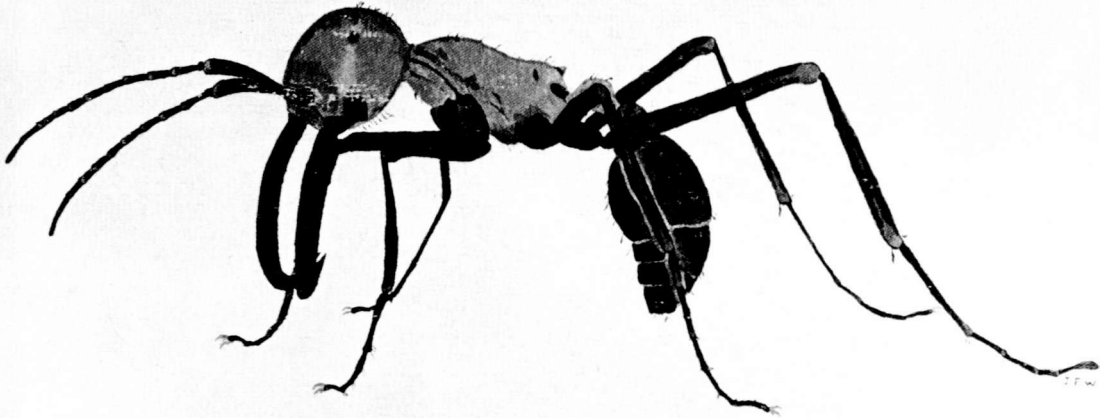


USNM

**THE IDENTIFICATION
AND DISTRIBUTION**

OF

NEW WORLD ARMY ANTS
(Dorylinae: Formicidae)



THE IDENTIFICATION AND DISTRIBUTION OF NEW WORLD ARMY ANTS (Dorylinae: Formicidae)

BAYLOR PRESS

USNM

**THE IDENTIFICATION AND DISTRIBUTION
OF NEW WORLD ARMY ANTS (DORYLINAE: FORMICIDAE)**

USNM

The
Identification and Distribution
of
New World Army Ants
(Dorylinae: Formicidae)

JULIAN F. WATKINS II

Department of Biology
Baylor University
Waco, Texas 76703



MARKHAM PRESS FUND
Waco, Texas

Copyright © 1976 by
THE MARKHAM PRESS FUND
OF BAYLOR UNIVERSITY PRESS
Waco, Texas 76703

Library of Congress Catalog Card Number: 76-17690
All Rights Reserved • Printed in the United States of America

This volume is the seventh volume published by the Markham Press Fund of Baylor University Press, established in memory of Dr. L. N. and Princess Finch Markham of Longview, Texas, by their daughters, Mrs. R. Matt Dawson of Waco, Texas, and Mrs. B. Reid Clanton of Longview, Texas.

Kent Keeth
Chairman, Markham Press Fund
of Baylor University Press

CONTENTS

USNM

	<i>page</i>
Introduction and acknowledgments	vii
List of species, subspecies, authors, dates, castes	1
Keys to genera and species:	
Genera of New World Dorylinae:	
workers	6
males	6
Species of <i>Cheliomyrmex</i> :	
soldiers	6
males	7
Species of <i>Nomamyrmex</i> :	
workers	7
males	7
Species of <i>Labidus</i> :	
workers	8
males	8
Species of <i>Eciton</i> :	
workers	9
males	10
Species of <i>Neivamyrmex</i> :	
workers	11
males	19
Plates	29
Index to maps	49
Distribution maps	51
Lists (alphabetical):	
Genus, species, country, state	75
Country, genus, species	89
Brazil, Mexico, U.S.A.: state, genus, species	94
Literature cited	102

INTRODUCTION AND ACKNOWLEDGMENTS

This publication includes a list of the recognized species and subspecies, known castes, keys (with figures) to genera and species (workers and males), distribution maps and lists to species and subspecies for the New World army ants (Dorylinae). The keys are based on Borgmeier's 1955 keys which have been translated from German to English, extensively revised, and seven new species added.

Subspecies are not separated in the present keys, but are tentatively designated on the maps. As additional specimens from intermediate localities are accumulated, the distinction of many previously recognized subspecies (and some species) becomes more difficult. Characteristics of most of the recognized subspecies are given in Borgmeier (1955).

In several cases, a species is included twice in a key and can be identified by two different routes. This is done for species that vary in a particular characteristic used, or when a characteristic may be difficult to interpret. After a specimen is keyed, the locality should be checked on the appropriate map. The map number is enclosed in parentheses following the name of each species in the keys. Undoubtedly, many new localities will be discovered, especially for those species which presently are known from only a few localities.

The keys to workers are designed to identify soldiers, major and media workers. Minor workers usually lack sufficiently well developed characteristics for adequate separation.

Males exhibit fewer intraspecific variations than do workers and can often be more positively identified. The shapes of the male genitalia (stipites, volsellae, sagittae) are used extensively in these keys. Although extraction of the genitalia often damages the tips of the gasters and is time consuming, the use of these characters often results in a more positive identification. Although some pairs of closely related species with more or less identical genitalia have previously been described, I suspect that in most cases these pairs are at most only subspecies.

Keys to queens have been omitted in this paper as queens are known for only 32 of the 147 species and are not commonly collected. When collected, queens should always be preserved in the same vial with a sample of workers or pinned on the same pin with a major worker from the same colony. Doryline queens should not generally be collected as their removal destroys the colonies and may result in the elimination of some species from restricted areas. My observations of *Neivamyrmex nigrescens* indicate that less than one of every ten colonies produces new reproductives each year, and these reproductives from each colony form only one or two new colonies.

The effectiveness of these keys and maps can be increased by using them in conjunction with the descriptions and more complete figures in Borgmeier (1955). This publication can be obtained from "Editora Vozes Ltda., c/o D. Lucia, C. Postal 23, Petropolis, R. J., Brazil" (\$15.00 U.S.).

The distribution maps and lists include data from the following sources. *Publications:* Borgmeier (1955), Cole (1966), Gorwald (1971), Hym. Amer. N. Mex. (1951, 1958, 1967), Kannoowski (1969), Kempf (1972), LaRivers (1968), Schneirla (1971), Smith (1942), Warren and Rouse (1969), Watkins (1972), Wheeler (1908). *Collections:* Amer. Mus. Natur. Hist. (N.Y.), U.S. Nat. Mus. (Wash., D.C.), Mus. Comp. Zool. (Harvard), Los Angeles Co. Mus. Natur. Hist. (Calif.), Southwest. Res. Sta. (Portal, Ariz.), Univ. of Ark. (Fayetteville), Kans. State Univ. (Manhattan), Tex. A&M (College Station), Acad. Natur. Sci. Philadelphia (Penn.), Borgmeier (Sao Paulo, Brazil), Schneirla (A.M.N.H.), Watkins (Baylor Univ., Waco, Tex.), Baldrige (Shriner Jr. College, Kerrville, Tex.). *Collection lists:* Akre (Wash. State Univ., Pullman, Wash.), Rettenmeyer (Univ. of Connecticut, Storrs), Snelling (L.A.C.M., Calif.).

Assistance in recording data and preparing maps was provided by Carol Brown and Thad White, biology students at Baylor University. Arrangements for my work at the U.S. National Museum of Natural History were made by Dr. David Smith, and at the American Museum of Natural History by Dr. Jerome Rozen, Jr. and Marjorie Favreau. Dr. Thomas Borgmeier, O.F.M., generously gave his permission for copying figures from his 1955 publication. All figures in the present paper are from his publication, except Plate 1, Fig. 1-3, 14; Pl. 6, Fig. 11, 12; Pl. 8, Fig. 19, 20; Pl. 9, Fig. 1-8; Pl. 10, Fig. 1-4; Pl. 12, Fig. 1-4; Pl. 19, Fig. 1-9; and Pl. 20, Fig. 20, 34 which are original or from my own manuscripts and publications. Dr. Floyd Davidson, Chairman Baylor Biology Department, assisted in obtaining financial support through the Baylor Biology Department and from a Baylor Faculty Research Grant.

LIST OF SPECIES, SUBSPECIES, AUTHORS, DATES
AND KNOWN CASTES

(w = worker, q = queen, m = male)

v = species in *Wasmann's coll.*

Cheliomyrmex

- C. andicolus* Emery, 1894, w
- C. audax* Santschi, 1921, m
- ✓*C. megalonyx* Wheeler, 1921, wm
- ✓*C. morosus* (Fr. Smith, 1859), wm
- ✓*C. ursinus* (Emery, 1901), m

Eciton

- ✓*E. burchelli s.str.* (Westwood, 1842), wm
- ✓*E. burchelli cupiens* Santschi, 1923, wm
- ✓*E. burchelli foreli* Mayr, 1886, wqm
- ✓*E. burchelli parvispinum* Forel, 1899, wqm
- ✓*E. burchelli urichi* Forel, 1899, wqm
- ✓*E. drepanophorum* Fr. Smith, 1858, w
- E. dulcius s.str.* Forel, 1912, wqm
- ✓*E. dulcius crassinode* Borgmeier, 1955, wq
- ✓*E. hamatum* (Fabricius, 1781), wqm
- E. jansoni* Forel, 1912, m
- ✓*E. lucanoides s.str.* Emery, 1894, w
- ✓*E. lucanoides conquistador* Weber, 1949, wq
- ✓*E. mexicanum s.str.* Roger, 1863, wqm
- E. mexicanum argentinum* Borgmeier, 1955, wq
- E. mexicanum goianum* Borgmeier, 1955, wqm
- E. mexicanum latidens* Santschi, 1911, m
- ✓*E. mexicanum morulum* Santschi, 1923, m
- ✓*E. mexicanum panamense* Borgmeier, 1955, wq
- ✓*E. quadriglume* (Haliday, 1836), wqm
- ✓*E. rapax* Fr. Smith, 1855, wqm
- E. setigaster* Borgmeier, 1953, m
- ✓*E. uncinatum* Borgmeier, 1953, m
- ✓*E. vagans s.str.* Olivier, 1791, wm
- E. vagans allognathum* Borgmeier, 1955, wm
- ✓*E. vagans angustatum* Roger, 1863, wqm
- E. vagans dispar* Borgmeier, 1955, wqm
- ✓*E. vagans dubitatum* Emery, 1896, wm
- ✓*E. vagans fur* Borgmeier, 1955, wm
- ✓*E. vagans mutatum* Borgmeier, 1955, wqm

Labidus

- ✓*L. auropubens* (Santschi, 1920), m

- ✓*L. coecus* (Latreille, 1802), wqm
- ✓*L. curvipes* (Emery, 1900), m
- L. mars* (Forel, 1912), w
- L. nero s.str.* (Santschi, 1930), m
- ✓*L. nero denticulatus* Borgmeier, 1955, m
- ✓*L. praedator s.str.* (Fr. Smith, 1858), wqm
- ✓*L. praedator sedulus* Menozzi, 1926, wm
- ✓*L. spininodis* (Emery, 1890), w
- L. truncatidens* (Santschi, 1920), m

Neivamyrmex

- N. sp. a* Borgmeier, 1955, q
- ✓*N. adnepos* (Wheeler, 1922), w
- ✓*N. agilis* Borgmeier, 1953, w
- ✓*N. alfaroi* (Emery, 1890), wq
- ✓*N. andrei* (Emery, 1901), m
- ✓*N. angulimandibulatus* Watkins, 1974, m
- ✓*N. angustinodis* (Emery, 1888), wq
- N. antillanus* (Forel, 1897), w
- N. asper* Borgmeier, 1955, w
- N. sp. b* Borgmeier, 1955, q
- N. balzani* (Emery, 1894), w
- ✓*N. baylori* Watkins, 1973, m
- N. bohlsi* (Emery, 1896), w
- N. bruchi* (Forel, 1912), w
- N. bureni* (Enzmann, 1952), m
- ✓*N. californicus* (Mayr, 1870), wq
- N. carettei* (Forel, 1913), w
- N. carinifrons* Borgmeier, 1953, m
- ✓*N. carolinensis* (Emery, 1894), wqm
- N. clavifemur* Borgmeier, 1953, m
- N. cloosae* (Forel, 1912), m
- N. compressinodis* Borgmeier, 1953, w
- ✓*N. cornutus* Watkins, 1975, w
- N. cratensis* Borgmeier, 1953, m
- ✓*N. cristatus* (Andre, 1889), w
- N. densepunctatus* (Borgmeier, 1933), w
- N. detectus* Borgmeier, 1953, m
- ✓*N. diabolus* (Forel, 1912), m
- ✓*N. diana* (Forel, 1912), wqm
- ✓*N. digitistipus* Watkins, 1974, m
- ✓*N. diversinodis* (Borgmeier, 1933), w
- N. d'orbigny* (Shuckard, 1840), wm
- N. emersoni* (Wheeler, 1921), w
- N. emeryi* (Santschi, 1921), m

- N. erichsoni* (Westwood, 1842), m
N. falciferus (Emery, 1900), m
✓ *N. fallax* Borgmeier, 1953, w
N. foveolatus Borgmeier, 1953, m
✓ *N. fumosus* (Forel, 1913), m
✓ *N. fuscipennis* (Wheeler, 1908), m
N. genalis Borgmeier, 1953, m
N. gibbatus Borgmeier, 1953, wq
✓ *N. goeldii* (Forel, 1901), w
N. graciellae (Mann, 1926), w
N. gracilis Borgmeier, 1955, m
N. gradualis Borgmeier, 1953, w
✓ *N. guerini* (Shuckard, 1840), m
✓ *N. guyanensis* (Santschi, 1916), m
✓ *N. halidayi* (Shuckard, 1840), m
✓ *N. harrisi* (Haldeman, 1852), wqm
✓ *N. hetschkoi* (Mayr, 1886), wqm
N. hopei (Shuckard, 1840), m
✓ ~~*N. humilis* (Borgmeier, 1939), wqm~~ *N. inflatus* Borg., 1953, m
N. imbellis (Emery, 1900), m
✓ *N. impudens* (Mann, 1922), w
N. inca (Santschi, 1921), m
✓ *N. iridescens* Borgmeier, 1950, w
N. jermanni (Forel, 1901), m
N. jberingi (Forel, 1908), m
✓ *N. klugi s.str.* (Shuckard, 1840), m
✓ *N. klugi distans* Borgmeier, 1953, m
N. kuertii (Enzmann, 1952), m
N. laevigatus (Borgmeier, 1948), w
✓ *N. laticapus* (Emery, 1901), m
✓ *N. legionis* (Fr. Smith, 1855), wqm
✓ *N. leonardi* (Wheeler, 1915), w
N. leptognathus (Emery, 1900), m
N. lieselae (Forel, 1913), m
✓ *N. longiscapus* Borgmeier, 1953, m
✓ *N. macrodentatus* (Mennozi, 1931), w
✓ *N. macropterus* Borgmeier, 1953, m
✓ *N. manni* (Wheeler, 1914), w
N. maxillosus (Emery, 1900), m
✓ ~~*N. melanocephalus* (Emery, 1895), w~~ *N. magathrix* Kempt, 1961, w.
✓ *N. melsheimeri* (Haldemann, 1852), m
N. mexicanus (Enzmann, 1952), m
N. micans Borgmeier, 1953, m
N. microps Borgmeier, 1955, m
✓ *N. minensis* (Borgmeier, 1928), wq

