, SL 0.31 - 0.38, WL 1.19 - 1.24, PW 0.35 - 0.40, PL 0.36 - 0.43, SI 39 - 42, CI 79 - 90, PI 100 - 106. Mandible with only apical tooth developed; anterior medial border of clypeus concave, lateral clypeal teeth poorly developed; frontal carinae poorly developed, closely placed; head elongate, occipital border concave; petiole quadrate, anterior border strongly concave (Fig. 19), subpetiolar process a broadly rounded lobe (Fig. 20); femur flattened and incrassate (Fig. 43). Surface of body smooth and glossy (including scapes, dorsum of mesosoma and dorsum of petiole).

Discussion. The workers of this species can be distinguished from others in that the femur is very broad, the petiole is subquadrate, usually with a strongly concave anterior face. It can be differentiated from *A. femoralis* and *A. sanchezorum* in that the propodeal spiracle is positioned at the midline, not above midline as in the other two species. It is similar to *A. kirbyi* (and other related species, see discussion of *A. kirbyi*), from which it can be distinguished as the dorsum of the petiole is often punctate, with elongate depressions, the anterior face is not strongly thickened, the lateral clypeal teeth are poorly developed and the femur is not incrassate in *A. kirbyi*. The male can usually be distinguished from other species as it has an elongate petiole, is small and is without bluish reflections (see key).

Distribution. Guiana, Cayenne (type locality), Brazil, Argentina (Map 3).

Type Series. *Acanthostichus brevicornis*, one worker holotype (MCSN) [seen] Calen [?] Jelski; Typus; *Acanthostichus parallelus* [? word marked out] *brevicornis* Em; *Typhlomymex serratula* [label obviously incorrect]; *A. ramosmexiae*, syntypes including 16 workers and 3 males (MACN) [seen], Rosario, J. Hubrick.

Material examined. ARGENTINA: El Chaco, 12-vi-1948, R. Peña (1 male IMLA). BRAZIL: Amazonas, Manaus, RS2303, 12-viii-93, 09-ix-93, AB Casimiro (3 workers CPCB), Mato Grosso, Independencia, W. Mann (1 worker USNM), Mato Grosso, 1-iii-1968, A. Mathews (9 workers USNM), Araçuari, 8-xi-1972, R. Araujo (3 workers MZSP); 16 k S B. H. [?, location unknown, not plotted on Map 3], 13-ii-1977, R. Araujo, in vegetation (1 worker MZSP); Parahyba [=Paraíba], Independencia, Mann & Heath (2 workers MCZC); São Paulo, Teod. Sampaio, viii-1973, F. Oliveira, # 10302 (2 males MZSP). GUIANA: Cayenne, type locality.

Biology. Found under cow manure together with termites (Bruch, 1924) and are termite predators (Bruch, 1925). Mann (1916) found a small colony under a deeply imbedded stone.

***Acanthostichus brevinodis* new species**

Figs. 67, 68; Map 9, p. 49

Description.

Worker: Unknown.

Female: Unknown

Male: Measurements and characters within the range of the general description of males.

Discussion. Similar to *A. fuscipennis*, except the petiole is very short (Fig. 68) and truncate anteriorly. Occasionally the anterior edge of the node of the petiole is somewhat higher than the remainder of the petiole. It lacks the bluish reflections of *A. fuscipennis*. This is a very distinct, small species in which the shape of the petiole (Fig. 67) easily distinguishes it from all other described species. This species does not represent the undescribed male of any other species as it is a member of the *brevicornis* species complex and the males of all of the species which share the distribution are known.

Distribution. Brazil (Map 9).

Type series. Holotype male (MZSP) and 2 paratype males (BMNH, MCZC), BRAZIL, MT. Sinop 55° 37' W 12° 31' S, x - 1974, Alv. & Roppa, #12673 [all seen].

Material examined. BRAZIL: Amazonas, ZF3, Km41, Res. 41 WWF, 27-ii-1994, F. Benton leg (1 male CPCB), Mato Grosso, Sinop (3 males of type series), Itaum, iii - 1974, M. Alvarenga, # 10865 (2 males MZSP); Mato Grosso do Sul, 16 K W Ivinheima, x - 16 - 1989, S. Porter (1 male CWEM), Vila Vera, x-1973, M. Alvarenga, # 10534 (3 males MZSP, locality could not be found and is not plotted on Map 9); Rondônia, Vilhena, xi - 1973, M. Alvarenga, #10596 (MZSP 1 male).

Biology. Unknown, most specimens appear to have been captured in light traps, as moth scales are often attached. The male captured by Porter was loose on the ground in daylight.

Etymology. From Latin, brevis (short) and nodus (knot, swelling), referring to the short node of the petiole.

***Acanthostichus concavinodis* new species**

Fig. 21; Map 10, p. 49

Description.

Worker: HL 0.94 - 1.19, HW 0.85 - 1.10, SL 0.49 - 0.60, SW 0.18 - 0.21, EL 0.04 - 0.05, WL 1.19 - 1.41, PW 0.41 - 0.54, PL 0.43 - 0.49, SI 51 - 52, CI 93 - 110, PI 91 - 103, SL/SW 2.79 - 2.82. Mandibles without teeth or denticles; anterior border of clypeus slightly indented, with blunt tooth or rounded swelling offset to one side or other, lateral clypeal

teeth poorly developed; vertex moderately convex; sides of head nearly parallel; eyes tiny; scape concave on anterior border; mesosoma as in other species; propodeum with concave posterior face; petiolar node about as long as broad (measured from middle of anterior border and disregarding longer lateral margins), anterior petiolar face strongly concave (Fig. 21), posterior face as in other species, subpetiolar process as in other species, with posteriorly directed tooth; gaster as in other species. Erect hairs abundant on all surfaces; decumbent pubescence absent except for a few scattered decumbent hairs on gaster. Sculpture polished and shiny. Color clear golden reddish brown.

Female: Unknown.

Male: Unknown.

Discussion. This species is easily separated from all others in the *serratulus* complex by the shape of the anterior face of the petiole, which is similar in form to species in the *breviscapus* species complex. In addition the carinae along the sides of the petiole are especially obvious, forming darker margins when viewed from above (Fig. 21). Other than the shape of the petiole, it has all of the characteristics of the *serratulus* species complex.

Distribution. Bolivia, Known only from type locality (Map 10).

Type series. Holotype worker (USNM) and two paratype workers (CWEM, MZSP), BOLIVIA: Ivon Beni, Wm. M. Mann, Feb. 1922.

Material examined. Three workers of type series.

Biology. Unknown, collected as part of the Mulford Biological Expedition.

Etymology. From Latin, *concavus* meaning curved inward, *nodus* referring to the node, describing the shape of the anterior face of the petiole.

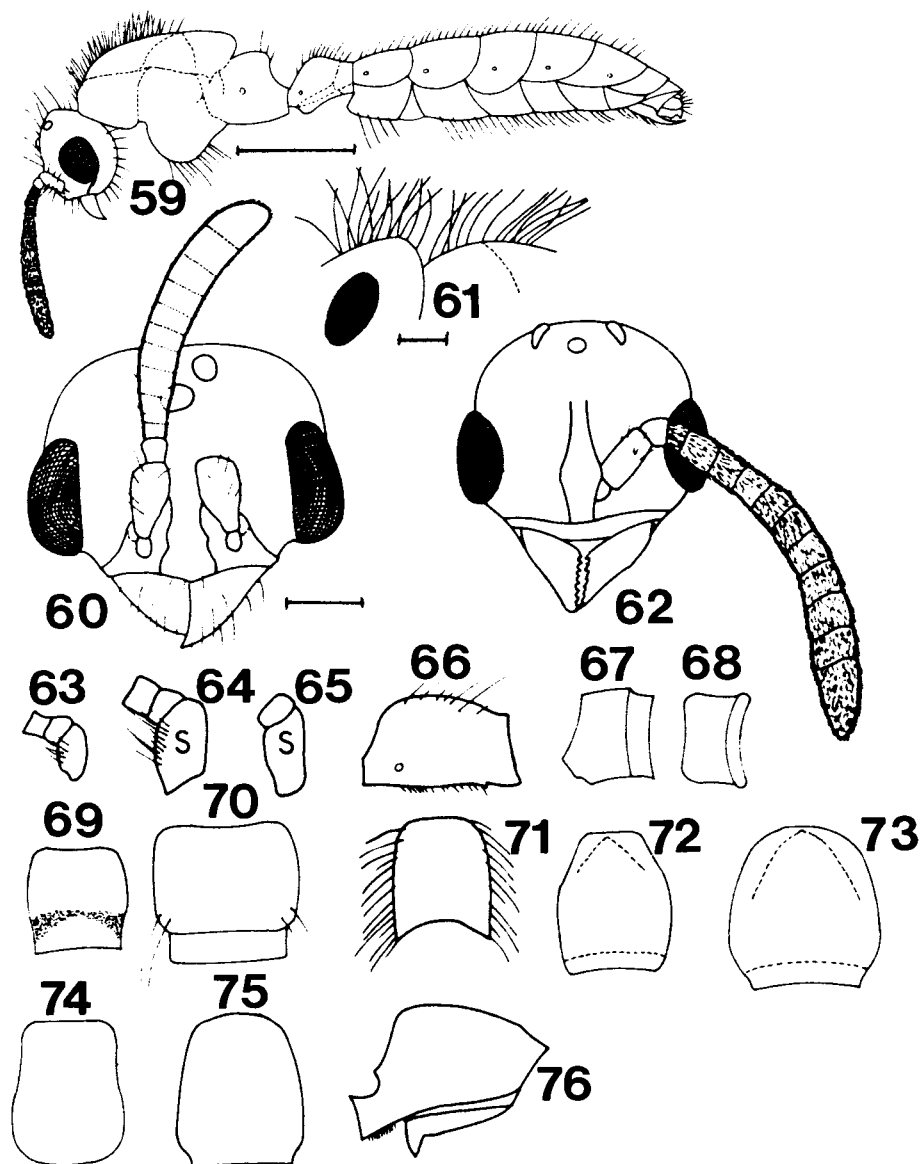
***Acanthostichus emmae* new species**

Figs. 57, 58; Map 2, p. 47

Description:

Worker: Unknown.

Female: HL 1.10, HW 1.03, SL 0.50, EL 0.28, WL 1.96, PW 0.59, PL 0.61, SI 45, CI 94, PI 103. Mandible without teeth or denticles; lateral bumps on clypeal border poorly formed; sides of head straight, almost parallel, vertex broadly concave; eyes large, reaching lateral margins of head; 3 large ocelli, diameter of median ocellus (0.08 mm) equal to distance between them; posterior face of propodeum concave, without propodeal spines; petiolar node wider posteriorly, maximal width almost equal to length. Hairs long, scattered over body surface, especially dorsum of head, dorsum of mesosoma. Gaster with abundant



Figs. 59 - 76. *Acanthostichus* males, Figs. 60 - 76 drawn at same scale: 59) *A. fuscipennis*, lateral view, 1.0 mm scale; 60) *A. fuscipennis* head, 0.25 mm scale; 61) *A. flexuosus* head and pronotum of holotype, 0.25 mm scale; 62) *A. texanus* head of lectotype; 63) *A. brevicornis* (*A. ramosmexiae* syntype) scape; 64) *A. laticornis* scape (S = scape); 65) *A. serratulus* scape; 66) *A. brevicornis* petiole, side view; 67 & 68) *A. brevinodis* petiole of holotype, top and side view; 69) *A. femoralis* petiole, top view, stippled area represents strongly depressed region; 70) *A. fuscipennis* petiole, top view; 71) *A. laticornis* petiole, top view; 72 & 73) *A. quadratus* petioles, top view; 74 & 75) *A. texanus* petioles, top views; 76) *A. texanus* petiole, side view.

long hairs. Anterior edge of scape with long hairs, twice as long as scape width. Sculpture mostly smooth and shining, especially on head, dorsum of mesosoma, dorsum of petiole, gaster. Color ferrugineous, base of first segment of gaster with yellow blotches.

Male: Unknown.

Discussion. Similar to *A. texanus* and could only be confused with it. This new species differs from *A. texanus* as the petiole is almost as wide as long (elongate in *A. texanus*), subpetiolar process is rounded and the ocelli are larger. The worker would be expected to be similar to that of *A. texanus*, but the petiole should be subquadrate. The eyes should be relatively large as in *A. texanus*.

The male is probably similar to that of *A. texanus*.

Distribution. Mexico, Tehmanticpa, known only from type locality. This locality could not be located in any gazetteer or map that were available. I assumed that the locality is misspelled and is actually Tehuantepec, Oaxaca, which is plotted on Map 2.

Type series. Holotype female, MEXICO, Tehmanticpa, May, 1923, W. M. Mann (USNM) [seen].

Material examined. One holotype female.

Biology. Unknown.

Etymology. This attractive female specimen is named in honor of my wife, Emma Sánchez de MacKay who has collaborated with me on numerous ant projects and who has always been strongly supportive of my work on ants.

Acanthostichus femoralis Kusnezov
Figs. 9, 22, 23, 44, 69; Map 9, p. 49

Acanthostichus femoralis Kusnezov, 1962:126-130, Figs. 2, 3b, worker, ARGENTINA: Western Formosa State, Ingeniero Juárez train station (IMLA, MACN, MCZC) [paratypes seen]. Kempf, 1964:263, 266, (discussion of validity of species).

Description.

Worker: HL 0.69 - 0.91, HW 0.54 - 0.76, SL 0.30 - 0.34, SW 0.11 - 0.15, WL 0.80 - 1.30, FL 0.41 - 0.51, FW 0.19 - 0.34, PW 0.28 - 0.41, PL 0.31 - 0.45, SI 37 - 44, CI 78 - 84, PI 109 - 114, FI 152 - 220, SL/SW 2.25 - 2.67. Lateral angles on clypeus poorly defined; anterior borders of scape convex; head elongate, concave at vertex; femora of all legs, especially posterior, strongly incrassate (Fig. 44); petiole elongate, strongly concave anteriorly (Fig. 22); ventral process poorly developed. Glossy and shining, light brown throughout, scattered erect hairs on all surfaces.

Female: Unknown.

Male: Similar to most other species, except petiole is nearly quadrate and strongly constricted on the sides.

Discussion: The workers of this species can be separated from most others (except *A. sanchezorum*) as the spiracle is located high on the propodeum. It could only be confused with *A. sanchezorum*, from which it can be distinguished as the outer surface of the scape is convex and it does not have an angle near the apex, as occurs in *A. sanchezorum*. The male of this species is easily distinguished from all others in that the petiole is nearly quadrate, but is strongly constricted on the two lateral surfaces. Otherwise it could be confused with *A. brevinodis* or even with *A. fuscipennis*. The single male was not associated with workers, but was labeled as *A. femoralis*. It seems reasonable that it is correctly identified, but must remain questionable until we have a complete series.

Distribution. Argentina and Brazil (Map 9).

Type series. Holotype worker, # 10423 (IMLA) [not seen] and 41 cotype workers, #'s 10422, 10424, 10449 (IMLA) [6 seen], 2 paratype workers (MCZC) [seen], Río Argentina, Formosa, viii - 1958 [listed as July in Kusnezov (1962)], Ing. Juárez, Col. N. Kusnezov.

Material examined. ARGENTINA: Formosa (type series), Santiago del Estero, Pato Errao, Luna (-2851, 5 workers IMLA). BRAZIL: Mato Grosso, Três Lagoas, Faz. Beija Flôr, 28 - vii - 1965 (7 workers MZSP, CWEM); Terr. Amapá, Serra do Navio, ix - 1957, J. Lane (1 presumed male MZSP), labeled *A. femoralis* by an unknown authority, identity must be considered questionable.

Biology: Soil inhabiting species which preys on termites, found under cattle manure. One colony was found nesting in soil near the nest of *Acromyrmex* sp. (Kusnezov, 1962). Another series was collected with *Pheidole* sp. (Willink, per. comm.). Flights recorded during all months except Feb. Aug. and Oct. (Kusnezov, 1962). It is one of the few species which flies during the winter in Argentina.

***Acanthostichus flexuosus* new species**

Fig. 61; Map 3, p. 48

Description.

Worker: See discussion.

Female: Unknown.

Male: HL 0.83, HW (posterior to eye) 0.91, SL 0.30, EL 0.41, WL 1.96, PW 0.43, PL 0.48, SI 36, CI 111, PI 112. Mandible toothless (except for angle at apex); median anterior border of clypeus angulate; frontal carinae not covering insertions of antennae; eyes large, covering much

of side of head; three ocelli large, diameter of median ocellus (0.12 m) slightly larger than diameters of other two; scape large, length about 6 times length of first segment of funiculus; head round in shape (excluding mandibles), vertex slightly concave above ocelli; mesosoma more robust than other members of the genus; petiole elongate, anterior petiolar face rounded and concave on two lateral corners and narrowed posteriorly, thus petiolar node widest at about midpoint; gaster as in other members of the genus; genitalia have been removed and are not with the specimen. All surfaces covered with elongate (up to 0.25 mm), curved, golden hairs; dilute decumbent pubescence present on gaster. Sculpture smooth and polished throughout. Color golden brown, with darker blotches on head and dorsum of mesosoma.

Discussion. The male and worker are mounted on the same pin and are thus considered conspecific. The male of this species can be distinguished from others in the genus in that it is covered with abundant, long, flexuous hairs, the petiole is wider posteriorly and not greatly elongate. It is somewhat bicolored, with the head primarily light brown, darker around ocelli and at the frontal area; the scutellum is light brown with darker blotches at the anterior edge and two lateral edges, the scutellum and propodeum are dark brown. the gaster is light brown with the posterior edges of the terga darker.

The male of this species is completely different from those of any other species in the genus, due to the long, flexuous hairs, especially on the head and pronotum (Fig. 61). It is unlikely it could be confused with any other species. The worker, on the other hand, is apparently indistinguishable from that of *A. quadratus*. The petiole and scape are identical to the type of *A. quadratus*. This species is apparently rare and is known only from the southern extreme of Brazil. Thus most specimens that fit the description will be the common *A. quadratus*. Those specimens collected in southern Brazil and the surrounding region will have to be treated as possibly belonging to this species. It is possible that it consists of a mixed species series, but both specimens are mounted on a single pin, making this unlikely.

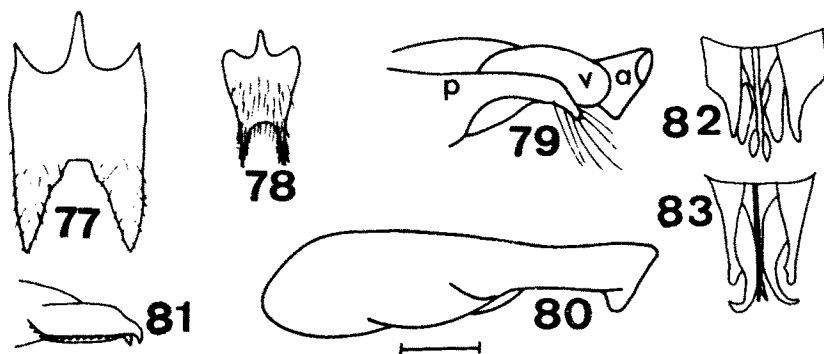
Distribution. Southern Brazil, state of Santa Catarina (Map 3).

Type series. Holotype male and paratype worker mounted on the same pin, Brazil, Santa Catarina, Nova Teutonia, 19-iv-1964, E. S. and C. E. Ross (MCZC) [seen].

Material examined. Type series.

Biology. Unknown.

Etymology. From Latin, flexuosus meaning with many bends, referring to the setae of the male.



Figs. 77 - 83. *Acanthostichus* males genitalia, drawn to same scale, which = 0.25 mm: 77) *A. texanus* subgenital plate; 78) *A. brevicornis* subgenital plate; 79) *A. texanus* genitalia, v = volsella, p = paramere, a = aedeagus; 80) *A. texanus* outer surface of aedeagus; 81) *A. fuscipennis* genitalia; 82) *A. kirbyi* genitalia; 83) *A. quadratus* genitalia.

Acanthostichus fuscipennis Emery

Figs. 59, 60, 70, 81; Map 4, p. 48

A. fuscipennis Emery, 1895:752, male, Plate 17: Fig. 13 (lectotype male specimen in illustration, here designated), BRAZIL: Pará, Belém (MCSN) [seen]. Borgmeier, 1923:51; Kusnezov, 1962:132, incorrectly synonymized with *A. quadratus* (Kempf 1964:265).

Acanthostichus quadratus Emery, 1895, Plate 14, Figs. 5 a,b,c,d (misidentification).

Worker: Unknown

Female: Unknown

Male: See discussion.