- ✓*N. minor* (Cresson, 1872), m
- ✓*N. modestus* (Borgmeier, 1933), w
- N. mojave* (M. R. Smith, 1943), m
- ✓*N. moseri* Watkins, 1968, wq
- ✓*N. nigrescens* (Cresson, 1872), wqm
- ✓*N. nordenskiöldi* (Holmgren, 1908), w
- ✓*N. nyansisi* Watkins, 1972
- ✓*N. opacithorax* (Emery, 1894), wqm
- ✓*N. orthonotus* (Borgmeier, 1933), w
- N. pacificus* Borgmeier, 1955, w
- ✓*N. paucillus* (Wheeler, 1903), wq
- N. perplexus* (Borgmeier, 1953), m
- ✓*N. pertyi* (Shuckard, 1840), wqm
- N. physognathus* (Emery, 1900), m
- N. pilosus s. str.* (Fr. Smith, 1858), wm
- N. pilosus beebeyi* (Wheeler, 1921), wm
- ✓*N. pilosus mandibularis* (M. R. Smith, 1942), m
- ✓*N. pilosus mexicanus* (Fr. Smith, 1859), wqm
- ✓*N. pilosus subsp.* Borgmeier, 1955, m
- N. piraticus* Borgmeier, 1953, m
- N. planidens* Borgmeier, 1953, m
- ✓*N. planidorsus* (Emery, 1905), w
- N. postangustatus* (Borgmeier, 1934), w
- N. postcarinatus* Borgmeier, 1953, w
- ✓*N. pseudops* (Forel, 1909), wqm
- N. puerulus* Borgmeier, 1955, m
- N. pulchellus* Borgmeier, 1955, m
- ✓*N. pullus* Borgmeier, 1953, m
- ✓*N. quadratooccipitus* Watkins, 1974, m
- N. radoszkowskyi* (Emery, 1900), m
- ✓*N. raptans* (Forel, 1911), wqm
- N. romandi* (Shuckard, 1840), m
- N. rosenbergi* (Forel, 1911), m
- ✓*N. rugulosus* Borgmeier, 1953, w
- ✓*N. scutellaris* Borgmeier, 1953, m
- N. shuckardi* (Emery, 1900), m
- ✓*N. spatulatus* (Borgmeier, 1939), m
- ✓*N. spinolai* (Westwood, 1842), wqm
- ✓*N. spoliator* (Forel, 1899), m
- N. sulcatus* (Mayr, 1868), m
- ✓*N. sumichrasti* (Norton, 1868), w
- ✓*N. swainsoni* (Shuckard, 1840), m
- N. tenuis* Borgmeier, 1953, m
- ✓*N. texanus* Watkins, 1972, wqm
- ✓*N. tristis* (Forel, 1901), m
- N. vicinus* Borgmeier, 1953, m

✓*N. walkeri* (Westwood, 1842), m

Nomamyrmex

✓*Noma. esenbecki s.str.* (Westwood, 1842), wm

✓*Noma. esenbecki crassicornis* (Fr. Smith, 1855), wm

✓*Noma. esenbecki n. subsp.*, wm = *Nomamyrmex esenbecki crassicornis*

✓*Noma. esenbecki wilsoni* (Santschi, 1920), wm

✓*Noma. hartigi* (Westwood, 1842), wm

KEY TO GENERA OF NEW WORLD DORYLINAE

Workers

- 1.a. Postpetiole absent *Cheliomyrmex*
- b. Postpetiole present 2
- 2.a. Tarsal claws without teeth *Neivamyrmex*
- b. Tarsal claws with teeth 3
- 3.a. Scape thick (apical width greater than one-third its length, Pl. 3, Fig. 6) *Nomamyrmex*
- b. Scape slender (apical width less than one-third its length, Pl. 3, Fig. 3) 4
- 4.a. Posterodorsal corner of propodeum with teeth or lamellae (Pl. 4, Fig. 1-10) *Eciton*
- b. Posterodorsal corner of propodeum rounded and without teeth or lamellae *Labidus*

Males

- 1.a. Apex of sagitta with setae (Pl. 1, Fig. 4; Pl. 2, Fig. 1, 2, 4; Pl. 3, Fig. 8, 9); body length 15-23 mm 2
- b. Apex of sagitta without setae (Pl. 5, Fig. 7; Pl. 20, Fig. 1-9); body length 5-18 mm 4
- 2.a. Gastric tergites with conspicuous tufts of long dense setae *Nomamyrmex*
- b. Gastric tergites without conspicuous tufts of long dense setae 3
- 3.a. Length of flagellum about equal to or slightly longer than greatest width of head; subgenital plate with four teeth—two outer apical and two inner subapical *Cheliomyrmex*
- b. Length of flagellum at least one and one-fourth times greatest width of head; subgenital plate with two apical teeth *Labidus*
- 4.a. Ventral projections of sagitta fused or slightly separated and usually with rounded apex (Pl. 5, Fig. 7); volsella tapered distally to a blunt apex (Pl. 5, Fig. 8); body length 15-18 mm *Eciton*
- b. Ventral projections of sagitta divergent and sharp pointed (Pl. 20, Fig. 1-9); volsella blade-shaped, hook-shaped, or forked, and ending in sharp apex (Pl. 20, Fig. 10-20); body length 5-18 mm *Neivamyrmex*

KEY TO SPECIES OF *CHELIOMYRMEX*

(Numbers following species are map references)

Soldiers

- 1.a. Body dark brown; head and thorax thickly punctated *andicolus*(5)

- b. Body reddish yellow; head and thorax smooth 2
- 2.a. Sixth flagellar segment broader than long; metapleuron punctated *morosus* (3)
- b. Sixth flagellar segment longer than broad; metapleuron with fine striae *megalonyx* (5)

Males

- 1.a. Body black or blackish brown 2
- b. Body reddish brown 3
- 2.a. Distance from lateral ocellus to compound eye equal to or greater than diameter of lateral ocellus; height of compound eye about equal to length of scape exclusive of basal condyle *ursinus* (4)
- b. Distance from lateral ocellus to compound eye one-half or less the diameter of lateral ocellus; height of compound eye distinctly greater than length of scape exclusive of basal condyle *morosus* (3)
- 3.a. Metatibia distinctly bent (Pl. 3, Fig. 11), dorsal longitudinal surface distinctly concave *audax* (5)
- b. Metatibia not distinctly bent (Pl. 3, Fig. 12), dorsal longitudinal surface straight *megalonyx* (5)

KEY TO SPECIES OF *NOMAMYRMEX*
(Numbers following species are map references)

Workers

- 1.a. Postoccipital sulcus absent; dorsum of petiole without longitudinal rugae *hartigi* (9)
- b. Postoccipital sulcus distinct; dorsum of petiole with longitudinal rugae *esenbecki* (10-12)

Males

- 1.a. Border of head behind ocellar peduncle without lamella; first gastric tergite without longitudinal rugae; width of blade of stipes at least two-thirds its length (Pl. 1, Fig. 6); posteroventral projection of volsella triangular with a small dorsal tooth near sharp apex (Pl. 1, Fig. 7, 8) *hartigi* (9)
- b. Median border of head behind ocellar peduncle with narrow lamella; first gastric tergite usually with longitudinal rugae; width of blade of stipes about one-half its length (Pl. 1, Fig. 5); volsella blunt, gradually tapered or foot-shaped (Pl. 1, Fig. 9-14) *esenbecki* (10-12)

KEY TO SPECIES OF *LABIDUS*

(Number following species are map references)

Workers (Soldiers and larger workers)

- 1.a. Petiole without anteroventral tooth *praedator* (6)
- b. Petiole with anteroventral tooth 2
- 2.a. Basal surface of propodeum broader than long, and only slightly lower than the mesonotum *mars* (8)
- b. Basal surface of propodeum longer than broad, and strongly depressed below the mesonotum 3
- 3.a. Length of scape less than five times its apical width, and about one-half the head length; nodes of petiole and postpetiole about same length (dorsal view) *coecus* (1)
- b. Length of scape more than five times its apical width, and at least two-thirds the head length; node of petiole slightly longer than node of postpetiole (dorsal view) *spininodis* (7)

Males

- 1.a. Dorsal projection of sagitta broadly rectangular, about as broad as length of ventral projection (Pl. 2, Fig. 1, 2); sagitta of *nero denticulatus* with large teeth on posterior border of dorsal projection (Pl. 2, Fig. 2); posterior border of expanded apex of volsella more or less evenly serrated (Pl. 2, Fig. 10) *nero* (8)
- b. Dorsal projection of sagitta rounded or distinctly narrower than length of ventral projection; distal portion of volsella with irregular teeth (Pl. 2, Fig. 8, 9, 11-15) 2
- 2.a. Anterior border of clypeus concave in the middle; volsella somewhat hook-shaped with a posterior projection (Pl. 2, Fig. 8) *coecus* (1)
- b. Anterior border of clypeus straight or convex in the middle; volsella not hook-shaped 3
- 3.a. Distance from lateral ocellus to compound eye at least one and one-half times the diameter of the lateral ocellus 4
- b. Distance from lateral ocellus to compound eye about equal the diameter of the lateral ocellus (may be slightly more or less) 5
- 4.a. Mandible gradually tapered to a pointed apex (Pl. 3, Fig. 5); anterior border of clypeus strongly convex *curvipes* (2)
- b. Apex of mandible truncated (Pl. 3, Fig. 4); anterior border of clypeus slightly convex *truncatidens* (7)
- 5.a. Apical one-third of stipes blade-shaped and abruptly narrowed (Pl. 2, Fig. 6); mandible gradually tapering to a pointed apex; anterior border of clypeus broadly and slightly convex *europubens* (2)
- b. Apex of stipes bluntly rounded (Pl. 2, Fig. 7); mandible abruptly

narrowed near the apex; median portion of anterior border of clypeus almost straight *praedator*(6)

KEY TO SPECIES OF *ECITON*

(Numbers following species are map references)

Workers

- 1.a. Occipital corners without distinct teeth *dulcius*(24, 25)
- b. Occipital corners with sharp teeth 2
- 2.a. Propodeal teeth fused (Pl. 4, Fig. 8) *mexicanum*(28, 29, 30)
- b. Propodeal teeth separated 3
- 3.a. Propodeal teeth spinous (lateral view, Pl. 4, Fig. 2, 5, 9) 4
- b. Propodeal teeth triangular or rounded (Pl. 4, Fig. 1, 3, 4, 6, 8, 10) 6
- 4.a. Head and alitrunk black, gaster yellow to orange; propodeal spine thin and sharp (Pl. 4, Fig. 2); mandibles of soldiers never hook-shaped *rapax*(23)
- b. Head and alitrunk reddish brown to blackish brown, gaster reddish brown to orange; propodeal spine (Pl. 4, Fig. 5, 9) broader than in *rapax*; mandibles of soldiers hook-shaped (Pl. 3, Fig. 1) 5
- 5.a. Propodeal teeth about as long as propodeal spiracles (Pl. 4, Fig. 5); mandibles (exclusive of recurved tips) of soldiers about as long as width of head (Pl. 3, Fig. 1) *quadriglume*(22)
- b. Propodeal teeth shorter than propodeal spiracles (Pl. 4, Fig. 9); mandibles (exclusive of recurved tips) of soldiers distinctly longer than width of head *vagans*(18-21)
- 6.a. Distinct single median longitudinal keel on sloping surface of propodeum; propodeal spiracle almost perpendicular to dorsal surface (Pl. 4, Fig. 4, 6); strigile of metatibia about two times longer than wide; hook-shaped mandible of soldier with large median tooth on inner surface (Pl. 3, Fig. 2) *lucanoides*(31)
- b. Longitudinal keels on sloping surface of propodeum paired or absent; propodeal spiracle at angle of 70-80 degrees from dorsal surface of propodeum (Pl. 4, Fig. 1, 3, 10); strigile of metatibia at least three times longer than wide; hook-shaped mandible of soldier without distinct tooth on inner surface 7
- 7.a. Node of petiole trapezoidal or subquadrate (dorsal view); alitrunks of media and minor workers usually brownish or blackish; head of soldier not distinctly shining *burchelli*(13-15, 17)
- b. Node of petiole elongate rectangular (dorsal view); body unicolor yellowish or light reddish; head of soldier distinctly shining 8
- 8.a. Area between propodeal keels narrowed posteriorly (dorsal

- view); second segment of flagellum slightly longer than twice its greatest width (soldiers); second segment of flagellum longer than apical width of scape (workers) *hamatum* (27)
- b. Propodeal keels about parallel (dorsal view); second segment of flagellum slightly shorter than twice its greatest width (soldiers); second segment of flagellum not longer than apical width of scape (workers) *drepanophorum* (16)

Males

- 1.a. Greatest width of mandible about equal to or less than distance between antennal bases 2
- b. Greatest width of mandible distinctly greater than distance between antennal bases 8
- 2.a. Apex of mandible broadly rounded (Pl. 5, Fig. 2) *jansoni* (26)
- b. Apex of mandible pointed or angular 3
- 3.a. Broadest portion of mandible nearer its base than its apex 4
- b. Broadest portion of mandible not nearer its base than its apex 6
- 4.a. Outer surface of mandible almost straight along its basal two-thirds (Pl. 5, Fig. 1) *burchelli* (13-15, 17)
- b. Outer surface of mandible distinctly bent or convex along its basal one-third to one-half (Pl. 5, Fig. 3, 4) 5
- 5.a. Mandible distinctly longer than height of head; mandible (straight line from apex to inner base) at least four times longer than greatest width (Pl. 5, Fig. 4) *dulcius* (24, 25)
- b. Mandible about as long as height of head or shorter; mandible (straight line from apex to inner base) about three times longer than greatest width (Pl. 5, Fig. 3) *quadriglume*¹ (22)
- 6.a. Gaster without long setae; claw without tooth, except *vagans allognathum* *vagans* (18-21)
- b. Gaster with long setae; claw with tooth 7
- 7.a. Color brownish; scape without setae; setae on gastric tergites two-four confined to posterior half of each tergite *setigaster* (31)
- b. Color yellowish or light reddish brown; scape with numerous setae; setae of gastric tergites scattered over entire surface . . *hamatum* (27)
- 8.a. Distal surface of inner triangular projection of mandible almost straight except for curved apical tooth (Pl. 5, Fig. 5) *uncinatum* (26)

¹ The *E. rapax* male also keys to *E. quadriglume*. The male of *E. rapax* was described by Rettenmeyer (1974) after the above key had been completed. According to Rettenmeyer, "The males can be easily distinguished by the following characters: *E. rapax* has tibiae and tarsi of much lighter color than the rest of the legs, the venter of the gaster has long hairs almost restricted to the fifth sternite, the mandible has one large, bluntly rounded "tooth" slightly basal of the middle, and the surface medial to the dorsolateral margin of the propodeum is flat to weakly convex."

- b. Distal surface of inner projection of mandible not straight, but convex or forming a slight corner before flowing into curved apical tooth (Pl. 5, Fig. 6) *mexicanum* (28-30)

KEY TO SPECIES OF NEIVAMYRMEX
(Numbers following species are map references)

Workers

- 1.a. Mesonotum distinctly humped (Pl. 6, Fig. 2, 4, 5, 7, 10) and/or apex of antennal scape distinctly exceeds upper margin of head 2
 - b. Mesonotum gradually arched or flattened and antennal scape does not distinctly exceed upper margin of head 7
- 2.a. Apex of scape does not exceed upper margin of head (Pl. 6, Fig. 1) *legionis* (111)
 - b. Apex of scape distinctly exceeds upper margin of head (Pl. 6, Fig. 3, 8, 9) 3
- 3.a. Dorsal surface of propodeum longer than descending surface (lateral view, Pl. 6, Fig. 4, 10) 4
 - b. Dorsal surface of propodeum not longer than descending surface (lateral view, Pl. 6, Fig. 5, 7) 5
- 4.a. Postpetiole higher (lateral view) than long; mesonotum moderately humped (Pl. 6, Fig. 4) *pseudops* (71)
 - b. Postpetiole about as long as high (lateral view); mesonotum strongly humped (Pl. 6, Fig. 10) *gibbatus* (109)
- 5.a. Postpetiole wider (dorsal view) and higher (lateral view, Pl. 6, Fig. 5) than long; second segment of flagellum about as wide as long (Pl. 6, Fig. 6) *gradualis* (72)
 - b. Postpetiole slightly longer than wide (dorsal view) and about as long as high (lateral view); second segment of flagellum longer than wide 6
- 6.a. Head and alitrunk dark brown to black; eyes smaller than basal condyle of scape (Pl. 6, Fig. 8); node of petiole smoothly rounded (lateral view, Pl. 6, Fig. 7) *cristatus* (72)
 - b. Head and alitrunk reddish brown; eyes as large as basal condyle of scape (Pl. 6, Fig. 9); node of petiole with irregular ridges (lateral view, Pl. 6, Fig. 10) *gibbatus* (109)
- 7.a. Transverse carina present near junction of dorsal and descending surfaces of propodeum (Pl. 7, Fig. 4, 6) 8
 - b. Transverse carina absent at juncture of dorsal and descending surfaces of propodeum *N. diversinervis* may have a fine *transverse carina* 9
- 8.a. Transverse carina of propodeum weak and barely visible from

- lateral view (Pl. 7, Fig. 4), apex of antennal scape extends to about eye level *diana*(65)
- b. Transverse carina of propodeum well developed and shelf-like from lateral view (Pl. 7, Fig. 6), apex of antennal scape distinctly exceeds the eye level *postcarinatus*(64)
- 9.a. Declining surface of propodeum strongly concave or distinctly indented below a rounded dorsoposterior corner, and usually with distinct longitudinal carina along the lateral edges (Pl. 7, Fig. 1, 3, 5, 7, 11) (*Cautious! An divergence with longitudinal carinae*) 10
- b. Declining surface of propodeum rounded, straight, or weakly concave and not distinctly indented, and usually without distinct longitudinal carina along the lateral edges (Pl. 9, Fig. 6, 8) 20
- 10.a. Dorsum of propodeum, in profile, not depressed below mesonotum, but together form an almost level (straight or slightly curved) dorsal surface (Pl. 7, Fig. 1, 11) 11
- b. Dorsum of propodeum, in profile, clearly depressed below mesonotum 12
- 11.a. Eye small, but distinct; apex of scape clearly exceeds eye level; postpetiole longer than greatest width; weak indentation or slight curve in dorsum at juncture of mesonotum and propodeum (Pl. 7, Fig. 1) *emersoni*(88)
- b. ~~Eye indistinct~~; apex of scape about reaches eye level; length of postpetiole about equals its greatest width; mesonotal and propodeal dorsa, in profile, form a straight surface without an indentation at their juncture (Pl. 7, Fig. 11) *orthonotus*(100)
- 12.a. Apex of scape nearer upper head margin than eye level; eye with distinct convex cornea 13
- b. Apex of scape nearer eye level than upper head margin; eye indistinct or absent, and without distinct convex cornea 17
- 13.a. Head thickly punctated and finely reticulated, dull to slightly shiny 14
- b. Head smooth and with sparse small punctations, distinctly shiny 15
- 14.a. Postpetiole longer than greatest width; alitrunk densely granulated and dull; Costa Rica *asper*(40)
- b. Postpetiole about as long as greatest width (Pl. 20, Fig. 32); alitrunk less densely granulated and slightly shiny; Brazil . . . *minensis*(82)
- 15.a. Postpetiole longer than greatest width (Pl. 20, Fig. 25), and about as high as long with an evenly rounded node in profile (Pl. 7, Fig. 5) *alfaroi*(104)
- b. Postpetiole about as long as greatest width (Pl. 20, Fig. 26), and higher than long with posterior surface of node more steeply sloping than anterior surface 16
- 16.a. Head with violet reflections; postpetiole about five-sixths as long

- as high (Pl. 7, Fig. 3); Panama, Guianas, Bolivia *iridescens* (104)
- b. Head without violet reflection; postpetiole about three-fourths as long as high; Peru *pacificus* (82)
- 17.a. Anteroventral tooth of petiole large (Pl. 7, Fig. 7); dorsum of propodeum, in profile, distinctly arched and separated from mesonotum by deep indentation (Pl. 7, Fig. 7) *adnepos* (100)
- b. Anteroventral tooth of petiole small or absent; dorsum of propodeum, in profile, almost level except rounded near posterior corner and with only a shallow indentation or suture separating it from mesonotum 18
- 18.a. With distinct lamella in front of antennal fossa; postpetiole slightly narrower than petiole, and with a distinctly elongate-oval node (dorsal view, Pl. 20, Fig. 22) *angustinodis* (83)
- b. Without distinct lamella in front of antennal fossa; postpetiole as wide or wider than petiole 19
- 19.a. Postpetiole wider than long, and wider than petiole (Pl. 20, Fig. 33); largest worker about 5 mm long *bohlschi* (101)
- b. Postpetiole longer than wide, and about same width as petiole (Pl. 20, Fig. 27); largest worker less than 4 mm long *balzani* (101)
- 20.a. Declining surface of propodeum as long or longer than dorsal surface, eye without distinct convex cornea, petiole subquadrate and apex of scape does not exceed eye level or middle of head if eye is absent 21
- b. One or more of above characteristics (20.a.) is different 31
- 21.a. Anteroventral tooth of petiole indistinct or absent 22
- b. Anteroventral tooth of petiole large and triangular 24
- 22.a. Postpetiole longer than wide (Pl. 20, Fig. 23, 24); apex of scape extends to middle of head *modestus* (83)
- b. Postpetiole wider than long; apex of scape does not reach eye level or middle of head 23
- 23.a. Broad lamella present in front of antennal fossa; node of petiole about as long as wide (Pl. 20, Fig. 29); largest workers less than 4.0 mm long *leonardi* (56)
- b. Lamella very short or absent in front of antennal fossa; node of petiole longer than wide (Pl. 20, Fig. 28); largest workers about 5.5 mm long *antillanus* (59)
- 24.a. Pronotum with a transverse carina; petiole longer than wide 25
- b. Pronotum without a transverse carina; petiole about as wide or wider than long, except *fallax* whose petiole may be slightly longer than wide 26
- 25.a. Apex of scape not reaching eye level (Pl. 10, Fig. 8); transverse

Part of of
modestus
apex of scape

Sometimes difficult to see in *spinolaei*

- carina on pronotum very fine; posterolateral corners of head slightly drawn out; length of largest worker about 4.0 mm *planidorsus*(75)
- b. Apex of scape about reaching level of eye or middle of head; transverse carina on pronotum distinct; posterolateral corners of head strongly drawn out (Pl. 10, Fig. 6); length of largest worker about 5.0 mm *pertyi*(70)
- 26.a. Basal tooth of mandible of major enormous (Pl. 8, Fig. 19, 20); eye completely absent; alitrunk of largest worker less than 1.2 mm long 27
- b. Basal tooth of mandible moderate to small; eye reduced to yellow speck below cuticle; alitrunk of largest worker greater than 1.2 mm long 28
- 27.a. Basal tooth of mandible of major longer than its basal width, somewhat bent, and longer than the apical tooth of masticatory margin (Pl. 8, Fig. 20); Costa Rica *macrodentatus*(57)
- b. Basal tooth of mandible of major about as long as its basal width, not bent, and shorter than the apical tooth of masticatory margin (Pl. 8, Fig. 19); U.S.A.: Texas, Louisiana *moseri*(57)
- 28.a. Node of petiole wider than long 29
- b. Node of petiole as long as wide or slightly longer 30
- 29.a. Alitrunk with abundant setae; head coarsely punctate; length of largest worker about 5.8 mm *spinolai*(78)
- b. Alitrunk with sparse setae; head finely punctate; length of largest worker about 4.0 mm *bruchii*(77)
- 30.a. Apex of scape thick and distinctly not reaching eye level (Pl. 10, Fig. 7); length of largest worker about 4.4 mm; U.S.A., Mexico, Guatemala *fallax*(58)
- b. Apex of scape thinner and about reaching eye level (Pl. 10, Fig. 5); length of largest worker about 5.0 mm; Peru, Bolivia *nordenskioldi*(70)
- 31.a. Basal surface of mandible (Pl. 9, Fig. 2) gradually curved into masticatory surface without a distinct corner or tooth at their juncture; basal surface not straight and usually without a distinct tooth; eye (although sometimes very small) always with a distinct convex cornea 32
- b. Basal surface of mandible straight (Pl. 8, Fig. 1) or with a distinct tooth (Pl. 20, Fig. 34) and forms a sharp corner or tooth at the juncture with masticatory surface; convex cornea may be present *or* absent and eye may be reduced to yellow spot below cuticle or completely absent 38
- 32.a. Head shiny and smooth except for scattered setae bearing punctations; posterolateral corners of head rounded 33

- b. Head dull and thickly granulated, and sometimes strongly rugated or with large round pit-like depressions; posterolateral corners of head with triangular projections or distinct teeth (Pl. 6, Fig. 11-13; Pl. 9, Fig. 3) 34
- 33.a. Apex of scape distinctly exceeds eye level; color yellowish red to reddish brown; U.S.A.: Calif., Nevada, Utah *californicus* (32)
- b. Apex of scape about reaches eye level; head and gaster blackish or reddish brown with a blackish overcast, alitrunk reddish brown without a blackish overcast; Mexico: Hidalgo (Only media and minor workers will key out here; the largest workers have mandibles which will cause them to be keyed through couplet 31.b.) *manni* (36)
- 34.a. Anteroventral tooth of petiole well developed, triangular and sharp pointed (Pl. 7, Fig. 9); apex of scape about reaches eye level *densepunctatus* (79)
- b. Anteroventral tooth of petiole poorly developed or absent; apex of scape exceeds eye level 35
- 35.a. Head and alitrunk with numerous large round pit-like depressions; color black to dark reddish brown *sumichrasti* (37)
- b. Head and alitrunk, although thickly granulated and sometimes rugated, without distinct round pit-like depressions; color reddish brown 36
- 36.a. Dorsum of propodeum lower than dorsum of mesonotum, but without a dorsal indentation or suture at their juncture (Pl. 9, Fig. 1); posterolateral corners of head strongly projecting (Pl. 9, Fig. 3) *cornutus* (105)
- b. Dorsum of propodeum and mesonotum usually with a distinct indentation or suture at their juncture; posterolateral corners of head only moderately projecting or with slightly out-turned teeth (Pl. 6, Fig. 11, 12) 37
- 37.a. Dorsal and declining surface of propodeum forming a slight angle at their juncture (Pl. 9, Fig. 6), posterolateral border of pronotum separated from mesothorax by a distinct "V-shaped" suture (Pl. 9, Fig. 6) *texanus* (35)
- b. Dorsal surface of propodeum gradually rounding into the declining surface (Pl. 9, Fig. 8); posterolateral suture between pronotum and mesothorax shorter and not distinctly "V-shaped" (Pl. 9, Fig. 8) *nigrescens* (33)
- 38.a. Eye with a distinct convex cornea [large + very distinct] 39
- b. Eye without a distinct convex cornea, reduced to a yellow spot below the cuticle or absent [then in *diversinodis* weak in *raetana*, *ce. = H. schko.*] 48
- 39.a. Node of petiole subquadrate (dorsal view) 40

- b. Node of petiole elongate (dorsal view) 41
- 40.a. Posterior corners of head angular and projecting; lamella in front of antennal fossa broad and translucent; anteroventral tooth of petiole moderately well developed; largest workers more than 4 mm long *barrisi*(34)
- b. Posterior corners of head rounded; without a lamella in front of antennal fossa; anteroventral tooth of petiole poorly developed; largest workers less than 4 mm long *carolinensis*(41)
- 41.a. From a dorsal view, the concave portion of the posterior head margin appears slightly narrower than the greatest width of the alitrunk (Pl. 10, Fig. 1, 2), head smooth and shiny 42
- b. From a dorsal view, the concave portion of the posterior head margin appears as wide or wider than the greatest width of the alitrunk (Pl. 10, Fig. 3, 4); head may be smooth and shiny or densely granulated and dull 45
- 42.a. Head blackish brown to black 43
- b. Head yellowish brown to reddish brown 44
- 43.a. Head and alitrunk about same color; anteroventral tooth of petiole large and with an acute spine directed posteroventrad (Pl. 7, Fig. 12) *pilosus*(61, 62)
- b. Head and gaster blackish brown, alitrunk reddish brown; anteroventral surface of petiole with a small tooth directed ventrad *melanocephalus*(64)
- 44.a. Anteroventral tooth of petiole large and triangular (Pl. 8, Fig. 18); node of petiole in profile strongly convex (Pl. 8, Fig. 18); largest workers less than 5 mm long *graciellae*(50)
- b. Anteroventral tooth of petiole short and spinous (Pl. 8, Fig. 17); node of petiole in profile somewhat flattened dorsally (Pl. 8, Fig. 17); largest workers more than 5 mm long *impudens*(60)
- 45.a. Head smooth and shiny 46
- b. Head densely granulated or punctated and dull 47
- 46.a. Head and gaster blackish brown or reddish brown with a blackish overcast, alitrunk reddish brown without a blackish overcast; apex of scape about reaches eye level *manni*(36)
- b. Head and alitrunk same color (reddish brown), gaster slightly lighter; apex of scape distinctly exceeds eye level *opacithorax*(39)
- 47.a. Dorsum of mesonotum steeply sloping near posterior margin; postpetiole somewhat shiny; largest workers about 4 mm long *asper*(40)
- b. Dorsum of mesonotum gently sloping near posterior margin (Pl. 8, Fig. 3), postpetiole dull; largest workers about 5 mm long *rugulosus*(36)
- 48.a. From a dorsal view, concave portion of posterior head margin appears slightly narrower than greatest width of alitrunk (similar to *gouldii* Var. *scutellatus* *nitens*)

- Pl. 10, Fig. 1, 2); petiole distinctly longer than wide (elongate) 49
- b. From a dorsal view, concave portion of posterior head margin appears as wide or wider than greatest width of alitrunk (similar to Pl. 10, Fig. 3, 4); petiole elongate *or* subquadrate 52
- 49.a. Apex of scape distinctly not reaching eye level; anteroventral tooth of petiole large and broadly triangular in profile (Pl. 8, Fig. 8); largest worker about 6 mm long and with unusually large head *goeldii* (67)
- b. Apex of scape almost reaches or surpasses eye level; anteroventral tooth of petiole, in profile, narrow and slightly curved, short or absent; largest worker less than 5 mm long and without unusually large head 50
- 50.a. Head subquadrate (frontal view, Pl. 8, Fig. 12); eye located about half way between base of mandible and upper head corner; with a weak transverse dorsal pronotal ridge *agilis* (60)
- b. Head somewhat oval (frontal view, Pl. 8, Fig. 4, 9); eye located above head middle; without transverse dorsal pronotal ridge 51
- 51.a. Anteroventral tooth of petiole absent; postpetiole longer than wide; dorsum of propodeum, in profile, slightly convex and rounded into declining surface (Pl. 8, Fig. 10) *humilis* (63)
- b. Anteroventral tooth of petiole long and slightly curved posteriorly (Pl. 8, Fig. 6); postpetiole about as wide as long; dorsum of propodeum, in profile, almost level except near anterior border, and forming blunt angle at juncture with declining surface (Pl. 8, Fig. 6) *laevigatus* (66)
- 52.a. Petiole distinctly elongate from a dorsal view 53
- b. Petiole subquadrate from a dorsal view (although sometimes slightly longer than wide, the node is distinctly quadrate) 56
- 53.a. Dorsal surface of propodeum gradually and only slightly curves downward from mesonotum without a distinct dorsal juncture (lateral view, Pl. 7, Fig. 14) *carettei* (103), *myensis*
- b. Dorsal surface of propodeum distinctly lower and sharply depressed below mesonotum (lateral view, Pl. 7, Fig. 2, 13; Pl. 8, Fig. 13) 54
- 54.a. Apex of scape distinctly above eye level; postpetiole distinctly elongate, about one and one-third longer than wide (dorsal view, Pl. 20, Fig. 21) *compressinodis* (88)
- b. Apex of scape about eye level or slightly below; postpetiole as wide or wider than long (dorsal view, Pl. 8, Fig. 7; Pl. 20, Fig. 30) 55
- 55.a. Suture between promesonotum and mesopleuron, in profile, complete and distinct (Pl. 8, Fig. 13); petiole longer and slightly narrower than postpetiole (dorsal view, Pl. 8, Fig. 7) *agilis* (60)