Discussion. There has been considerable confusion regarding this species as the description was based on a mixed species series. Emery (1895) illustrated the upper specimen of two (lectotype, here desig.) in Plate 17, Fig. 13 as *A. fuscipennis*. Figures 5 a, b, c, and d are of the lower specimen on the pin, which is that of *A. quadratus*. Due to the mixed series, Emery concluded that *A. fuscipennis* was closely related to *A. serratulus* (which is incorrect, and is the result of the mixed species type series). As a result of this, many males in collections were identified by myrmecologists as *A. fuscipennis*. The males of *A. fuscipennis* are among the most distinct and easily recognized in the genus, based on the shape of the petiole. The node of the petiole (as seen from above and with the anterior face hidden from view) is broader than long (elongate in most other known species) and narrowed posteriorly, with a suture

which passes over the posterior edge of the petiole (Fig. 70). The node of the petiole is smooth, shining and broadly rounded anteriorly. Most specimens have bluish reflections on most of the body parts, especially the head and pronotum. This characteristic must be used with caution as others, such as *A. serratulus*, *A. kirbyi* and *A. laticornis*, also have bluish reflections, but the petioles in these species are elongate. Specimens of *A. fuscipennis* without bluish reflections can be recognized by the shape of the petiole (described above). In addition, the aedeagus is elongate with small widely spaced teeth (which are occasionally absent). The ventrally directed teeth are well developed on both the aedeagus and the volsella. A Colombian specimen has relatively larger eyes and less bluish reflections. A Venezuelan specimen has eyes of normal size, but the node of the petiole is triangular shaped, and not rounded as in the typical *A. fuscipennis*. There seems to be a reasonable amount of variation in this species, even in specimens collected at the same locality. I tentatively conclude that all of these specimens are *A. fuscipennis*, although this may be incorrect. Unfortunately it is impossible to link this species to workers of any other species; thus the workers of *A. fuscipennis* are unknown at this time. This species is not the male of any of the described species of the *brevicornis* species complex as all the species in this group without known males occur outside the distribution of *A. fuscipennis*.

Distribution. Colombia, Venezuela, Ecuador, Brazil (Map 4).

Type series. Lectotype male (here designated) (MCSN) [seen]; Para, No. 180, 251293; *Acanthostichus fuscipennis* Em.; Typus; Museo Civico di Genova. Type series is mixed, upper specimen is designated as lectotype, lower specimen is male of *A. serratulus*. Third specimen mentioned by Emery (1895) not seen.

Material examined. BRAZIL: Amapá, Rio Amapazi, km. 185, 9-vii-1959, J. Lane (1 male MZSP), Rio Felício, 28-30-vii-1959, J. Lane (4 males MZSP, locality could not be found and is not plotted on Map 4); Amazonas, Manaus, vi-1972, Roppa & Oliveira, #13521 3 males MZSP), Manaus, vi-1972, F. Oliveira, # 9276 (1 male MZSP), Manaus, Rio Ducke, 28-ix-1981, J. Rafael, malaise trap (1 male INPA), Manaus RS41, 06, 07-91, F. Benton, Malaise trap (4 males CPCB), ZF3, Km41, Res. 41 WWF, 27-ii-84, F. Benton; Bahia, Ilheus, 10-xi-87, P Terra (1 male CPCB), Una, 09-90, F. Benton, Malaise trap (3 males CPCB), (sin loc.), 1930 (1 male USNM); Mato Grosso, west border, v-1931, R. Shannon (3 males USNM). Minas Gerais: Pedra Azul, i-1971, F. Oliveira, # 7298 (2 males MZSP), Utariiti, Rio Papagaio, 29-x-1966, Lenko & Pereira, # 4920 (1 male MZSP); Pará, Belém (type locality), Santarem, vi-1931, R. Shannon (1 male USNM); Santa Catarina, Nova Teutonia 27°11' 52°23',

300-500m, F. Plaumann (1 male MCZC); São Paulo, Piracicaba, in soybean field, iv-9-15-1972 (1 male USNM), Piracicaba, 20-i-1966, C. Triplehorn, in light trap. COLOMBIA: Meta, Carimagua, 30 k S El Poru, 200 m, iii-1973, #UV 51 (1 male MHNC); Amazonas, Mata Mata, Oct. 1988 & Feb. 1989, malaise trap, F. Fernández C. (3 males MHNC). ECUADOR: Napo, Limoncocha, malaise trap, 9-vi-1977, P. Spangler & D. Givens # 109 (1 male USNM). VENEZUELA: Territorio Federal de Amazonas, San Pedro de Cataniapo, 2 - ix - 1981, J. L. García, 100m (1 male MIZA).

Biology. Often collected in light traps in January and from April to October. Specimens in Colombia and Venezuela were captured in malaise traps in September, October and February.

Flights probably occur throughout the year.

Acanthostichus kirbyi Emery

Figs. 10, 24, 25, 45, 82; Map 5, p. 48

Acanthostichus kirbyi Emery, 1895:751-752, worker (Fig. 00B), BRAZIL: Mato Grosso (MCSN) [seen]. Gallardo, 1918:10; Kusnezov, 1962:131.

Description.

Worker: HL 1.05 - 1.41, HW 0.83 - 1.30, SL 0.48 - 0.68, SW 0.19 - 0.28, WL 1.26 - 1.93, PW 0.39 - 0.55, PL 0.45 - 0.69, FL 0.70 - 1.10, FW 0.26 - 0.39, SI 45 - 49, CI 79 - 92, PI 116 - 128, FI 2.64 - 2.84, SL/SW 2.41 - 2.53. Median and lateral clypeal teeth well developed; mandible often with small denticles on masticatory border (especially in larger workers); pro-mesonotal suture poorly marked; petiole longer than wide, subpetiolar process consisting of a large lobe, usually with a posteriorly directed tooth.

Female: Unknown.

Male: See discussion.

Discussion. This species is closely related to *A. serratulus*, but can be distinguished by the well developed lateral teeth on the clypeus (poorly developed in *A. serratulus*), in addition to other characteristics including a more quadrate head in *A. serratulus* (sides almost parallel), the petiole of *A. serratulus* is parallel sided and somewhat concave anteriorly, that of *A. kirbyi* is wider posteriorly and not noticeably concave, the dorsum of the petiole of *A. serratulus* is somewhat smoother than that of *A. kirbyi* (which is lightly punctate and roughened) and the sides of the petiole of *A. serratulus* have well developed carinae that are lacking in *A. kirbyi*. It differs from *A. brevicornis* in that the posterior femur is rarely incrassate and that the dorsum of the petiole is

roughened and often has longitudinal troughs. It differs from *A. quadratus* and *A. latickei* in that the node of the petiole is longer than broad (Fig. 24) and the longitudinal troughs are not as deep and the sides are not parallel as they are in these other two species. The clypeus is narrower and the two lateral teeth are usually well developed, but only somewhat developed in *A. quadratus* and *A. latickei*. This species is often misidentified in collections. For example, Kusnezov identified it as *A. brevicornis* (based on figures in his revision [1962], and specimens #8926 and #9142 in the USNM and IMLA, collected primarily by Kusnezov and with his identification labels). The male is similar to that of *A. serratulus*, but can be distinguished by the shape of the petiole (see *A. serratulus* discussion).

Distribution. Peru, Brazil and Bolivia south to Argentina (Map 5). This is one of the most widely distributed, commonly collected species in the genus.

Type series. Lectotype worker (here designated), (MCSN) [seen], one probable cotype worker [USNM], Mato Grosso, Germain; Typus; *Acanthostichus kirbyi* Em. Part of type series from Paraguay not found and apparently lost.

Material Examined. ARGENTINA: Tucumán, N. Kusnezov, #8926 and #9142 (14 workers USNM, 1 worker IMLA), Tucumán, R. Arq., 20-x-1951, N. Kusnezov (4 workers MCZC), Tucumán (3 workers MZSP), Tucumán, 26-vii-1952, Golbeck (1 male IMLA), Tucumán, Avellaneda Parq., 29-v-1953, #8926 (75 workers IMLA), Tucumán, 23-ii-1953, #9134 (181 workers IMLA), Tucumán, 23-ii-1953, #9142 (46 workers IMLA), Puente Río Piedras, Ruta 34, Salta (Entre Uriendel y Yuto), 30-xi-1948, # 3089 (1 worker IMLA), Ing. Juárez, Formosa, 1-vii-1948 (1 worker IMLA), Chaco Salta (Kempf 1972). BOLIVIA: El Beni, Cavinass Beni, ii-1922, W. Mann (38 workers USNM), Cavinass Beni, W. Mann (12 workers USNM), Río Ivon, W. Mann (9 workers USNM), Ivon Beni, ii-1922, W. Mann (8 workers USNM), Río Benicito, 27-vii-1960, B. Makin (12 workers MIZA), Huachi Beni, Aug. W. Mann (1 male USNM), El Beni, El Porvenir Stn, NE San Borja, 8-viii-1988, BIOLAT-SI/MAB, ex malaise trap, Robert W. Brooks (2 males USNM). BRAZIL: Amazonas, Tefé, #2513 (1 worker MZSP), Benjamin Constant, 18-28-ix-1962, K. Lenko, # 2257 (3 workers MZSP), Benjamin Constant, 25-ix-1962, W. Brown, # BC-92, Voucher Specimen Cp-002 of Gotwald Study 1968 (7 workers MZCZ), Mpio. Várzea Grande, Km 530, xi-1984, J. Trager (1 worker MZSP); Bahia, Vitória da Conquista, 30-vi-1980, P. Avaljo (3 workers # 480244 MZSP); Ceará, Barbalha, v-1969, M. Alvarenga, #13204 (3 males MZSP); Goiás, Campinas, Shw. [? probably Schwarzmaier] (1 worker # 3746 Coll. Borgmeier, MZSP), Trinidad, 8-i-1952 (4 workers,

MZSP), Parque Nacional das Emas, 1981, K. Redford, #204 (10 workers MZCZ); Mato Grosso, Germain (1 lectotype worker MCSN. 1 worker, possibly cotype? USNM); Minas Gerais, Paraopeba, # 1669 (MZSP); Monte Azul, 8-i-1950, R. Araujo (3 workers MZSP); Pará, Mareo de Logua, 1895, Gonelle (1 worker USNM); Rondônia, Vilhena, xi-1973, M. Alvarenga, # 10595 (3 males MZSP), *sin loc.* coll. Borgmeier, # 1009 (3 workers MZSP). PERU: Madre de Dios, Río Tambopata Res, 30 air km SW Pto Maldonado, 290 m, 6-10-xi-1979, J. B. Heppner, subtropical moist forest (9 males USNM). Kempf (1972) lists Argentina: Chaco Salta and Brazil: MT.