- b. Suture between promesonotum and mesopleuron, in profile, incomplete (Pl. 7, Fig. 13); petiole about as long and distinctly narrower than postpetiole (dorsal view, Pl. 20, Fig. 30) . . . *postangustatus* (85)
- 56.a. Apex of scape distinctly below eye level and head middle; without a dorsal transverse ridge on pronotum 57
- b. Apex of scape about eye level or slightly below; with a fine dorsal transverse ridge on pronotum 59
- 57.a. Lamellae in front of antennal fossa broad; small yellow eye specks can usually be seen below cuticle, especially in workers preserved in alcohol; anteroventral tooth of petiole small *leonardi* (56)
- b. Lamella in front of antennal fossa narrow or absent; eyes completely absent; anteroventral tooth of petiole moderately large to large 58
- 58.a. Basal tooth of mandible large (Pl. 8, Fig. 19); lamella in front of antennal fossa absent; head moderately punctated *moseri* (57)
- b. Basal tooth of mandible medium size to small (Pl. 20, Fig. 34); lamella in front of antennal fossa narrow; head with very sparse small punctations *pauvillus* (38)
- 59.a. Dorsal surface of propodeum gradually and only slightly curves downward from mesonotum without a distinct dorsal juncture or suture (lateral view, Pl. 7, Fig. 14) *carettei* (103)
- b. Dorsal surface of propodeum distinctly lower and sharply depressed below mesonotum or with a distinct dorsal mesopropodeal suture (lateral view, Pl. 7, Fig. 8, 10; Pl. 8, Fig. 15, 16) 60
- 60.a. Anteroventral tooth of petiole large, triangular and sharp pointed (Pl. 8, Fig. 15, 16) 61
- b. Anteroventral tooth of petiole small or absent (Pl. 7, Fig. 8, 10) 62
- 61.a. Basal surface of mandible concave; declining surface of propodeum, in profile, moderately sloping (Pl. 8, Fig. 16) *d'orbignyi* (80)
- b. Basal surface of mandible straight; declining surface of propodeum, in profile, almost vertical (Pl. 8, Fig. 15) *diversinodis* (81)
- 62.a. Postpetiole slightly longer than wide, and about as wide as petiole (dorsal view, Pl. 20, Fig. 23, 24); alitrunk of largest worker about 1.2 mm long, body length about 3.2 mm *modestus* (83)
- b. Postpetiole slightly wider than long, and wider than petiole (dorsal view, Pl. 8, Fig. 2; Pl. 20, Fig. 31); alitrunk of largest worker more than 1.4 mm long, body length about 4.0 mm 63
- 63.a. Dorsal surface of propodeum, in profile, distinctly longer than declining surface which is slightly concave (Pl. 7, Fig. 8); segments three through eight of flagellum usually as long as wide or slightly longer *raptans* (86)

- b. Dorsal surface of propodeum, in profile, slightly longer than declining surface which is almost straight (Pl. 7, Fig. 10), segments three through eight of flagellum usually slightly wider than long *betschkoii*(84)

Males

- 1.a. Apex of subgenital plate with two teeth (Pl. 19, Fig. 18) 2
- b. Apex of subgenital plate with three teeth (Pl. 19, Fig. 21) (*Caution*: the middle tooth may be very short and sometimes blunt) 13
- c. Apex of subgenital plate with four teeth (Pl. 19, Fig. 22) (*Caution*: the two middle teeth may be very short) 72
- 2.a. Lower border of clypeus with two distinct teeth or strongly projecting lobes (Pl. 13, Fig. 1, 4-9) 3
- b. Lower border of clypeus without two distinct teeth or strongly projecting lobes 9
- 3.a. Stipes with a deep subapical dorsal notch (Pl. 19, Fig. 16); apex of stipes bluntly angular or broadly rounded and without an apical tooth .. 4
- b. Stipes without a subapical dorsal notch, but with a broad subapical dorsal projection; apex of stipes with a hook-shaped tooth (Pl. 17, Fig. 9) 7
- 4.a. Scape slightly or distinctly longer than mandible; apex of scape distinctly surpassing upper head margin 5
- b. Scape about as long as mandible or slightly shorter; apex of scape about reaches or slightly surpasses upper head margin 6
- 5.a. Color black or very dark brown; profemur strongly thickened; Panama *puerulus*(87)
- b. Color reddish brown; profemur slender; southeast Brazil ... *gracilis*(96)
- 6.a. Distinct angular frontal carina present between upper margin of compound eye and lateral ocellus (Pl. 13, Fig. 9); apex of scape about reaching dorsum of lateral ocellus *radoszkowskyi*(87)
- b. Frontal carina absent between upper margin of compound eye and lateral ocellus; apex of scape slightly exceeding dorsum of lateral ocellus *pulchellus*(90)
- 7.a. Apex of teeth on lower margin of clypeus sharp (Pl. 13, Fig. 5, 6); border of clypeus between teeth distinctly concave *klugi*(94)
- b. Apex of teeth on lower margin of clypeus bluntly rounded (Pl. 13, Fig. 7, 8); border of clypeus between teeth somewhat angularly indented 8
- 8.a. Frons black with dense pit-like punctations; distance from lateral ocellus to compound eye about equal diameter of median ocellus (Pl. 13, Fig. 7) *planidens*(90)
- b. Frons brown with only fine punctations; distance from lateral

- ocellus to compound eye less than one-half diameter of median ocellus (Pl. 13, Fig. 8) *imbellis* (90)
- 9.a. Subgenital plate only weakly expanded distally and with a small bump between the two apical teeth (ventral view, Pl. 19, Fig. 20); stipes somewhat snout-shaped with a broadly rounded dorsomedial projection, a slightly down-turned distal half and broadly rounded apex (lateral view, Pl. 18, Fig. 22); metatibia distinctly curved *carinifrons* (99)
- b. Subgenital plate strongly expanded distally and without a small median bump between the two apical teeth—area between teeth may have a broad flange with small corners that could be construed as two middle teeth (ventral view); stipes not snout-shaped; metatibia almost straight except for a slight curve near base 10
- 10.a. Inner margin of compound eye strongly concave (frontal view, Pl. 11, Fig. 3); distal portion of stipes somewhat foot-shaped, curved upward with rounded apex (lateral view, Pl. 17, Fig. 20, 21); length less than 14 mm *hopei* (92)
- b. Inner margin of compound eye slightly concave to convex (frontal view); distal portion of stipes not foot-shaped; length 14 mm or longer 11
- 11.a. Distance from lateral ocellus to compound eye much greater than diameter of median ocellus; compound eye less than 1 mm high *emeryi* (69)
- b. Distance from lateral ocellus to compound eye less than diameter of median ocellus; compound eye 1 mm or more in height 12
- 12.a. Stipes with a small dorsal hook-shaped tooth located about one-third the distance from apex of stipes to base, and with ventral margin strongly convex along distal one-half (lateral view, Pl. 17, Fig. 13); posterodorsal corner of sagitta almost forming a right-angle and not projecting over ventral apical teeth (lateral view, Pl. 20, Fig. 6) *pertyi* (70)
- b. Stipes without a dorsal tooth, and with a straight or slightly concave ventral margin (lateral view, Pl. 17, Fig. 11, 12); posterodorsal corner of sagitta forms a strong projection which extends over ventral apical teeth (lateral view, Pl. 20, Fig. 4) *jerrmanni* (68)
- 13.a. Lower border of clypeus with two large teeth (Pl. 13, Fig. 1, 4) 14
- b. Lower border of clypeus without teeth 15
- 14.a. Frontal carinae unite in middle of frons (Pl. 13, Fig. 4); scape about as long as mandible (measure in straight line from inner base to apex) and much smaller than profemur which is somewhat club-shaped (Pl. 13, Fig. 3) *clavifemur* (96)
- b. Frontal carinae not united (Pl. 13, Fig. 1); scape unusually large (Pl. 13, Fig. 1), distinctly larger than mandible and almost as large as profemur which is not club-shaped (Pl. 13, Fig. 2) *guerini* (108)

- 15.a. Dorsum of first gastric tergite shorter than second gastric tergite 16
- b. Dorsum of first gastric tergite as long as or longer than second gastric tergite 22
- 16.a. Distance from lateral ocellus to compound eye distinctly greater (at least 1 & ¼ X) than diameter of median ocellus; compound eyes small (0.68-0.76 mm high); frons broad 17
- b. Distance from lateral ocellus to compound eye about equal or less than diameter of median ocellus; compound eyes large (0.80-0.88 mm high); frons narrow 18
- 17.a. Mandible slender (Pl. 15, Fig. 1), gradually tapered and with distal one-fourth strongly bent inward (width of mandible about one-fourth its length from apex about one-half diameter of median ocellus); frontal carinae dorsally sloped medially *legionis* (111)
- b. Mandible broad (Pl. 15, Fig. 2), abruptly tapered near apex and only slightly bent inward near apex (width of mandible about one-fourth its length from apex about as wide as diameter of median ocellus); frontal carinae parallel *pseudops* (71)
- 18.a. Basal half of mandible strongly "swollen," distal half very narrow (Pl. 15, Fig. 4) *physognathus* (111)
- b. Mandible gradually narrowed distally and with a slight to moderate convexity on inner border (Pl. 15, Fig. 3, 5-8) 19
- 19.a. Postscutellum (metanotum) posteriorly extended beyond basal surface of propodeum; claw with very short inner tooth *falciferus* (73)
- b. Postscutellum (metanotum) not posteriorly extended beyond basal surface of propodeum; claw without inner tooth 20
- 20.a. Distance from lateral ocellus to compound eye about one-half diameter of median ocellus; diameter of median ocellus greater than 0.30 mm; mandible (Pl. 15, Fig. 8); Panama *scutellaris* (73)
- b. Distance from lateral ocellus to compound eye at least two-thirds diameter of median ocellus; diameter of median ocellus less than 0.30 mm; mandibles (Pl. 15, Fig. 3 or 5); Guyana, Brazil, Bolivia 21
- 21.a. Mandible slender and gradually curved (Pl. 15, Fig. 3); Bolivia, southern Brazil *leptognathus* (109)
- b. Mandible broad and abruptly bent near base (Pl. 15, Fig. 5); Guyana, northern Brazil *maxillosus* (71)
- 22.a. Mandibles bent inward basally and spatulate distally (Pl. 11, Fig. 6-8; Pl. 12, Fig. 4; Pl. 13, Fig. 10, 12, 13); distal half of mandible as broad or broader than basal portion and not concave on the inner subapical surface 23
- b. Mandible sickle-shaped (Pl. 16, Fig. 4) *or* blade-shaped (Pl. 16, Fig. 1-3) *or* bent basally and narrowed distally (Pl. 13, Fig. 11; Pl. 16, Fig. 6) *or* bent basally with a convex area on inner distal sur-

	face followed by a concave subapical surface (Pl. 11, Fig. 2)	30
23.a.	Distance from lateral ocellus to compound eye about equal to or less than diameter of median ocellus	24
	b. Distance from lateral ocellus to compound eye much greater than diameter of median ocellus (Pl. 13, Fig. 12, 13)	28
24.a.	Mandible moderately (about 135°) bent inward almost at its base and with an almost straight inner surface beyond the bend (Pl. 13, Fig. 10)	<i>barrisi</i> (34)
	b. Mandible strongly (about 90-100°) bent about one-third its length from base and with a slightly to strongly convex inner surface beyond the bend (Pl. 11, Fig. 6-8; Pl. 12, Fig. 4)	25
25.a.	Alitrunk black; frons with dense pit-like punctations; posterodorsal corner of stipes angular, but without a tooth (Pl. 17, Fig. 10); length less than 12 mm	<i>spatulatus</i> (43)
	b. Alitrunk reddish brown; frons with fine scattered punctations; posterodorsal corner of stipes with a small tooth (Pl. 17, Fig. 4, 5; Pl. 19, Fig. 7); length 12-16 mm	26
26.a.	Distal portion of mandible only slightly wider than basal portion and with a weakly convex inner surface (Pl. 11, Fig. 6); apex of stipes broadly rounded except for a dorsal subapical tooth (Pl. 17, Fig. 4)	<i>rosenbergi</i> (42)
	b. Distal portion of mandible distinctly wider than basal portion and with a strongly convex inner surface (Pl. 11, Fig. 8; Pl. 12, Fig. 4); apex of stipes almost straight and sloped posteroventrally with a rounded posteroventral corner	27
27.a.	Setae on scape and legs short and appressed; ventral surface of stipes concave in middle (Pl. 17, Fig. 5)	<i>diabolus</i> (43)
	b. Setae on scape and legs long and erect; ventral surface of stipes straight (Pl. 19, Fig. 7)	<i>angulimandibulatus</i> (42)
28.a.	Head, alitrunk and gaster usually black to blackish brown; prominent transverse swelling present above antennal fossa; dorsal surface of stipes with an indistinct, low triangular subapical projection (Pl. 19, Fig. 2-4)	<i>nigrescens</i> (33)
	b. Head and alitrunk black, gaster usually reddish brown; transverse swelling above antennal fossa weak to absent; posterodorsal corner of stipes rounded (Pl. 19, Fig. 1) <i>or</i> with a prominent tall dorsal projection (Pl. 19, Fig. 5, 6)	29
29.a.	Apex of stipes with a tall dorsal projection (Pl. 19, Fig. 5, 6); length 11-13 mm	<i>texanus</i> (35)
	b. Apex of stipes without a dorsal projection (Pl. 19, Fig. 1); length 10-11 mm	<i>opacithorax</i> (39)
30.a.	Basal half of mandible strongly swollen, distal half very slender	

	(Pl. 16, Fig. 6); stipes (Pl. 19, Fig. 17)	<i>cratensis</i> (66)
b.	Basal half of mandible not strongly swollen; stipes not as in Pl. 19, Fig. 17	31
31.a.	Mandible sickle-shaped (Pl. 12, Fig. 1-3) or blade-shaped (Pl. 12, Fig. 5; Pl. 13, Fig. 11; Pl. 16, Fig. 1-3), basal half gradually curved or straight, distal half straight, gradually curved or strongly curved, without a convex portion on inner surface of distal half, gradually tapered or abruptly pointed near apex	32
b.	Mandible not sickle-shaped or blade-shaped, but abruptly bent near base and with a slight to moderate convexity on inner border (Pl. 11, Fig. 2, 4; Pl. 14, Fig. 12)	70
32.a.	Apex of sagitta elongated into a broad dorsal beak-like projection which extends well beyond the ventral apical projection (lateral view; Pl. 20, Fig. 1, 3)	33
b.	Apex of sagitta not forming a dorsal beak-like projection and not extending far beyond the ventral projection (Pl. 20, Fig. 4-9)	38
33.a.	Distance from lateral ocellus to compound eye greater than diameter of median ocellus (Pl. 16, Fig. 4)	<i>spoliator</i> (49)
b.	Distance from lateral ocellus to compound eye less than diameter of median ocellus	34
34.a.	Volsella forked (Pl. 20, Fig. 13, 14)	35
b.	Volsella not forked (Pl. 20, Fig. 10-12, 15-20)	37
35.a.	Upper corners of head strongly projecting (frontal view, Pl. 12, Fig. 2); length 7.5-8 mm; El Salvador	<i>quadratoocciputus</i> (44)
b.	Upper corners of head moderately (Pl. 16, Fig. 5) to weakly projecting (frontal view); length 8.5-11 mm; southcentral U.S.A., northwest Mexico	36
36.a.	Forewing usually longer (9.0-11.5 mm); distance from lateral ocellus to compound eye usually shorter (0.03-0.08 mm); forewing length divided by alitrunk length greater (2.8-3.3); western Texas, southern New Mexico, southern Arizona, northwest Mexico	<i>macropterus</i> (44)
b.	Forewing usually shorter (8.4-9.3 mm); distance from lateral ocellus to compound eye usually longer (0.08-0.15 mm); forewing length divided by alitrunk length less (2.5-2.7); Kansas (?), central Texas	<i>fuscipennis</i> (44)
37.a.	Stipes, in profile, narrowed apically (Pl. 17, Fig. 15); ventral projection of sagitta well developed (Pl. 20, Fig. 3)	<i>tristis</i> (48)
b.	Stipes, in profile, not narrowed apically (Pl. 17, Fig. 14); ventral projection of sagitta absent	<i>melsheimeri</i> (45)
38.a.	Volsella forked (Pl. 20, Fig. 13, 14)	39
b.	Volsella not forked (Pl. 20, Fig. 10-12, 15-20)	50

- 39.a. Distance from lateral ocellus to compound eye about diameter of median ocellus or less 40
- b. Distance from lateral ocellus to compound eye more than two times diameter of median ocellus 49
- 40.a. Apex of stipes divided into a long rectangular dorsal process and a large triangular ventral process (Pl. 17, Fig. 8); front coxa distinctly triangular (as wide as long) *andrei*(55)
- b. Apex of stipes not divided into distinct dorsal and ventral projections; front coxa conical (longer than wide) 41
- 41.a. Length of mandible (greater than 1 mm) greater than height of compound eye; length of body 11 mm or longer 42
- b. Length of mandible (less than 1 mm) about as long as height of compound eye or shorter; length of body less than 11 mm 43
- 42.a. Apex of stipes with a dorsal tooth (Pl. 18, Fig. 21); apex of scape about twice as wide as first flagellar segment; lower border of clypeus broadly concave (Pl. 11, Fig. 5) *laticapus*(91)
- b. Apex of stipes without a dorsal tooth (Pl. 17, Fig. 17-19); apex of scape not twice as wide as first flagellar segment; lower border of clypeus almost straight (Pl. 16, Fig. 10) *swainsoni*(54)
- 43.a. Dorsal surface of stipes with a tall apical or subapical projection (Pl. 18, Fig. 1, 2, 6-9) 44
- b. Dorsal surface of stipes with a small apical tooth *or* broadly triangular (Pl. 18, Fig. 3, 4) 48
- 44.a. Dorsal projection of stipes sharp pointed (Pl. 18, Fig. 1, 2); length 9-10 mm, (southern Brazil) 45
- b. Dorsal projection of stipes blunt pointed (Pl. 18, Fig. 6-9); length 7-8.5 mm, (Panama, Costa Rica, Guatemala, Mexico) 46
- 45.a. Posteroventral corner of stipes angular (Pl. 18, Fig. 2); area between frontal carinae strongly narrowed dorsally and distinctly narrower than diameter of median ocellus *erichsoni*(102)
- b. Posteroventral corner of stipes evenly rounded (Pl. 18, Fig. 1); area between frontal carinae barely narrowed dorsally and almost as wide as median ocellus *piraticus*(93)
- 46.a. Lateral ocellus almost touching compound eye; height of compound eye (0.6 mm) and head (0.76 mm) greater *fumosus*(52)
- b. Lateral ocellus at least one-third its diameter from compound eye; height of compound eye (0.52 mm) and head (0.68 mm) less 47
- 47.a. Lateral ocellus about one-third its diameter from compound eye; head narrower (1.2 mm); color reddish yellow *pullus*(53)
- b. Lateral ocellus about equal its diameter from compound eye; head wider (1.3 mm); color dark brown *foveolatus*(51)
- 48.a. Dorsal surface of distal half of stipes forms a broad triangle (Pl.

- 18, Fig. 4); edge of frontal carina rounded *minor*(51)
- b. Posterodorsal corner of stipes forms a small triangular tooth (Pl. 18, Fig. 3); edge of frontal carina sharp *jberingi*(102)
- 49.a. Length of scape about equals length of flagellar segments 1-3 combined; proximal segment of fore tarsus about one-half as long as fore tibia; height of compound eye about 0.4 mm; blackish brown head and alitrunk strongly contrasting with light brown gaster *mojave*(47)
- b. Length of scape greater than length of flagellar segments 1-3 combined; proximal segment of fore tarsus distinctly shorter than one-half length of fore tibia; height of compound eye about 0.3 mm; blackish head and alitrunk slightly contrasting with dark brown gaster *microps*(47)
- 50.a. Mandibles (measured in a straight line from base to apex) about as long as height of compound eye or shorter 51
- b. Mandibles (measured in a straight line from base to apex) distinctly longer than height of compound eye 58
- 51.a. Length 12-15 mm; dorsal surface of distal one-third of stipes forms a distinct broad triangular projection (Pl. 18, Fig. 20) .. *detectus*(77)
- b. Length 7-11 mm; stipes not as described above (51.a.) 52
- 52.a. Distance from lateral ocellus to compound eye less than one-half diameter of median ocellus; alitrunk reddish to yellowish brown 53
- b. Distance from lateral ocellus to compound eye greater than one-half diameter of median ocellus; alitrunk yellowish brown to black 55
- 53.a. Mandible gradually tapered to a sharp apex and with the distal one-third strongly bent inward (Pl. 14, Fig. 6); stipes convoluted (Pl. 17, Fig. 22) *lieselae*(99)
- b. Mandibles suddenly narrowed near apex and only moderately bent inward (Pl. 16, Fig. 1, 3); stipes not convoluted 54
- 54.a. Frontal carinae extend laterally above antennal fossae to form strong oblique keels and a deep sulcus below the median ocellus (Pl. 16, Fig. 3); height of compound eye (0.52 mm) and length of mandible (0.48 mm) shorter; apex of stipes broadly rounded (Pl. 19, Fig. 14, 15) *sulcatus*(107)
- b. Frontal carinae become indistinct above antennal fossae and form moderate transverse swellings which result in a shallow depression in front of the median ocellus (Pl. 16, Fig. 1); height of compound eye (0.64 mm) and length of mandible (0.56 mm) longer; apex of stipes somewhat truncated (Pl. 19, Fig. 12, 13) *romandi*(95)
- 55.a. Second segment of flagellum wider than long; color dark brown to black 56
- b. Second segment of flagellum as long as or longer than wide; color light brown or black 57

- 56.a. Distance from lateral ocellus to compound eye greater than diameter of median ocellus (Pl. 16, Fig. 8) *perplexus* (98)
- b. Distance from lateral ocellus to compound eye less than diameter of median ocellus (Pl. 16, Fig. 7) *tenuis* (97)
- 57.a. Mandible gradually narrowed to a sharp point (Pl. 16, Fig. 9); volsella long, slender and only slightly curved upward distally (Pl. 20, Fig. 10); alitrunk black *genalis* (97)
- b. Mandible abruptly narrowed at apex (Pl. 16, Fig. 2); volsella wider and more abruptly upturned near apex (Pl. 20, Fig. 12); alitrunk light brown *vicinus* (98)
- 58.a. Distance from lateral ocellus to compound eye about diameter of median ocellus or less; median ocellus large (diameter 0.24-0.4 mm); length 9-15 mm 59
- b. Distance from lateral ocellus to compound eye distinctly greater than diameter of median ocellus (1.3-2.9 times diameter median ocellus); median ocellus small (diameter 0.12-0.2 mm); length 5.5-13 mm 65
- 59.a. Scape with some long, erect setae (longer than median width of scape) 60
- b. Setae on scape short, semierect or appressed (not longer than median width of scape) 62
- 60.a. Distal half of stipes about as wide as proximal half and slightly downturned, dorsal surface without a notch (Pl. 18, Fig. 22) *carinifrons* (99)
- b. Distal half of stipes distinctly wider than proximal half and not downturned, dorsal surface with a notch followed by a rounded dorsal projection (Pl. 18, Fig. 10, 13, 14) 61
- 61.a. Distal half of mandible strongly curved inward (Pl. 14, Fig. 9); setae on hind tibia very short; length 9-10 mm *shuckardi* (106)
- b. Distal half of mandible weakly curved inward (Pl. 16, Fig. 11); some setae on hind tibia very long; length 11-13 mm *guyanensis* (89)
- 62.a. Alitrunk black (may be blackish brown on sides); mandibles less than 1 mm long and with a small tooth or convex bump on inner margin (Pl. 14, Fig. 5, 10) 63
- b. Alitrunk yellowish red to reddish brown; mandible more than 1 mm long and without a tooth or convex bump on inner margin (Pl. 12, Fig. 5; Pl. 16, Fig. 10) 64
- 63.a. Distal one-half of mandible strongly bent inward (Pl. 14, Fig. 5); dorsal surface of stipes with a deep, slanted notch which forms one side of a large tooth about one-third its length from apex (Pl. 18, Fig. 12) *raptans* (86)
- b. Entire length of mandible gradually curved inward (Pl. 14, Fig.

- 10); dorsal surface of stipes with only a shallow depression followed by a small subapical tooth (Pl. 18, Fig. 18) *micans* (86)
- 64.a. Distal one-third of mandible strongly bent inward (Pl. 16, Fig. 10); apex of volsella foot-shaped and sometimes weakly forked (Pl. 20, Fig. 14, 15) *swainsoni* (54)
- b. Mandibles slightly curved (almost straight) (Pl. 12, Fig. 5); volsella gradually narrowed and bent upward near apex, entire length somewhat "S-shaped" (Pl. 20, Fig. 18) *diana* (65)
- 65.a. Upper border of head strongly elevated above compound eyes and forms distinctly rounded corners between compound eyes and lateral ocelli (frontal view, Pl. 12, Fig. 1, 3); very small species; length 5-7 mm 66
- b. Upper border of head not distinctly elevated above compound eyes and gradually sloping between compound eyes and lateral ocelli (Pl. 13, Fig. 11; Pl. 14, Fig. 7, 11); length 8-13 mm 68
- 66.a. Alitrunk and gaster yellowish brown; dorsal half of stipes abruptly truncated at apex, ventral half extending beyond dorsal half to form a long blade-like, pointed projection (Pl. 19, Fig. 8) *digitistipes* (46)
- b. Alitrunk black, gaster reddish brown; stipes not as described above (66.a) 67
- 67.a. Apex of volsella foot-shaped with a tall, sharp-pointed dorsal projection (Pl. 20, Fig. 16); stipes with an irregular dorsal surface and a convex ventral surface (Pl. 19, Fig. 11); Mexico: Guerrero . . . *cloosae* (46)
- b. Apex of volsella blade-shaped with a weakly upturned, acute apex (Pl. 20, Fig. 20); stipes with a broadly triangular dorsal surface and a straight ventral surface (Pl. 19, Fig. 9); U.S.A.: Texas *baylori* (47)
- 68.a. Distal half of mandible almost straight (Pl. 13, Fig. 11); posteroventral corner of stipes distinctly angular (Pl. 17, Fig. 16) *carolinensis* (41)
- b. Distal half or third of mandible strongly bent inward (Pl. 14, Fig. 7, 11); posterior surface of stipes rounded (Pl. 18, Fig. 11, 16) 69
- 69.a. Mandible slightly shorter than head height (measured in a straight line from base to apex) and strongly bent inward near middle (Pl. 14, Fig. 11); dorsal surface along proximal two-thirds of stipes convex followed by a distinct notch and tooth (Pl. 18, Fig. 11) *betschkoi* (84)
- b. Mandible slightly longer than head height and gradually curved inward along its entire length (Pl. 14, Fig. 7); dorsal surface along proximal two-thirds of stipes straight to slightly concave and not followed by a distinct notch and tooth (Pl. 18, Fig. 16) *d'orbigny* (80)
- 70.a. Distance from lateral ocellus to compound eye more than two

- times diameter of median ocellus (Pl. 14, Fig. 12); stipes hook-shaped (Pl. 19, Fig. 10); length about 10 mm *humilis* (63)
- b. Distance from lateral ocellus to compound eye about equal diameter median ocellus or less (Pl. 11, Fig. 2, 4); stipes not hook-shaped; length 11-15 mm 71
- 71.a. Scape slightly longer than 1 mm; mesopleuron with long setae; stipes with broad dorsal notch (Pl. 17, Fig. 7); color reddish yellow *longiscapus* (50)
- b. Scape slightly shorter than 1 mm; ^{setae long in pilosus, mesopleuron} ~~mesopleuron~~ with short pubescent setae; stipes without a distinct dorsal notch (Pl. 17, Fig. 1-3, 6); color reddish yellow or black *pilosus* (61, 62)
- 72.a. Inner margin of compound eye distinctly concave (Pl. 11, Fig. 3); widened distal portion of subgenital plate about as wide as long and the two middle apical teeth are indistinct—only corners of broad flange between outer teeth (Pl. 19, Fig. 19); stipes (Pl. 17, Fig. 20, 21) *hopei* (92)
- b. Inner margin of compound eye slightly concave to convex; widened distal portion of subgenital plate distinctly longer than wide and with two short, but distinct, middle apical teeth; stipes not as in Pl. 17, Fig. 20, 21 73
- 73.a. Mandible weakly bent inward (Pl. 12, Fig. 6); mesonotum with long, semierect setae; apical ventral projection of sagitta directed posteroventrad (Pl. 20, Fig. 5) *inca* (68)
- b. Mandible strongly bent inward (Pl. 11, Fig. 1; Pl. 14, Fig. 1-3); mesonotum with only short pubescent setae; apical ventral projection of sagitta directed posterad (Pl. 20, Fig. 7) 74
- 74.a. Frontal carinae bend laterally above antennal fossae to form distinct oblique swellings (Pl. 14, Fig. 3); apex of stipes truncated (Pl. 18, Fig. 15); length 10-12 mm *walkeri* (76)
- b. Frons above antennal fossae without distinct oblique swellings; apex of stipes rounded (Pl. 18, Fig. 5, 17); length 13-16 mm 75
- 75.a. Distance from lateral ocellus to compound eye less than one-half diameter of median ocellus (Pl. 11, Fig. 1); median ocellus large (diameter about 0.44 mm); wings grayish yellow *halidayi* (74)
- b. Distance from lateral ocellus to compound eye greater than one-half diameter of median ocellus (Pl. 14, Fig. 1, 2); median ocellus medium sized (diameter about 0.28 mm); wings blackish *spinolai* (78)

PLATE 1

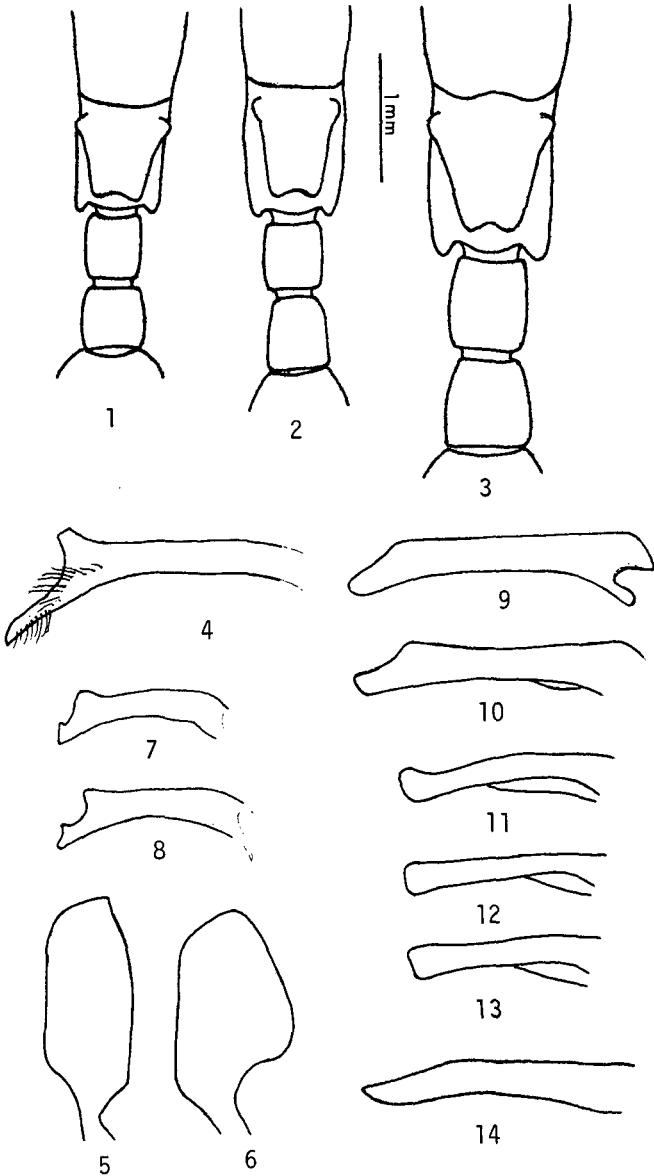


Plate 1. Fig. 1-3 major workers of (1) *Nomamyrmex esenbecki* s. str., (2) *Noma. esenbecki crassicornis*, (3) *Noma. esenbecki* n. subsp. Fig. 4 sagitta of *Noma. esenbecki* s. str. Fig. 5-6 stipites of (5) *Noma. esenbecki* s. str., (6) *Noma. hartigi*. Fig. 7-14 volsellae of (7,8) *Noma. hartigi*, (9,10) *Noma. esenbecki* s. str., (11) *Noma. esenbecki crassicornis*, (12,13) *Noma. esenbecki wilsoni*, (14) *Noma. esenbecki* n. subsp.