Biology. This species has been collected with termites. They capture termites and act like *Eciton* sp., the termites escape in circular files (Willink, per. comm.). Brown (1975) gives a description of the foraging behavior of *A. kirbyi*. He and Karol Lenko found a column at midday raiding a termite nest on the floor of the forest near Benjamin Constant. The column moved mostly beneath leaf litter and collected a cache of dead termites beneath a piece of bark. A column led from the cache to a crevice in the ground under the roots of a tree, but they could not reach the nest. They saw about 50 workers which they estimated to be only a small part of the column. The workers moved rapidly and reminded them of army ants by the way they walked and moved their antennae.

***Acanthostichus laevigatus* new species**

Map 9, p. 49

Description.

Worker: HL 1.01 - 1.15, HW 0.90 - 1.05, SL 0.51 - 0.59, SW 0.15 - 0.20, WL 1.31 - 1.49, FL 0.71 - 0.85, FW 0.23 - 0.26, PW 0.40 - 0.50, PL 0.43 - 0.53, SI 51, CI 89 - 91, PI 105 - 106, FI 317 - 324, SL/SW 2.80 - 3.42. Clypeus with poorly defined lateral teeth; anterior border of scape concave; propodeal angles well formed, descending face concave; petiole subquadrate, slightly longer than broad; subpetiolar process well formed. Mandibles, head, top of mesosoma shining with scattered punctures; sides of mesosoma costulate, dorsum of petiole smooth, glossy and strongly shining, with a bluish sheen. Dark brown with scattered, erect hairs on all surfaces.

Female: Unknown.

Male: Unknown.

Discussion. The workers of this species are easily separated from all other South American species by the smooth and polished petiolar node. In addition, there are noticeable bluish reflections. The poorly developed lateral teeth suggest affinities to *A. serratulus*, the shape of the petiole suggests affinities with *A. lattkei*. The color and smoothness

of the node of the petiole suggests a possible connection with *A. fuscipennis*. This seems unlikely as they belong to different species complexes as I have defined them.

Distribution: Venezuela (Map 9).

Type Series: Holotype worker (MIZA) and six paratype workers (BMNH, CWEM, MCZC, MHNC, MIZA, MZSP). VENEZUELA: Bolívar, El Bochínche Reserva Forestal, Imataca, 200m; Exp. Instituto Zoología Agrícola; Formicidae 668, IZA UCV; *Acanthostichus* sp. det. J. Lattke 1985.

Material examined. VENEZUELA: Bolívar, El Bochínche Res. Forestal (seven workers - type series); Territorio Federal de Amazonas, Río Negro, Culebra (3°33'N, 65°65'W) 250 m, iii - 1985, K. Jaffé (1 worker MIZA).

Biology: Unknown.

Etymology: Latin, smooth, referring to the surface of the worker, especially the node of the petiole.

Acanthostichus laticornis Forel

Figs. 4, 27, 64, 71; Map 6, p. 48

Acanthostichus laticornis Forel, 1908, 345, worker, PARAGUAY: San Bernardino 15 cotype workers (12 worker cotypes, MHNG, 1 worker cotype, NHMB, 2 workers, possibly cotypes, MACN) [all seen]. Santschi, 1916:365, 1933:106, desc. male, 1934: 23 (MACN) [seen]; Kusnezov, 1962:131-132.

Acanthostichus laticornis var. *obscuridens* Santschi, 1934:23, worker, female, ARGENTINA: Misiones, Loreto, female (MACN) and 11 worker cotypes (6 in NHMB, 5 in MZSP [seen]), Bruch, 1934:3-8 + 14 Figs.; Bruch, 1937:353-356; syn. by Kusnezov, 1962:131.

Description.

Worker: HL 1.01 - 1.31, HW 0.86 - 1.20, SL 0.50 - 0.66, SW 0.23 - 0.29, FL 0.70 - 0.95, FW 0.24 - 0.35, WL 1.28 - 1.73, PW 0.38 - 0.53, PL 0.46 - 0.65, SI 49 - 50, CI 85 - 91, PI 123 - 124, FI 271 - 295, SL/SW 2.22 - 2.30. Mandibles without teeth, but with slight undulations, lateral clypeal teeth well developed; scape relatively short and thick, with well developed angle (Fig. 4); vertex concave; petiole somewhat elongate, subpetiolar process rounded anteriorly with sharp ventral apex posteriorly (Fig. 27); femur not thickened.

Female: HL 1.64, HW 1.82, SL 0.73, SW 0.34, EL 0.20, WL 2.20, PW 1.60, PL 0.81, SI 45, CI 111, PI 51, SL/SW 2.15. Mandibles without teeth; lateral clypeal angles well formed; malar groove well developed, but extending only ½ distance to eye; outer margin of scape angulate as in worker; femora not incrassate; petiole much wider than long, wider

at posterior end. Entire ant covered with scarce, flexuous hairs, concolorous light brown.

Male: HL 0.74 - 0.95, HW (posterior to eye) 0.66 - 0.96, SL 0.20 - 0.28, EL 0.39 - 0.48, WL 1.66 - 1.68, PW 0.36 - 0.39, PL 0.45 - 0.51, SI 27 - 29, CI 90 - 101, PI 124 - 132.

The male is similar to those of other species in the genus and is difficult to separate. Apparently the shape of the volsellae, shape of the petiole and sculpturing of the propodeum will separate this species from some of the other species (see key). The scape is slightly thickened, but bears no resemblance to the characteristic shape of the scape of the worker.

Discussion. The worker is similar to that of *A. kirbyi*, but is easily distinguished by the short, thick scapes with a well formed angle (Fig. 4). The female is very similar to that of *A. quadratus*, but differs in that the anterior surface of the scape is angulate and the female of this species possesses a well developed malar groove. The male is almost indistinguishable from that of *A. laticornis*. It differs primarily in that the sculpture of the propodeum is rougher.

Distribution: Argentina, Brazil, Paraguay, Uruguay (Santschi, 1916:365) (Map 6).

Type Series: *Acanthostichus laticornis*, lectotype worker (here designated) (MHNG) and eleven paralectotype workers (MHNG), 1 paralectotype worker (NHMB), PARAGUAY, San Bernardino (Fiebig); *A. laticornis* ♂ forel worker type Formic #5944, Coll. Forel [all seen]. Two possible cotype workers in MACN. *Acanthostichus laticornis* var. *obscuridens*, ARGENTINA, Misiones, Estación Experimental Loreto, Dr. A. A. Oglobin, 24-viii-1933, female, lectotype worker (here designated) (NHMB) and 4 paralectotype workers (NHMB) [seen], five paralectotype workers (MZSP) [seen].

Material examined. ARGENTINA: Misiones, Loreto, 24-viii-1933, Oglobin, Cotypes of *A. laticornis* var. *obscuridens*, Borgmeier # 5540 (5 workers MZSP), Tucumán, 19-xii-1958, N. Kusnezov, #10607 (1 male IMLA), Tucumán, 20-iii-1955, N. Kusnezov (1 male IMLA). BRAZIL: Bahia, Encruzilhada, xi-1972, Seabra & Alvarenga, 980 m, #'s 12974, 12975, 13806 (8 males MZSP); Distrito Federal, Floresta da Tijuca, iii-1958, C. Campos Seabra (6 males MZSP), Goiás, Jatai, xii-1972, F. Oliveira, # 8943 (2 males MZSP); Mato Grosso, Sinop (55°37' 12°31'), x-1974, M. Alvarenga, # 12832 (1 male MZSP); Pernambuco, Caruaru, iv-1972, M. Alvarenga, 900 m, # 7533 (2 males MZSP), Caruaru, v-1972, T. Lime (3 males MZSP); São Paulo, Campinas, Schwarzmaier, # 5533 (2 workers MZSP), Onda Verde, i-1946, F. Lane, prey of asilid fly (1 male MZSP), Pto. Cantagulo, 13-vi-1959, Forattini (1 male MZSP), Repr. Rio

Grande, GB, vi-1972, F. Oliveira, # 10524 (3 males MZSP). PARAGUAY: C. Bruch, #420 (2 workers NHMB). URUGUAY: Fr. Steiner (1 worker NHMB).

Biology. One nest found under large rock, numerous workers, single female, apparently in a termite nest. A staphylinid (Aleocharinae: *Paradoxenusia silvestrii* Bruch) occurs with this species (Bruch, 1937). These ants forage in columns similar to *Eciton*, but smaller; they prey on termites (Kusnezov, 1962).

***Acanthostichus lattkei* new species**

Fig. 11, 28, 29, 46; Map 10, p. 49

Description.

Worker: HL 0.96 - 1.40, HW 0.93 - 1.34, SL 0.53 - 0.70, SW 0.16 - 0.24, WL 1.29 - 1.78, PW 0.40 - 0.59, PL 0.41 - 0.60, FL 0.74 - 1.04, FW 0.23 - 0.35, SI 48 - 55, SL/SW 2.89 - 3.23, CI 94 - 96, PI 98 - 103, FI 2.96 - 3.28. Clypeus with well defined median tooth and well developed lateral angles; occiput concave; petiole longer than broad, subpetiolar process with a large, posteriorly directed tooth. Dorsum of petiole roughened, with at least two longitudinal troughs and many fine, longitudinal striae.

Female: Unknown.

Male: Unknown.

Discussion. This species is closely related to the others in the complex, but is easily distinguished by the elongate antennal scapes, the absence of carinae on the sides of the petiole, and longitudinal striations on the dorsal surface of petiole. It lacks the strongly excised medial border of the clypeus of *A. bentoni* and often has a tooth in the middle of the anterior border of clypeus.

Distribution. Venezuela, known only from the type locality (Map 10).

Type series. Holotype worker [MIZA] and 10 paratype workers [BMNH, CWEM, IMLA, LACM, MCZC, MHNC, MIZA, MZSP, NHMB, USNM], Venezuela, Tachira, Presa Las Cuevas, 44 Km NNW San Cristóbal, 500 M, John Lattke; 7° 48' N, 71° 46' W [all seen].

Material examined. Type series.

Biology. Collected in soil below leaf litter in a tropical forest.