PLATE 2

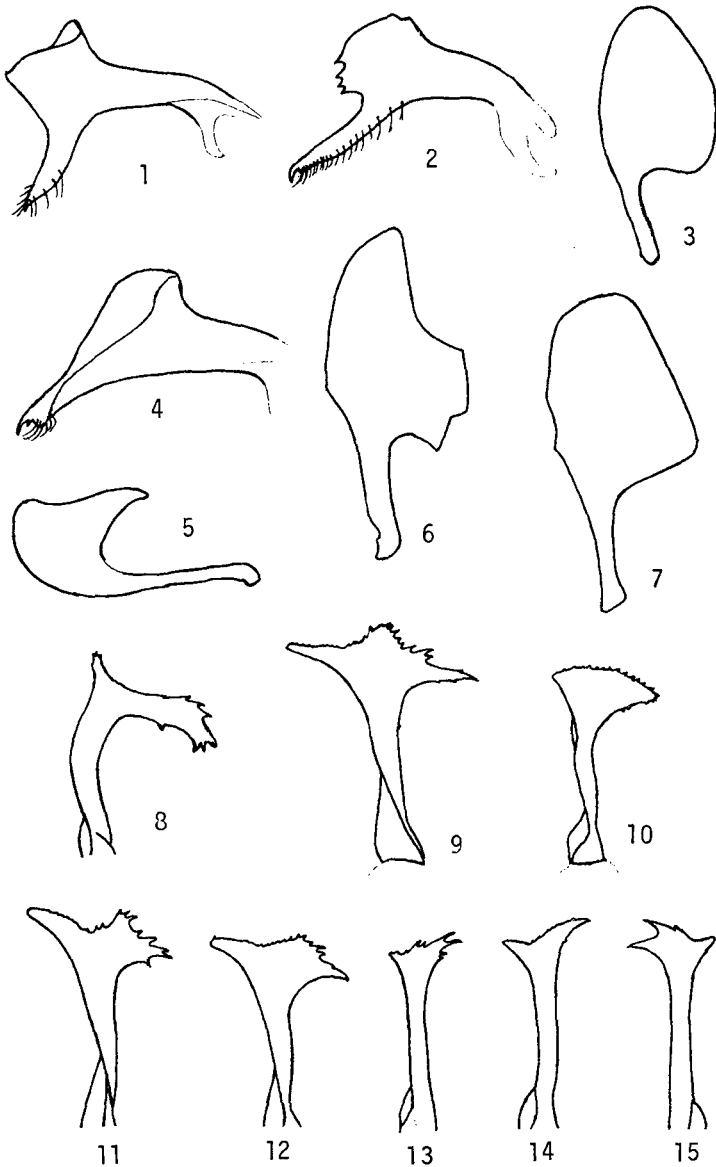


Plate 2. Fig. 1,2,4 sagittae of (1) *Labidus nero s. str.*, (2) *L. nero denticulatus*, (4) *L. praedator s. str.* Fig. 3,5-7 stipites of (3) *L. coecus*, (5) *L. nero s. str.*, (6) *L. auropubens*, (7) *L. praedator s. str.* Fig. 8-15 volsellae of (8) *L. coecus*, (9) *L. praedator s. str.*, (10) *L. nero s. str.*, (11) *L. truncatidens*, (12) *L. praedator sedulus*, (13) *L. curvipes*, (14,15) *L. auropubens*.

PLATE 3

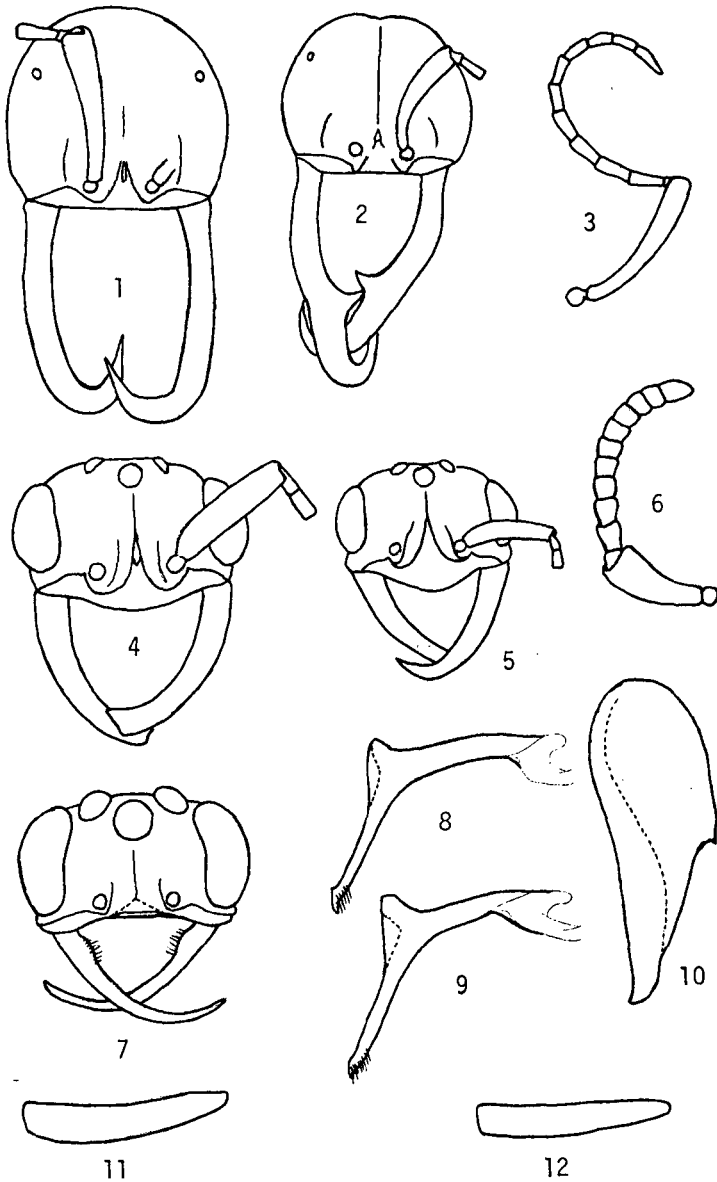


Plate 3. Fig. 1-3 soldiers of (1) *Eciton quadriglume*, (2) *E. lucanoides*, (3) *E. burchelli s. str.* Fig. 4-5 males of (4) *Labidus truncatidens*, (5) *L. curvipes*. Fig. 6 soldier of *Nomamyrmex esenbecki crassicornis*. Fig. 7 male of *Cheliomyrmex audax*. Fig. 8-9 sagittae of (8) *C. morosus*, (9) *C. megalonyx*. Fig. 10 stipes of *C. morosus*. Fig. 11-12 metatibiae of males of (11) *C. audax*, (12) *C. megalonyx*.

PLATE 4

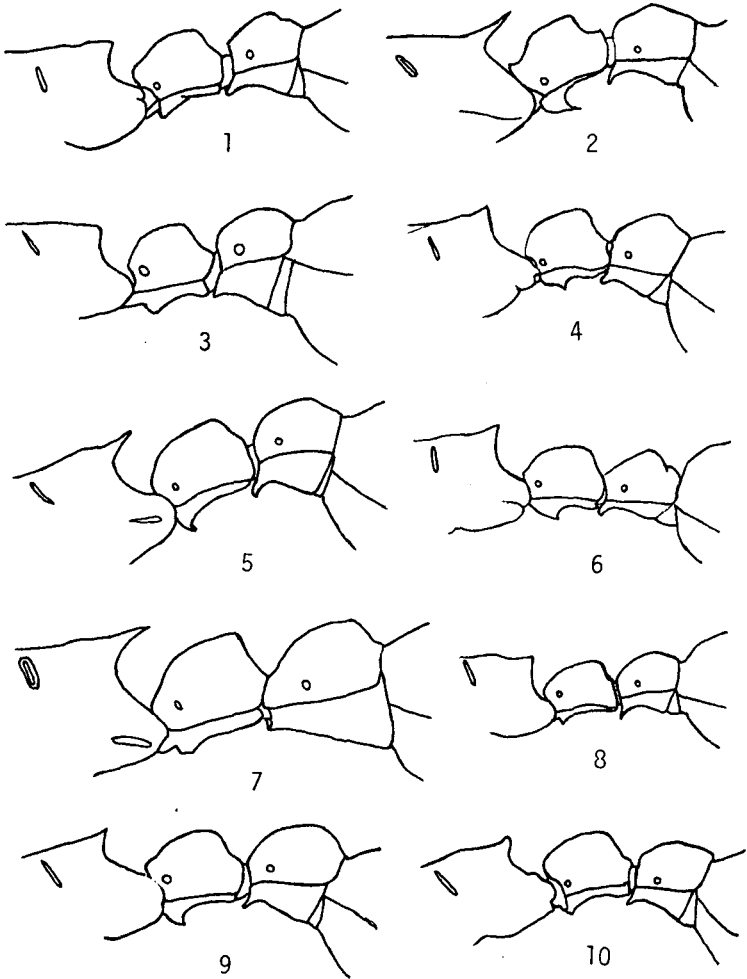


Plate 4. Fig. 1-10 soldiers of (1) *Eciton hamatum*, (2) *E. rapax*, (3) *E. burchelli* s. str., (4) *E. lucanoides* s. str., (5) *E. quadriglume*, (6) *E. lucanoides conquistador*, (7) *E. dulcius*, (8) *E. mexicanum goianum*, (9) *E. vagans dispar*, (10) *E. drepanophorum*.

PLATE 5

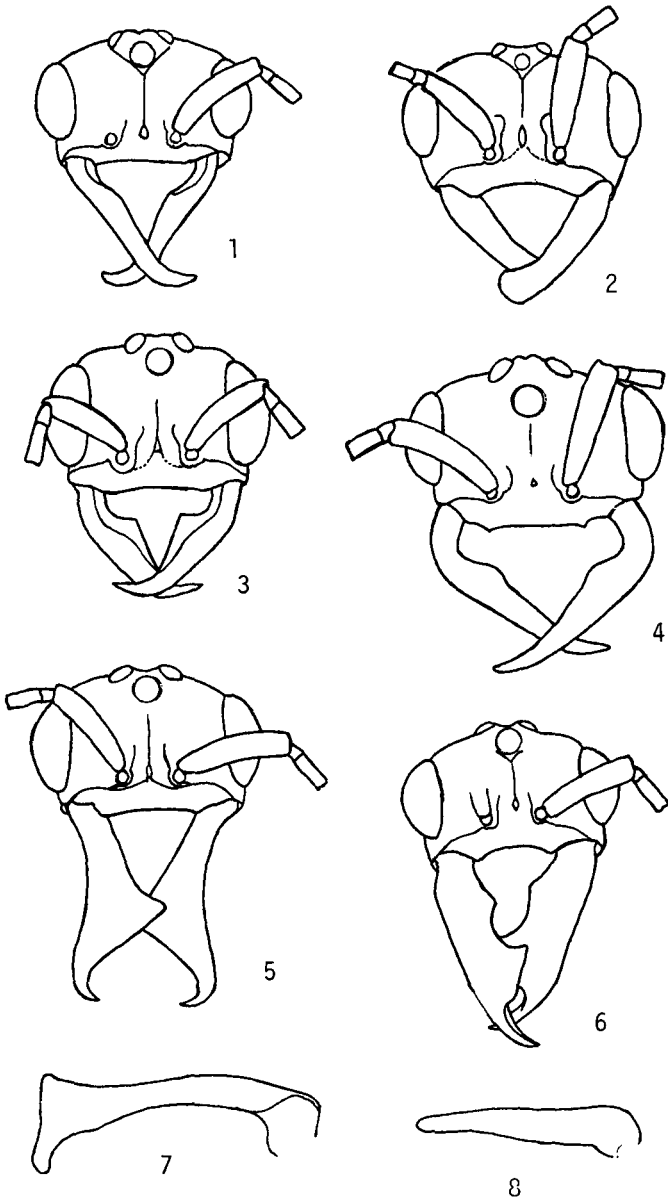


Plate 5. Fig. 1-6 males of (1) *Eciton burchelli parvispinum*, (2) *E. jansoni*, (3) *E. quadriglume*, (4) *E. dulcius*, (5) *E. uncinatum*, (6) *E. mexicanum morulum*. Fig. 7. sagitta of *E. burchelli* s. str. Fig. 8 volsella of *E. burchelli foreli*.

PLATE 6

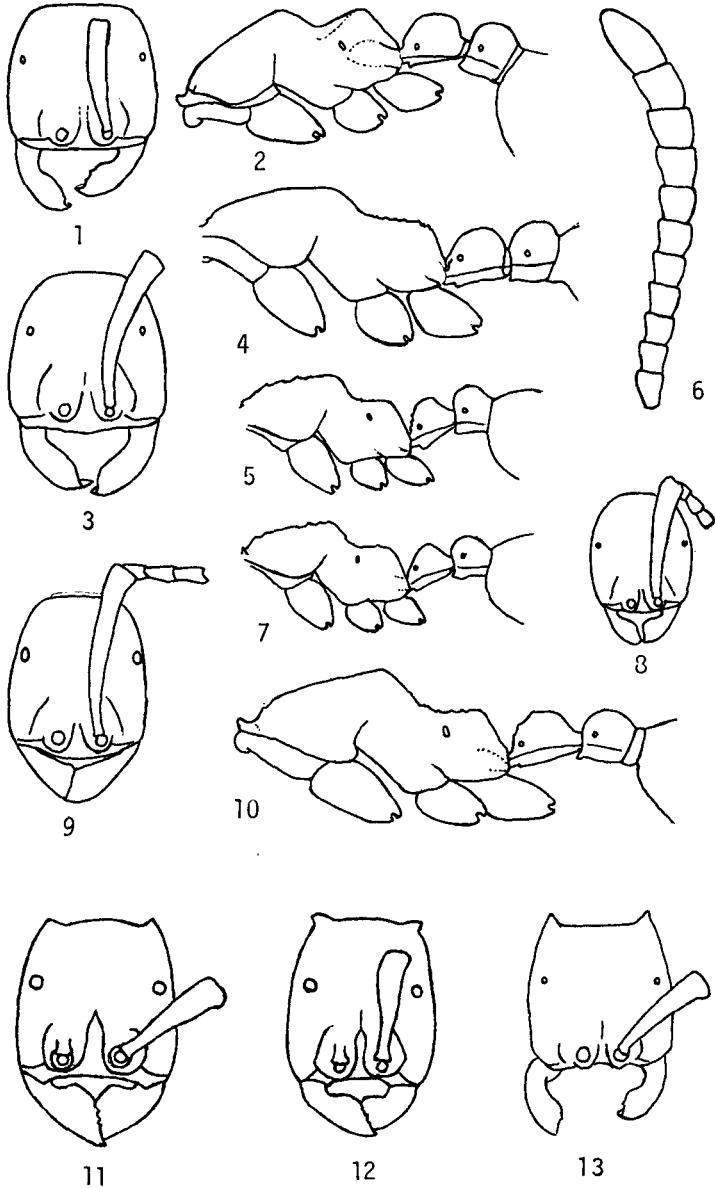


Plate 6. Fig. 1-13 major workers of (1-2) *Neivamyrmex legionis*, (3-4) *N. pseudops*, (5-6) *N. gradualis*, (7-8) *N. cristatus*, (9-10) *N. gibbatus*, (11) *N. texanus*, (12) *N. nigrescens*, (13) *N. sumichrasti*.