***Acanthostichus punctiscapus* new species**

Fig. 12, 30, 31; Map 1, p. 47

Description.

Worker. HL 0.83 - 0.86, HW 0.70 - 0.74, SL 0.39 - 0.40, WL 1.18 - 1.24, PW 0.39 - 0.40, PL 0.44 - 0.48, SI 45 - 48, CI 83 - 86, PI 113 - 123. Mandible with tooth on median masticatory border, with larger apical

angle (Fig. 12); sides of head parallel, occiput somewhat concave; femur somewhat incrassate, concave ventrally; petiole strongly narrowed anteriorly, with large, ventrally directed tooth (Fig. 31). Most of ant with distinct, dense, small punctures, including mandibles, scapes, head, dorsum of mesosoma, petiole and gaster.

Female: Unknown.

Male: Unknown.

Discussion. This species is easily recognized and can be separated from all others in the genus by the densely punctate surfaces, especially of the scapes.

Distribution. Southern New Mexico, known only from the type locality (Map 1).

Type series. Holotype [MCZC] and 38 paratypes (plus additional pieces of several other paratypes) [AMNH, BMNH, CACS, CWEM, EMAU, FMNH, FSCA, IMLA, INPA, LACM, MACN, MCSN, MCZC, MIZA, MZSP, UAIC, UNAM, USNM]; USA, New Mexico, Doña Ana Co.; Jornada LTER [National Science Foundation Long Term Ecological Research] Site, 45 Km NE Las Cruces, 1.6 Km W of College Ranch Headquarters, about 150 m south of Jornada Playa; 17 July 1985, D. Lightfoot and S. Van Vactor collectors.

Material examined. Type series.

Biology. Collected in a nest of the ant *Pogonomyrmex desertorum* Wheeler at a depth of 70 cm, located in a *Larrea tridentata* (creosotebush) Chihuahuan Desert scrub. Apparently only part of the colony was collected as there was no associated nest queen found. Most of the workers were maintained in a laboratory nest by Steve Van Vactor for a few days, and specimens were preserved after they had died. Additional specimens were not found, although an extensive search of the area was conducted. I operated a light trap within thirty meters of the site where they were collected, twice weekly throughout the remainder of the summer and fall of 1985 and during the spring to fall in 1986, without collecting any males. Numerous *Cerapachys davis* males were collected in the trap, in addition to reproductives of many other ant species. It is unlikely that the males of *C. davis* are the unknown males of *A. punctiscapus*, as they are typical of the genus *Cerapachys* and do not appear to have a malar groove, although the eye is placed so close to the base of the mandibles that it would be difficult or impossible to see, even if it were present.

Acanthostichus quadratus Emery

Fig. 13, 32, 33, 47, 50, 51, 52, 72, 73, 83; Map 7, p. 49

Acanthostichus quadratus Emery, 1895:750-751, worker, female,

Fig. 00 A, Plate 16: Figs. 5, 6, Plate 17: Fig. 12, BOLIVIA: Misiones de Mosetenes, Rio Beni (MCSN) [seen]. Kusnezov, 1962:132 (incorrect synonym of *A. fuscipennis*, see Kempf, 1964:265).

Acanthostichus serratulus var. *niger* Santschi, 1933:105, worker, ARGENTINA: Misiones (MACN) [seen] **new syn.**

Acanthostichus fuscipennis Emery, 1895:752, (misidentification, see *A. fuscipennis*).

Description.

Worker: HL 0.99 - 1.49, HL 0.88 - 1.46, SL 0.49 - 0.78, SW 0.19 - 0.24, WL 1.18 - 1.91, PW 0.40 - 0.73, PL 0.41 - 0.83, FL 0.68 - 0.94, FW 0.23 - 0.38, SI 49 - 52, CI 89 - 99, PI 93 - 120, FI 2.50 - 3.14, SL/SW 2.60 - 3.06. Median and lateral clypeal teeth poorly developed (usually absent, except in larger workers); head slightly convex posteriorly; petiole subquadrate, subpetiolar process with posteriorly directed tooth; dorsum of petiole usually moderately smooth and shining with longitudinal troughs, especially well developed near the lateral borders.

Female: HL 1.83, HW 2.10, SL 0.79, SW 0.30, EL 0.23, WL 2.63, PW 1.85, PL 0.96, FL 1.35, FW 0.50, SI 43, CI 115, PI 52, FI 2.70, SL/SW 2.63. Subdichthadiiform (Fig. 50); mandibles without teeth (except apex); frontal carinae widely separated; eyes large; malar groove apparently absent; eyes large; ocelli absent; occiput slightly concave; dorsum of mesosoma with promesonotal suture poorly developed, metanotal suture somewhat more developed; propodeal angles in form of epilaut-like carinae; petiole much wider than long (Fig. 52); posterior femur not incrassate. Mostly smooth and shining throughout, with few scattered punctures, except sides of mesosoma and petiole, (which are more heavily and deeply punctate with a few longitudinal striae), and postpetiole and gaster (which are densely and evenly punctate). Long, flexuous hairs on all surfaces, gaster with dense, short, erect pubescence. Concolorous medium brown to dark reddish brown.

Male: See distinguishing characteristics in Discussion.

Discussion. This species is closely related to *A. serratulus*, but differs in the quadrate petiole (elongate in *A. serratulus*). It is similar to *A. kirbyi*, but differs in that the clypeus is relatively wider (Fig. 13) and the two lateral teeth on the clypeus are almost always absent. The types of *A. serratulus* var. *niger* are identical to those of *A. quadratus*. My concept of the female is based on a paralectotype *A. serratulus* var. *niger* mounted on a piece of card next to the lectotype worker.

Distribution. Ecuador, Peru, Brazil, Bolivia and Argentina (Map 7).

Type series. *Acanthostichus quadratus*, lectotype worker (MCSN) and paralectotype subdichthadiiform female (MCSN) (here designated); Amazonas, Staudinger and [followed by illegible name]; *Acanthostichus*

quadratus Em.; Typus (MCSN) [all seen]; *Acanthostichus serratulus* var. *niger*, lectotype (here designated) and 1 paralectotype, both workers, Est[ación] Exp[erimental] Loreto (Misiones - Arg[entina]), Dr. A. A. Oglobin, # 1940, TYPUS, *Acanthostichus serratulus* Sm. V. *niger* Snts. [both seen].

Material examined. ARGENTINA: Tucumán, 6-ii-1958, N. Kusnezov (1 male IMLA), Tucumán, 13-ii-1953, # 9130 (1 male IMLA), Tucumán, 30-vi-1956, N. Kusnezov (1 male IMLA), Tucumán, 2-vii-1953, Hayvard (1 male IMLA), Misión Laishi, FOR [Formosa?], 12-1948, Golbach (1 male IMLA), Misiones, Pto. Bemberg [presently Puerto Libertad], 12 - 23-i-1945, Leg. Hayward, Willink, Golbach, #747 (14 workers IMLA). BOLIVIA: El Beni, Covendo, W. Mann (2 workers USNM); Ivon Beni, ii-1922, Mann (1 worker USNM). BRAZIL: Amapá, Serra do Navio, ix-1957, J. Lane (1 male MCZC); Amazonas, Manaus, RS2206, 3-xi-93, AB Casimiro (1 worker CPCB); Bahia, Mucuri, 22-i-94, J. Delabie (2 workers CPCB); Distrito Federal, Floresta da Tijuca, ii-1960, C. Seabra (2 males MCZC); Goiás, Enas, 28-iii-1984 (3 workers MZSP); Mato Grosso, Olho de Agua, 21-vii-1972, Dinitz, # 915 (3 workers MZSP), Mato Grosso, west border, v-1931, R. Shannon (1 male MCZC); Mato Grosso do Sul, Campo Grande, 12-x-1989, W. MacKay, at houselight (1 male CWEM); Paraná, Capo Imbuia, Curitiba, 4-25-ii-1969, C. Porter & A. García (1 male MCZC); Rio Grande do Sul, Ihering, #11.357 (4 workers MZSP); Rondônia, Vilhena, 27-vii-1983, B. Leonete, malaise trap (2 males INPA); Santa Catarina, Nova Teutonia, 19-iv-1964, E. S. and C. E. Ross (1 worker, 1 male on same pin, second pin with 3 workers MCZC), Nova Teutonia, 18-ii-1963, F. Plaumann (1 male MZSP), N. Teutonia, iv-1972, F. Plaumann (2 workers # 7987, 1 male # 7987, 1 male # 8139 all MZSP), N. Teutonia, 19-iv-1964, CE & ES Ross (3 workers MZSP); Rio Grande do Sul, Santa Maria, T. White (1 male MCZC), São Paulo, São Paulo, L. Lane, # 5264 (1 worker MZSP); Francia, Garbe, xii-1910, #15786 (3 workers MZSP), Rio Claro, 29-vii-1971, V. Gama, # 37, # 6554 (2 worker MZSP); Campinas, vi-1936, Hamilton, # 5885 (2 workers MZSP), Campinas, iii-1924, F. X. Williams (2 workers USNM), Barueri, 19-iii-1957, K. Lenko, # 3570 B-65, stomach of *Bufo crucifer* (3 workers MZSP); São Paulo, So Jose Campos, S. Lopes (2 males MZSP), Nazaré Paulista, 07-x-1990, M.L. de Andrade (1 worker CWEM); unknown state, Cach. do Mel, Alto Cumbinã [?] Sempio, # 4995a (1 worker MZSP). ECUADOR: Napo, Prov. Limoncocha, 9-vi-1977, D. Vincent (2 males USNM). PERU: Cuzco, Quincemil, 750 m, viii-1962, L. Peña (1 male MCZC); Madre de Dios, Avispas, 400 m, 1-15-x-1962, Peña (1 male MCZC).

Biology. Unknown. 3 workers were found in the stomach of a toad

(*Bufo crucifer*).

***Acanthostichus quirozi* new species**

Figs. 5, 34, 35; Map 2, p. 47

Description.

Worker: HL 0.80 - 0.89, HW 0.68 - 0.74, SL 0.30 - 0.40, EL 0.03 - 0.04, WL 1.15 - 1.25, PW 0.33 - 0.35, PL 0.40 - 0.44, SI 45 - 47, CI 83 - 84, PI 123 - 125, SL/SW 2.7. Mandibles without teeth; anterior medial border of clypeus concave, without medial tooth; vertex strongly concave; eyes very small, without defined ommatidia; scape relatively elongate, anterior surface slightly concave, with tiny angle near apex; mesosoma as in other species; propodeum with spiracle approximately at middle height; petiole elongate (Fig. 34), wider posteriorly than anteriorly; gaster as in other species; erect hairs abundant (up to 0.25 mm in length), dorsum of scape with at least 8, dorsum of mesosoma with at least 20, dorsum of petiole with at least 6, dorsum of gaster with at least 30; decumbent pubescence absent. Entire surface, including scapes and dorsum of petiole, smooth and polished. Color golden red.

Discussion. This species is apparently most closely related to *A. skwarrae*. The petioles are almost identical in shape and are both smooth and highly polished. The two species are easily separated as *A. skwarrae* has no erect hairs on the dorsum of the petiole. In addition, *A. skwarrae* has possibly as many as 10 erect hairs on the dorsum of the mesosoma, the longest of which is 0.1 mm in length. The gaster of *A. skwarrae* is almost without hair, except for the area near the pygidium. The longest hair on the gaster is about 0.05 mm in length. Thus these two species appear to be very similar, but *A. quirozi* can be easily distinguished by the longer and much more abundant erect hairs. It would not be likely to confuse this species with any of the other species, based on the shape and sculpture of the petiole. The unknown workers of *A. emmae* should have a subquadrate petiole and larger eyes, and thus be distinguishable from this species.

Distribution. Known only from type locality in eastern Mexico (Map 2).

Type series. Holotype worker (UNAM) and 8 paratype workers (2 headless) (BMNH, CWEM, IMLA, MCZC, MHNC, MIZA, MZSP) [all seen], MEXICO, Veracruz, Tuxtla, 28-viii-92, L. Quiroz.

Material examined. Nine workers of type series.

Biology. Unknown.

Etymology. Named in honor of my good friend and fellow "mirmecólogo" Luis Quiroz of the Instituto de Ecología (México), who has sent me

specimens of this species as well as numerous other interesting ants.

Acanthostichus sanchezorum Mackay

Fig. 1, 2, 14, 36, 48; Map 9, p. 49

Acanthostichus sanchezorum MacKay, 1985:127-131, Figs. 1 - 5 worker, COLOMBIA: Meta, Villavicencio, holotype and 8 paratypes (CWEM, LACM, MCZC, MHNC, MZSP, USNM) [all seen].

Discussion: This species is related to *A. brevicornis* and *A. femoralis*. It differs from *A. brevicornis* in that the spiracle is placed high on the propodeum. It differs from *A. femoralis* in that the scape is angulate near the apex and the dorsum of the petiole is smooth, but not strongly shining as in *A. femoralis*. Other characteristics which separate this species from *A. femoralis* include the larger size and darker color of the workers, the frontal carinae are farther apart and the posterior face of the propodeum is more concave.

Distribution. Known only from type locality (Map 9).

Type series. Holotype worker (MHNC) and 8 paratype workers (LACM, MCZC, MHNC, MZSP, USNM, CWEM) [all seen].

Material examined. Type series.

Biology. Found in subterranean tunnels at a depth of about 15 cms below the soil surface (MacKay 1985).

Acanthostichus serratulus (Smith)

Fig. 15, 37, 38, 49, 65; Map 8, p. 49

Typhlopone serratulus F. Smith, 1858:111, worker, BRAZIL: Amazonas, Vila Nova (BMNH) [seen].

Acanthostichus serratulus: Mayr, 1887: 551, worker, male, Gallardo, 1918:9; Kusnezov, 1962:132-133 (misidentification); Emery, 1895:749-750, 1899:4; Wheeler, 1950:109-110 larva (translated from Emery, 1899).

Acanthostichus serratulus var. *niger* Santschi, 1933:105, worker, female, ARGENTINA: Misiones, Loreto. Kusnezov, 1962:132-133, incorrect synonymy (= synonym of *A. quadratus*).

Description.

Worker (lectotype in parentheses): HL 0.89 - (1.05), HW 0.76 - (0.91), SL 0.41 - (0.54), EL 0.03 - (0.04), WL 1.05 - (1.38), PW 0.35 - (0.45), PL 0.34 - (0.51), SI 46 - (51), CI 86 - (87) - 88, PI 96 - (114), SL/SW 2.54 (2.69) - 2.92. Mandibles without teeth; clypeus with medial tooth, but without lateral teeth; frontal carinae closely set, rounded anteriorly; occipital border concave; promesonotal suture moderately well differentiated on dorsum of mesosoma; propodeal spiracle located about half

way down from dorsum of propodeum; petiole slightly longer than broad, with angulate lateral borders which form longitudinal carinae, longitudinal troughs present, subpetiolar tooth concave ventrally (Fig. 38); femur not incrassate. Dorsum of petiole slightly roughened and sides of mesosoma and petiole with longitudinal striae.

Female: Unknown (female of *A. serratulus* var. *niger* is *A. quadratus*).

Male: HL 0.99, HW 1.01, SL 0.29, EL 0.56, WL 2.00, PW 0.39, PL 0.54, SI 29, CI 103, PI 139.

The male is very similar to that of *A. kirbyi*, but differs in the shape of the petiole (see discussion).

Discussion. The workers of this species are very similar to those of *A. kirbyi*, *A. quadratus* and *A. lattkei*. This species is somewhat intermediate between *A. kirbyi* and *A. quadratus*, and my first impulse was to synonymize these three species. In terms of the shape of the petiole and scape, it is similar to *A. kirbyi*. On the other hand, the sculpture of the dorsum of the petiole (relatively smooth and shining, with longitudinal troughs, sides angulate, the petiole of the lectotype is especially smooth) and the lack of lateral teeth on the clypeus are similar to those of *A. quadratus*. The dorsal surface of the petiole of *A. kirbyi* is lightly punctate. Other differences between *A. serratulus* and *A. kirbyi* can be found in the discussion section of *A. kirbyi*. Furthermore, the males of *A. kirbyi* and *A. quadratus* are different (see key). If synonymization was done, we would have a highly variable species. As the three taxa are consistently different, I feel it is best to continue to regard them as separate species. The male described by Mayr (1887) is apparently lost. A male specimen deposited in the USNM is labeled as *A. serratulus*, but is not associated with workers. The hand written label appears to be written by Emery (compared with labels of three type specimens of *Camponotus obtritatus* Emery), and thus is presumably *A. serratulus*, as Emery described the male. It is very similar to the male of *A. kirbyi*, but differs in that the node of the petiole is bullet shaped, narrowed and pointed anteriorly. A second possible male in the USNM was collected from the West border of Mato Grosso, Brazil.

Distribution. Brazil, Argentina (Map 8).

Type series. Lectotype worker (here designated) (BMNH). Lectotype labeled: 55 44; *Typhlomyrmex serratula*; Type. Smith; syntype [round white label with light blue border]; second specimen labeled: Brazil Villa [=Vila] Nova; Syntype; *T. serratula* Sm.; labeled syntype [second specimen is *A. quadratus* - both seen].

Material examined. ARGENTINA: Misiones, Posadas, Silvestri, 20-vii-1900 (3 workers MCZC), Misiones, Pto. Libertad, 12-23-i-1945, Hayward,

Willink, Golbach (14 workers IMLA), Entre Rios, La Picada, #9445 (7 workers IMLA). BRAZIL: Amazonas, Vila Nova (lectotype); Rio Grande do Sul (1 worker USNM), R. G. do Sul, Ihering (5 workers BMNH), Porto Alegre, Schupp (1 worker USNM), Pareci Novo, 6-viii-1927, Borgmeier (# 1847, MZSP), So Paulo (1 worker BMNH), Mato Grosso, west border, May 31, R. C. Shannon (1 male? USNM).

Biology. Nests in rotten wood (Luederwaldt, 1926).

Acanthostichus skwarrae Wheeler

Fig. 39, 40; Map 1, p. 47

Acanthostichus skwarrae Wheeler, 1934:161 worker, MEXICO: Vera Cruz, Tamarindo (MCZC) [seen]. Kusnezov, 1962:133 (comparison with other species).

Worker: See discussion.

Female: Unknown.

Male: Unknown.

Discussion. *Acanthostichus skwarrae* is presently represented by a poorly preserved, headless lectotype worker. Fortunately good distinguishing characteristics are present on the specimen which allow recognition of the taxon as a valid species. It is obviously a member of the *brevicornis* species complex, as the petiole is elongate (PL = 0.44 mm, PW = 0.35 mm) and wider posteriorly (Fig. 39). It is strongly concave anteriorly and the subpetiolar process is formed into a large, rounded lobe (Fig. 40). The hind femur is moderately thickened (FL = 0.58, FW = 0.26). It is easily separated from most other species in the complex by the shape of the petiole (wider posteriorly than anteriorly), the large subpetiolar process (Fig. 40) and the smooth dorsum of the petiole. It is closely related to *A. quirozi*, differing as it has very few erect hairs on the surfaces.

Distribution. Mexico, Veracruz (Map 1), known only from the type locality. There are at least 17 localities named Tamarindo in Mexico, of which at least 4 are located in the state of Veracruz. The point plotted in Map 1 is in the area of a cluster of three separate localities with the name "Tamarindo".

Type Series. Holotype worker (here designated) (MCZC) [seen] 234/SK; 3 - iv -29, Tamarindo (Ver.); MCZ Cotype 1, 20335; (Type); Gift of W. M. Wheeler [headless].

Material Examined. Holotype worker.

Biology. Single worker was "found running on the ground" (Wheeler, 1934).

Acanthostichus texanus Forel

Fig. 3, 16, 41, 42, 53, 54, 55, 56, 62, 74, 75, 76, 77, 79, 80, Map 2, p. 47

Acanthostichus texanus Forel, 1904:168, dealate female, USA: Texas, Brownsville (MHNG) [not seen, presumably lost, see Smith, 1955]. Emery, 1911:13-14; Kusnezov, 1962:133-134.

Ctenopyga townsendi Ashmead, 1906:29-30, Fig 4, female, male, MEXICO, La Puerta (MCZC) [female and 1 male lost, 1 male seen] synonymy by Smith, 1955:49. Emery, 1911:14; Brown, 1975:42-43 (provisionally restored to generic status).

Acanthostichus (Ctenopyga) townsendi (Ashmead). Emery, 1911:13-14; Smith, 1942:62, characterization of male, 1943:283, 288-290, Fig. 4, J (pygidium of male), 1947:526, dealate female (presumably lost), Plate 1: Fig. 4, 1951:782; Creighton, 1950:58-59; Krafchick, 1959:26-27, Plate 2, Fig. 4, Plate 3, Fig. 7, Plate 4, Fig. 5 (male genitalia).