PLATE 7

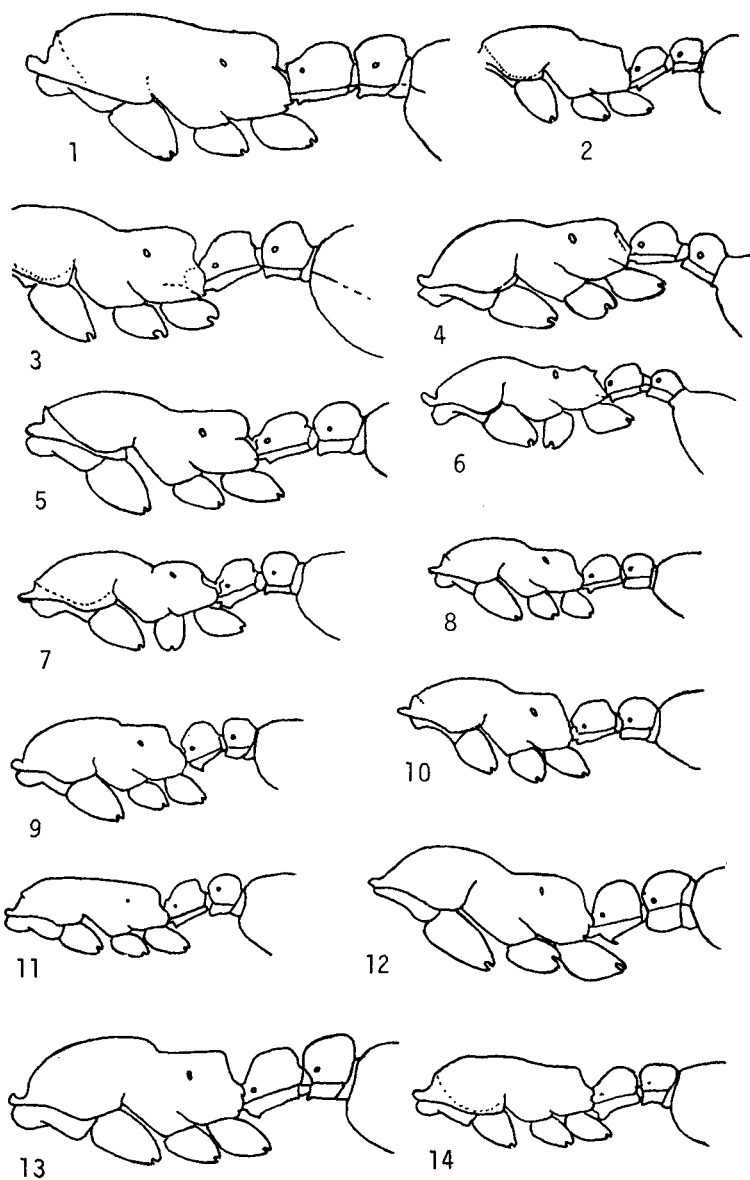


Plate 7. Fig. 1-14 major workers of (1) *Neivamyrmex emersoni*, (2) *N. compressinodis*, (3) *N. iridescens*, (4) *N. diana*, (5) *N. alfaroi*, (6) *N. postcarinatus*, (7) *N. adnepos*, (8) *N. raptans*, (9) *N. densepunctatus*, (10) *N. betschkoi*, (11) *N. orthonotus*, (12) *N. pilosus*, (13) *N. postangustatus*, (14) *N. carettei*.

PLATE 8

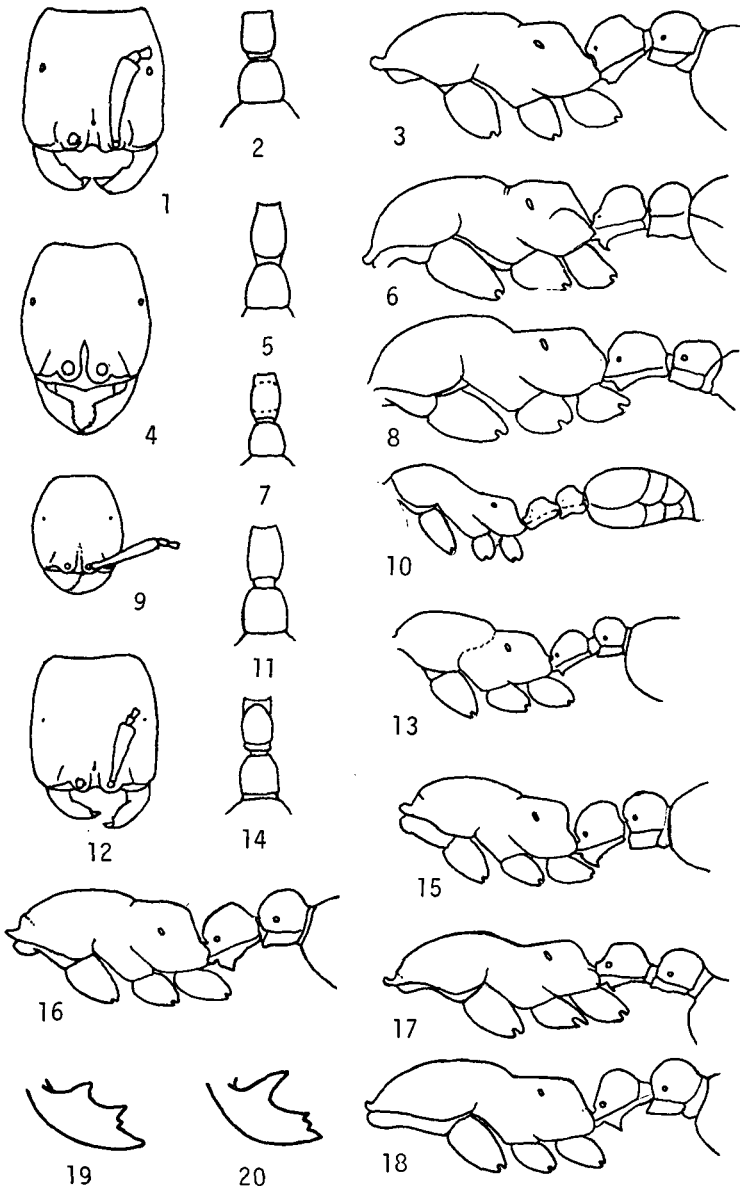


Plate 8. Fig. 1-20 major workers of (1,3) *Neivamyrmex rugulosus*, (2) *N. raptans*, (4-6) *N. laevigatus*, (7, 12-13) *N. agilis*, (8) *N. goeldii*, (9-10) *N. humilis*, (11,18) *N. graciellae*, (14, 17) *N. impudens*, (15) *N. diversinodis*, (16) *N. d'orbignyi*, (19) mandible of *N. moseri*, (20) mandible of *N. macrodentatus*.

PLATE 9

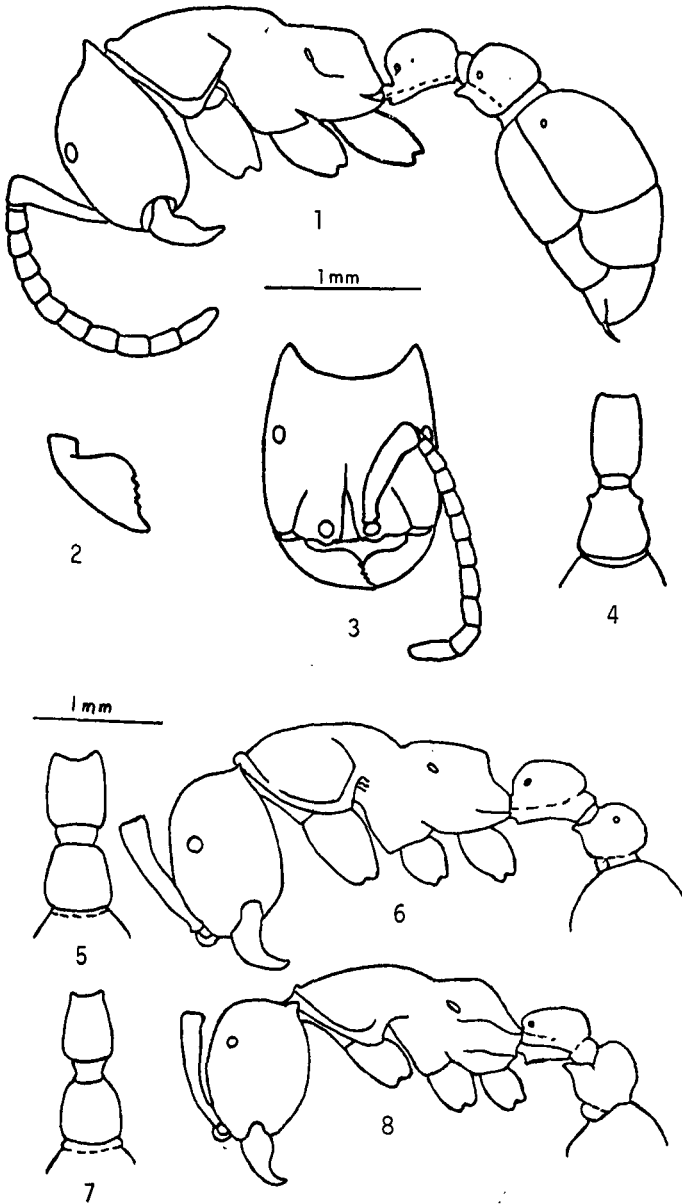


Plate 9. Fig. 1-8 major workers of (1-4) *Neivamyrmex cornutus*, (5-6) *N. texanus*, (7-8) *N. nigrescens*.

PLATE 10

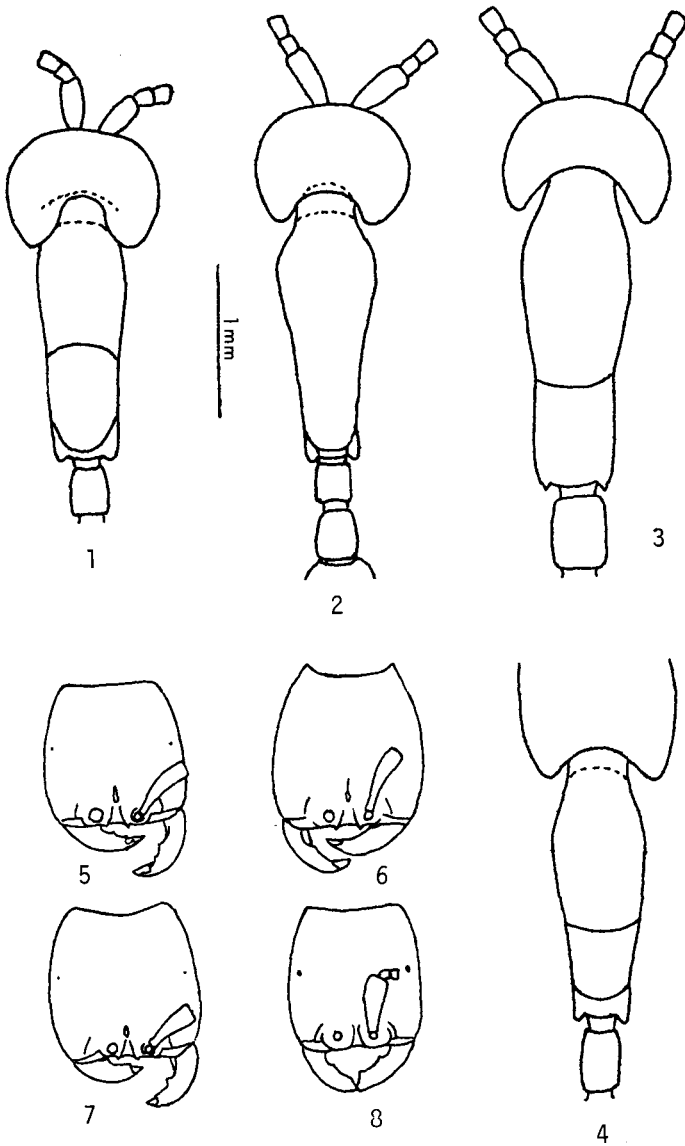


Plate 10. Fig. 1-8 major workers of (1) *Neivamyrmex pilosus mexicanus*, (2) *N. melanocephalus*, (3) *N. rugulosus*, (4) *N. manni*, (5) *N. nordenskiöldi*, (6) *N. pertyi*, (7) *N. fallax*, (8) *N. planidorsus*.

PLATE 11

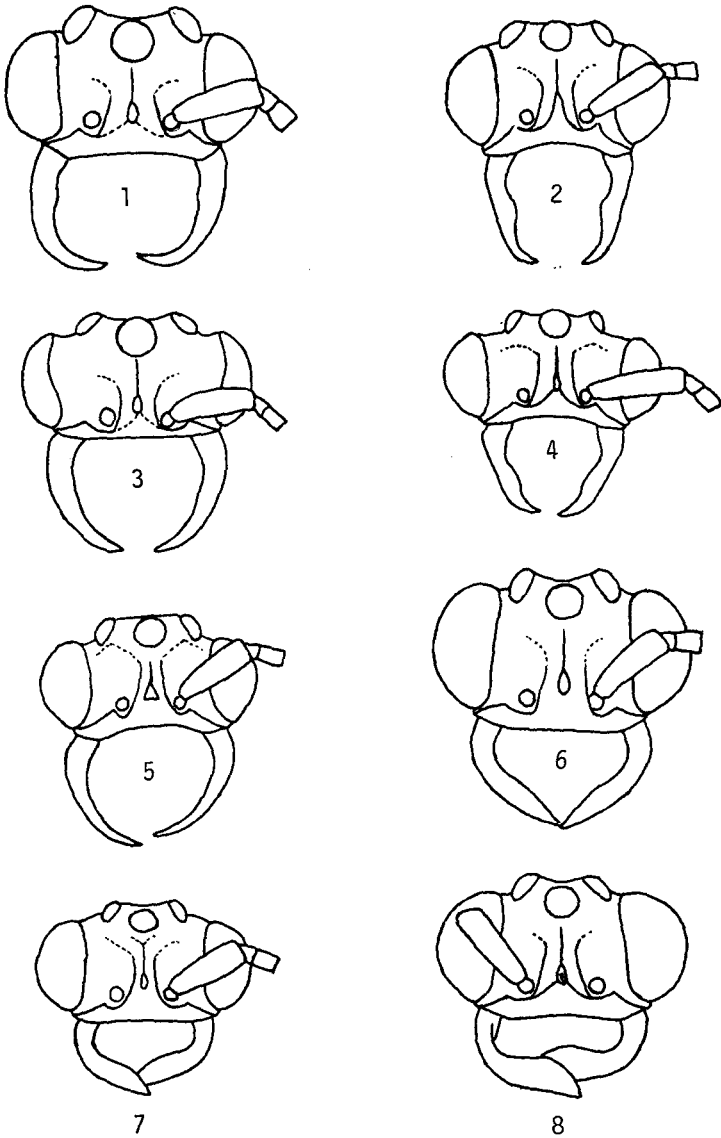


Plate 11. Fig. 1-8 males of (1) *Neivamyrmex halidayi*, (2) *N. pilosus mexicanus*, (3) *N. hopei*, (4) *N. pilosus s. str.*, (5) *N. latiscapus*, (6) *N. rosenbergi*, (7) *N. spatulatus*, (8) *N. diabolus*.