Description.

Worker: HL 0.94 - 1.06, HW 0.83 - 0.96, SL 0.43 - 0.48, SW 0.15 - 0.18, EL 0.05 - 0.08, WL 1.39 - 1.56, FL 0.65 - 0.70, FW 0.28 - 0.33, PW 0.38 - 0.48, PL 0.48 - 0.54, SI 44 - 45, CI 86 - 93, PI 113 - 130, FI 2.15 - 2.36, SL/SW 2.64 - 2.92. Mandibles without teeth, but angulate at apex; anterior border of clypeus notched, frontal carinae forming angles which extend past anterior medial border; vertex broadly concave, sides nearly parallel, slightly convex; eyes relatively large, consisting of about 10 poorly defined ommatidia; anterior border of scape weakly concave; mesosoma similar to those of other members of the genus; propodeum not concave posteriorly, lacking spines or teeth; petiole wider posteriorly than anteriorly; subpetiolar process large, well developed, anterior edge broadly rounded, posterior edge broadly concave, faces meeting at distinct angle (Fig. 42); gaster as in other species, pygidium toothed. Hairs long (0.25 mm), erect, pointed and on all surfaces; entire ant devoid of decumbent pubescence. Dark reddish brown, smooth and polished throughout.

Female: HL 0.95 - 1.24, HW 0.84 - 1.03, SL 0.43 - 0.51, SW 0.15 - 0.19, EL 0.23 - 0.29, WL 1.65 - 1.88, PW 0.40 - 0.60, PL 0.53 - 0.64, SI 41 - 45, CI 83 - 88, PI 106 - 131, SL/SW 2.73 - 2.92. Mandible essentially toothless, except for very fine serration in one specimen (Fig. 54); clypeus with very small lateral bumps; eyes large, reaching side of head in full face view; ocelli small (diameter of median ocellus 0.06 mm); scape very slightly concave anteriorly; sides of head nearly parallel; vertex slightly concave; mesosoma little modified for flight (Fig. 53);

posterior face of propodeum concave; petiolar node elongate, widened posteriorly. All surfaces with abundant erect hairs, decumbent pubescence limited to parts of mesonotum near base of wings, descending face of propodeum and anterior face of petiole. Sculpture is shining and polished, color is dark reddish brown.

Male (measurements of *C. townsendi* lectotype in parentheses): HL 0.83 - (0.85), HW (posterior to eye) (0.78) - 0.80, SL (0.24) - 0.28, SW (0.1) 0.1, EL (0.35) - 0.39, WL (1.79) - 1.85, PW (0.43) - 0.44, PL (0.49) - 0.54. Indices: SI (28) - 34, CI (92) - 96, PI (114) - 123. Mandible without teeth, apex angled; median anterior border of clypeus broadly convex; eyes large, convex; 3 well developed ocelli, diameter less than distance between them; antennae 13 segmented, sides of scape parallel, anterior edge not concave; vertex of head convex; posterior face of petiole broadly concave, petiole shaped as in worker, elongate, wider posteriorly, subpetiolar process shaped as in worker, but not as wide. Genitalia (Fig. 77) unusual for the genus. Parameres large with long slender shaft, hairy apex which is hook-like, pointed ventrally and posteriorly; aedeagus very distinctive, consists of elongate process which terminates in triangular shaped, toothed structure (Fig. 80); volsellae large with round lobe; subgenital plate distinctive, terminating in two broad teeth (Fig. 77). Hairs covering entire surface, most about 0.1 mm long, few up to 0.25 mm, lacking decumbent pubescence. Sculpture mostly smooth, shining, mandibles and head shagreened or finely punctate. Very dark brown in color, mandibles, funiculus, legs, genitalia lighter brown.

Discussion. All three castes of this species are easily distinguished from those of the other species. The workers are easily distinguished from all other known species by the relatively large eye (Fig. 3) and the top of the petiole is smooth and strongly shining (found in few other species) Workers of *A. emmae* would be expected to have a more quadrate petiole than those of *A. texanus*, but would otherwise be expected to be similar. The female is easily distinguished as it is one of the few in the genus that would have wings. They are not subdichthadiiform as in other species and are actually very similar to the workers, both in size and form. The top of the petiole is smooth and the petiole is elongate. The female is similar to that of *A. emmae*, but has a narrower head, narrower petiole and smaller ocelli and is thus easily separated. The male is similar to those of other species in the genus, except for the genitalia, which are very distinct (Fig. 79), and it has a 13 segmented antenna. The teeth of the subgenital plate are thickened, which easily and conveniently separates this species from all other known males. The males of *A. emmae* would be expected to be similar,

but may have petiolar nodes much more quadrate than those of *A. texanus*. The males of *A. texanus* have not been associated with workers, but these three castes are probably all members of the same species. All three castes are quite different from those of other species, it is the only species collected from the area around Monterrey, Mexico, and the petioles of the three castes are polished and shining. There is little doubt they are conspecific. Males have petioles of two forms (Figs. 74 & 75), but are assumed to be a single species.

Distribution. USA: southern extreme of Texas, Brownsville (Smith, 1955), Cameron Co., Victoria Co., Hidalgo Co., Mexico: Nuevo León, San Nicolas de los Garza (near Monterrey) (Map 2).

Type Series. *Acanthostichus texanus* dealate female, Brownsville, TX, H. F. Wickham (MHNG) apparently lost. *Ctenopyga townsendi* male (MCZC), La Puerta, 292, Mex. 6 May 95; MCZ Syntype 29360 [seen, = lectotype, here designated, genitalia mounted separately on slide by William Brown, MCZC]. Second male and female apparently lost. Unfortunately we have no idea where this specimen was collected. Many states in Mexico have localities named "La Puerta". Smith (1955) and Brown (1975) hypothesized that this specimen may have been collected in the state of Chihuahua. This is doubtful, as I have collected very intensely in all parts of Chihuahua over a period of several years and have not captured any others. In addition this species is apparently found only in northeastern Mexico and southeastern Texas. It is likely that the type locality is somewhere in northeastern Mexico.

Material Examined. MEXICO: Nuevo León, San Nicolas de los Garza (near Monterrey), 20-xii-1987, David González (7 workers BMNH, CWEM, LACM, MCZC, MZSP, UNAM, 1 female, 1 male, 11-xi-1987 CWEM), Monterrey, 1-ix-1987, D. González (2 workers CWEM), Bustamante (Nuevo León), xii-1978, L. Garling (2 workers MCZC), lectotype male. USA, Texas, Rio Grande City, Starr Co. 24-x-1942, W. Buren (1 female MCZC).

Biology. This species is primarily subterranean, preys on termites (*Gnathamitermes tubiformans*) and can be collected when they prey on termites under cow manure pats (D. González, pers. comm.). Workers are most commonly collected in the autumn - winter (Oct. - Dec.). Two males were collected in May and November 1987 at 13:30 (D. González, pers. comm.). Two workers were collected in the soil when D. González was excavating a *Pogonomyrmex barbatus* nest (pers. comm.).

***Acanthostichus truncatus* new species**

Fig. 26; Map 10, p. 49

Description.

Worker: HL 1.23 - 1.54, HW 1.05 - 1.30, SL 0.60 - 0.70, SW 0.24 -

0.29, EL 0.04 - 0.08, WL 1.64 - 1.96, PW 0.45 - 0.58, PL 0.64 - 0.76, SI 45 - 49, CI 84 - 85, PI 133 - 142, SL/SW 2.43 - 2.53. Mandibles without teeth or denticles; anterior border of clypeus concave, with two well developed processes; sides of head nearly parallel, slightly narrower posteriorly; vertex slightly concave; eyes small; scape with anterior margin concave, angulate near apex; mesosoma as in other species; posterior face of propodeum concave; petiole elongate, slightly wider posteriorly, subpetiolar process well developed, truncated ventrally (Fig. 26), ventral border slightly concave in some specimens of series; gaster as in other species. Erect hairs on all surfaces, up to 0.25 mm in length; decumbent pubescence present on gaster, but very sparse.

Sculpture mostly smooth and shining, sides of mesosoma and petiole striolate, almost punctate, top of petiole lightly punctate with longitudinal, shallow depressions or troughs.

Color reddish brown.

Female: Unknown.

Male: Unknown.

Discussion. This species is most closely related to *A. kirbyi*, but shows some affinities to *A. serratulus*. It is easily separated from both by the shape of the subpetiolar process. It further differs from *A. kirbyi* in that the dorsum of the petiole has well developed longitudinal troughs, and from *A. serratulus* in that the lateral clypeal teeth are well developed.

Distribution. Known only from the type locality in southern Colombia (Map 10).

Type series. Holotype worker (MCZC) and 14 paratype workers (BMNH, CWEM, IMLA, INPA, LACM, MACN, MCZC, MHNC, MIZA, MZSP, NHMB, USNM) [all seen], COLOMBIA, Putumayo, Mocoa, Guzman, 26-iv-1977, D. Jackson.

Material examined. Type series.

Biology. The type series was collected raiding an arboreal termite nest.

Etymology From Latin, *truncatus*, referring to the shape of the ventral process of the petiole.

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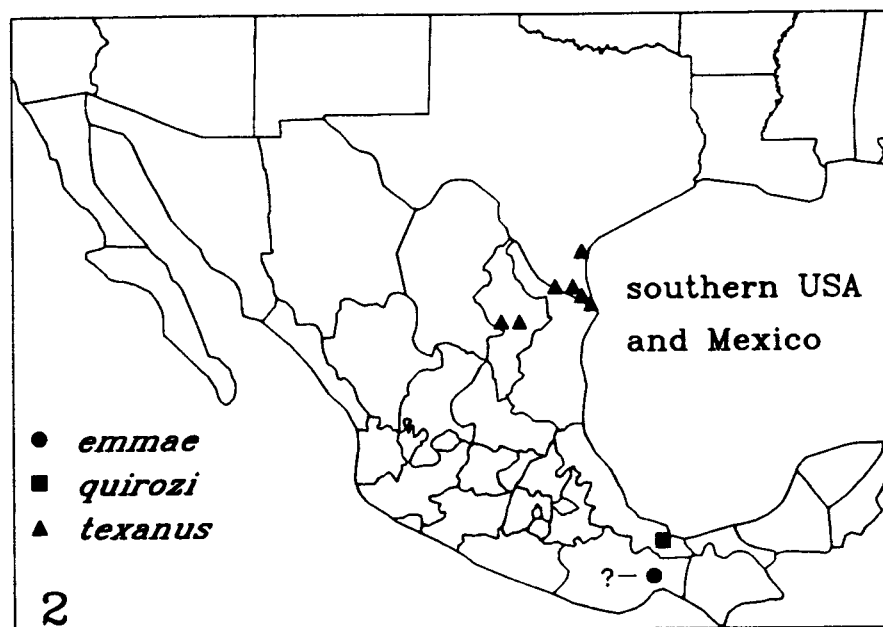
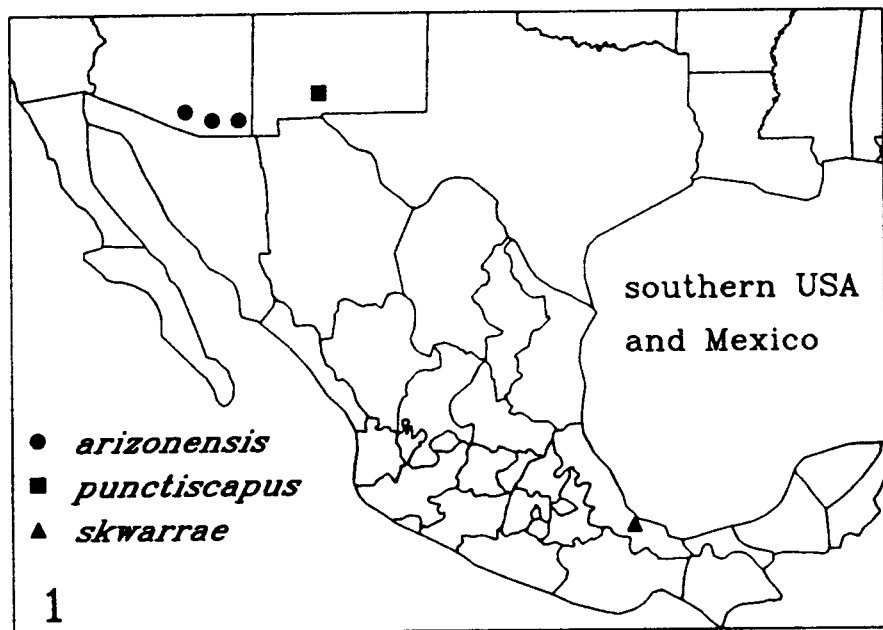
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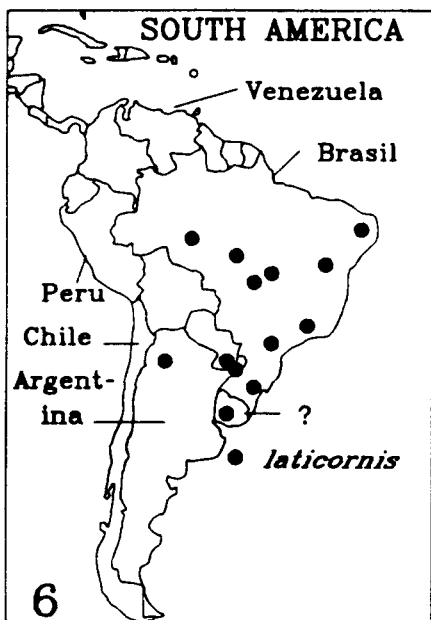
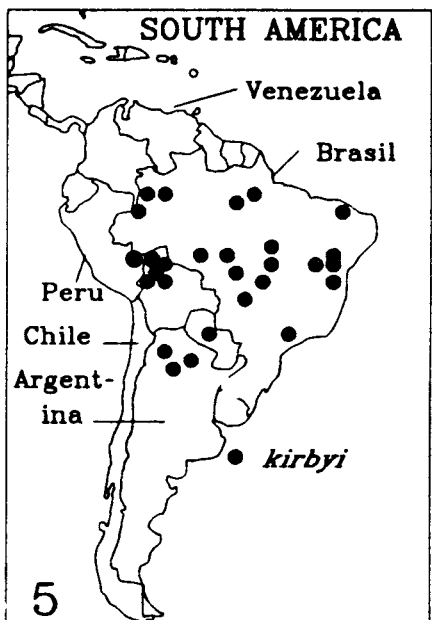
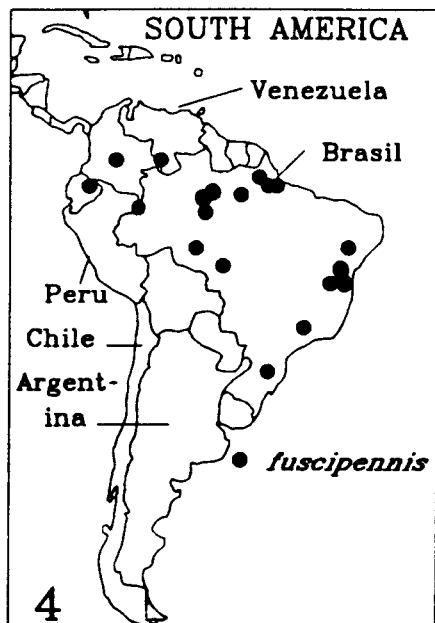
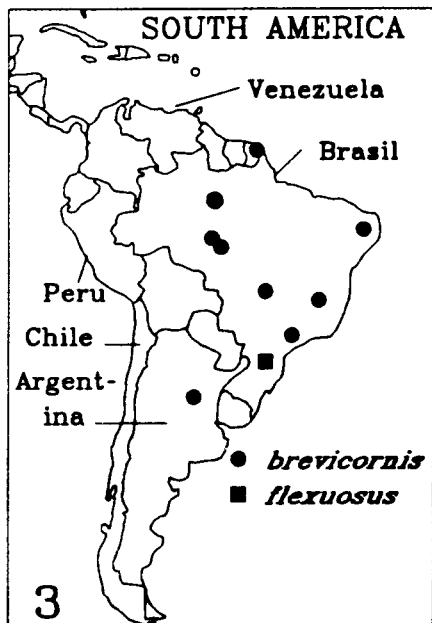
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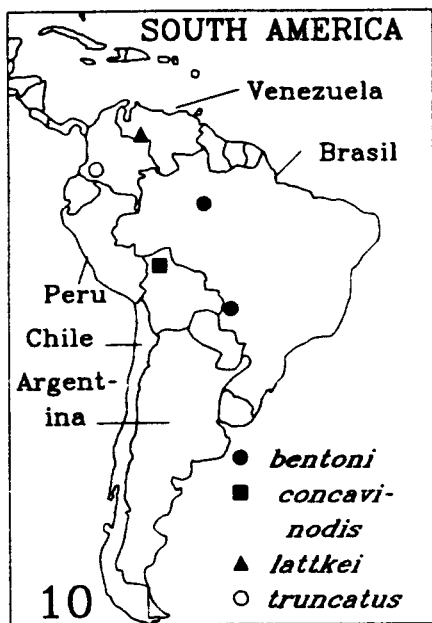
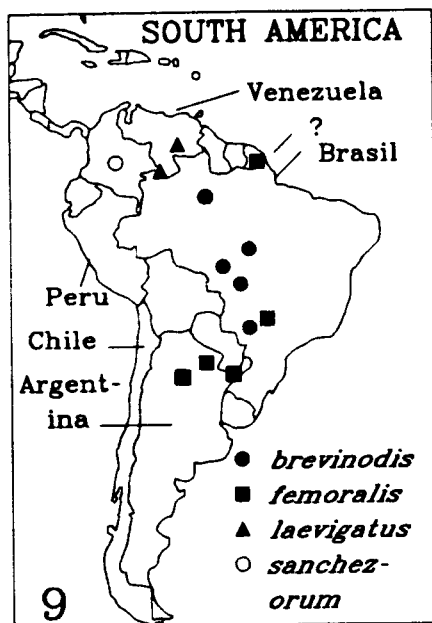
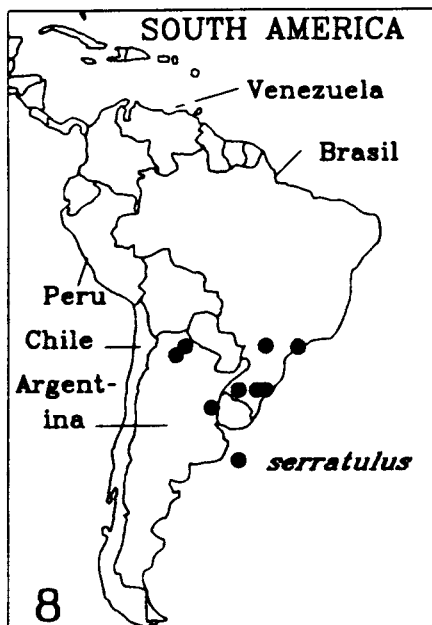
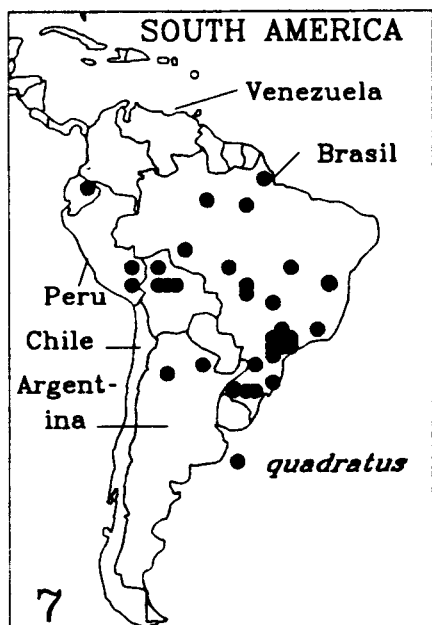




Maps 1 & 2. Distributions of: 1) *Acanthostichus arizonensis*, *A. punctiscapus*, *A. skwarrae*; and 2) *A. emmae*, *A. quirozi*, *A. texanus*.



Maps 3 - 6. Distributions of: 3) *Acanthostichus brevicornis*, *A. flexuosus*; 4) *A. fuscipennis*; 5) *A. kirbyi*; and 6) *A. laticornis*.



Maps 7 - 10 Distributions of: 7) *Acanthostichus quadratus*; 8) *A. serratus*; 9) *A. brevinodis*, *A. femoralis*, *A. laevigatus*, *A. sanchezorum*; and 10) *A. bentoni*, *A. concavinodis*, *A. latickei*, *A. truncatus*.

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