PLATE 12

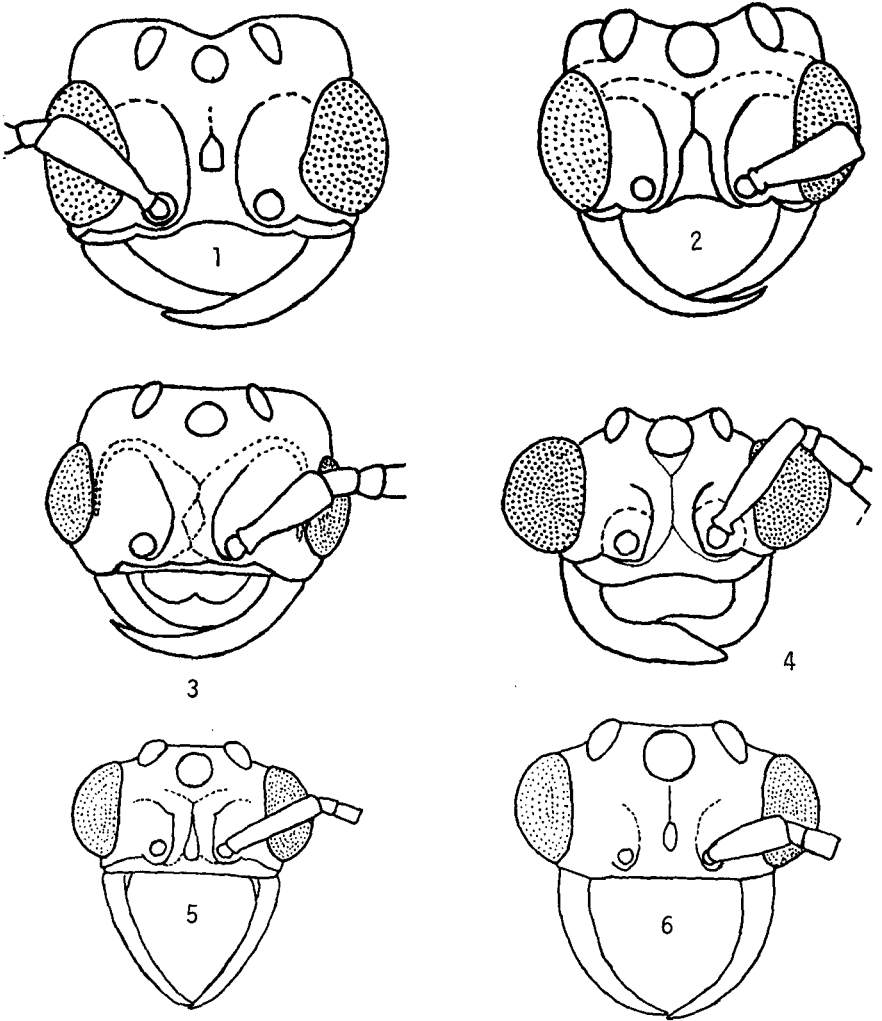


Plate 12. Fig. 1-6 males of (1) *Neivamyrmex digitistipus*, (2) *N. quadratoocipitus*, (3) *N. baylori*, (4) *N. angulimandibulatus*, (5) *N. diana*, (6) *N. inca*.

PLATE 13

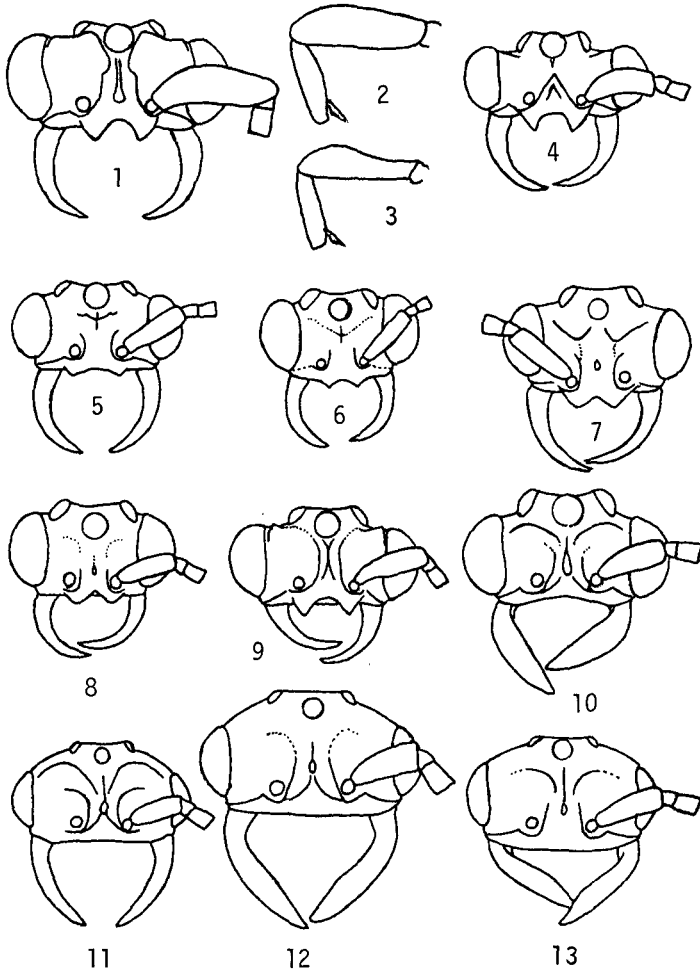


Plate 13. Fig. 1-13 males of (1,2: proleg) *Neivamyrmex guerini*, (3:proleg,4) *N. clavifemur*, (5) *N. klugi distans*, (6) *N. klugi s. str.*, (7) *N. planidens*, (8) *N. imbellis*, (9) *N. radoszkowskyi*, (10) *N. harrisi*, (11) *N. carolinensis*, (12) *N. nigrescens*, (13) *N. opacithorax*.

PLATE 14

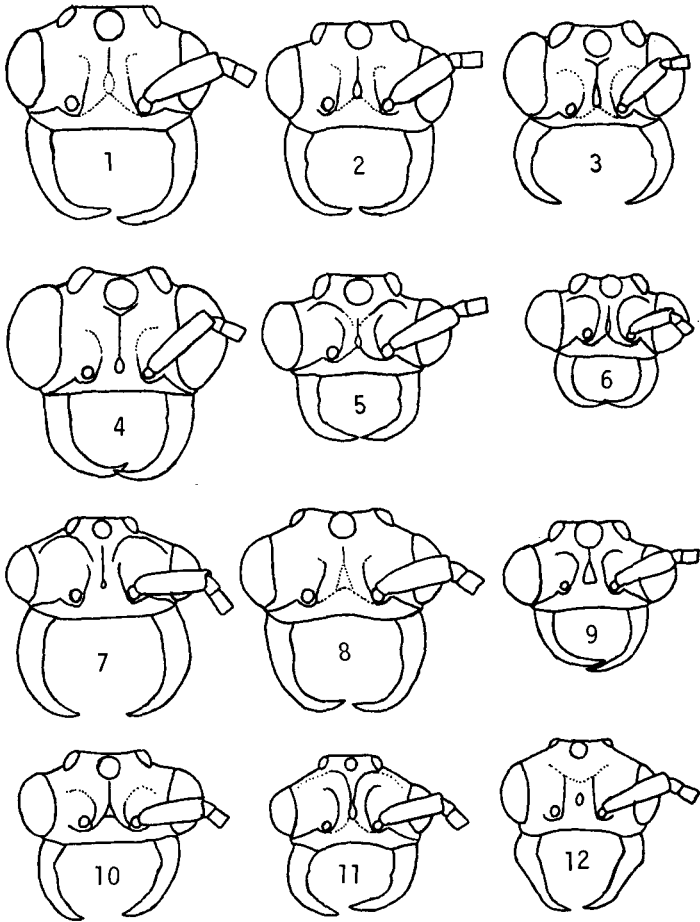


Plate 14. Fig. 1-12 males of (1-2) *Neivamyrmex spinolai*, (3) *N. walkeri*, (4) *N. detectus*, (5) *N. raptans*, (6) *N. lieselae*, (7) *N. d'orbignyi*, (8) *N. spinolai*, (9) *N. sbuckardi*, (10) *N. micans*, (11) *N. hetschkoi*, (12) *N. humilis*.

PLATE 15

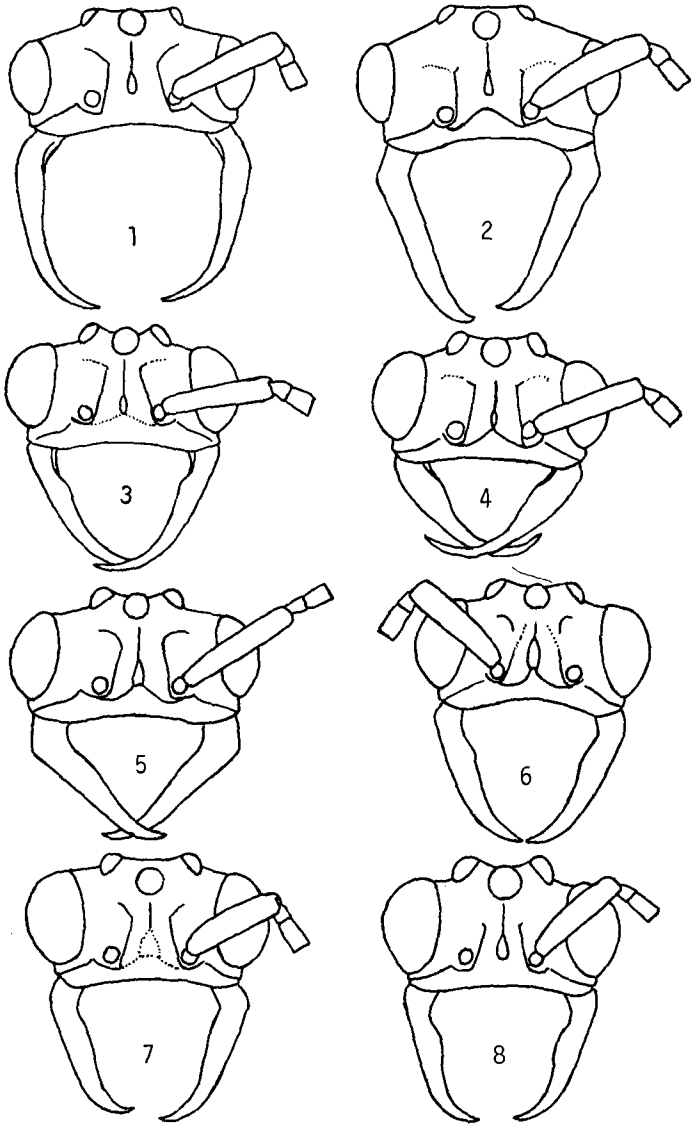


Plate 15. Fig. 1-8 males of (1) *Neivamyrmex legionis*, (2) *N. pseudops*, (3) *N. leptognathus*, (4) *N. physognathus*, (5) *N. maxillosus*, (6-7) *N. falciferus*, (8) *N. scutellaris*.

PLATE 16

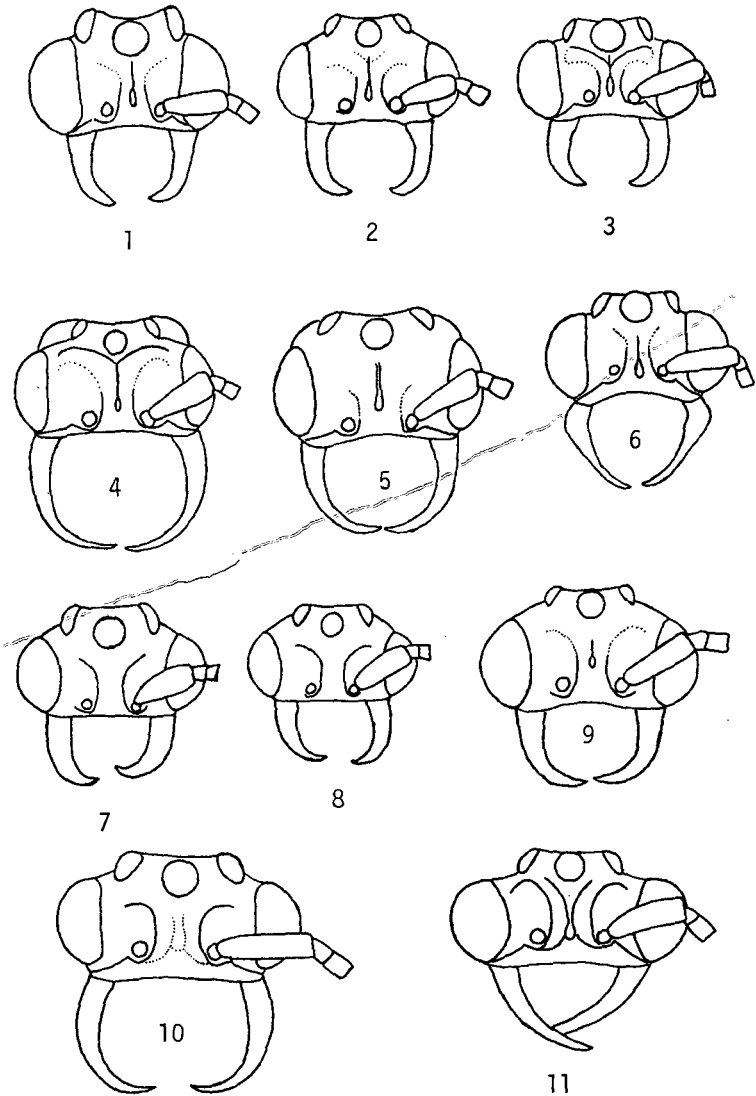


Plate 16. Fig. 1-11 males of (1) *Neivamyrmex romandi*, (2) *N. vicinus*, (3) *N. sulcatus*, (4) *N. spoliator*, (5) *N. fuscipennis*, (6) *N. cratensis*, (7) *N. tenuis*, (8) *N. perplexus*, (9) *N. genalis*, (10) *N. swainsoni*, (11) *N. guyanensis*.

PLATE 17

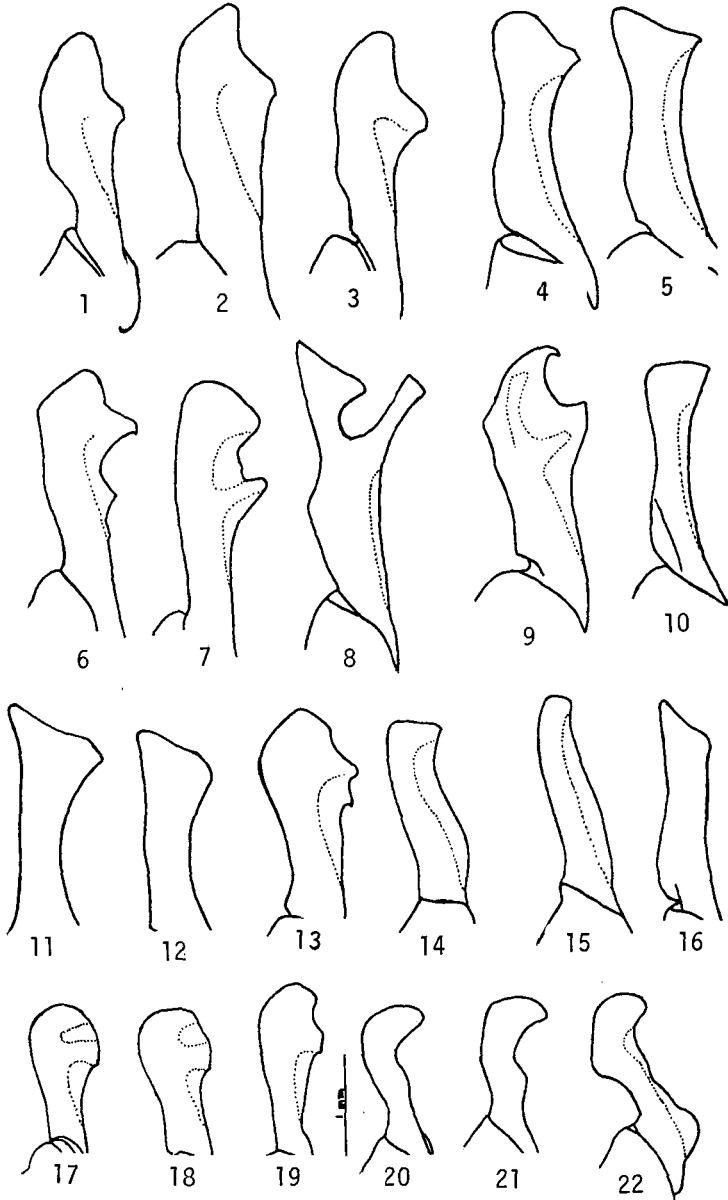


Plate 17. Fig. 1-22 stipites of (1,3) *Neivamyrmex pilosus mexicanus*, (2) *N. pilosus* subsp., (4) *N. rosenbergi*, (5) *N. diabolus*, (6) *N. pilosus* s. str., (7) *N. longiscapus*, (8) *N. andrei*, (9) *N. planidens*, (10) *N. spatulatus*, (11-12) *N. jerrmanni*, (13) *N. pertyi*, (14) *N. melsheimeri*, (15) *N. tristis*, (16) *N. carolinensis*, (17-19) *N. swainsoni*, (20-21) *N. hopei*, (22) *N. lieselae*.

PLATE 18

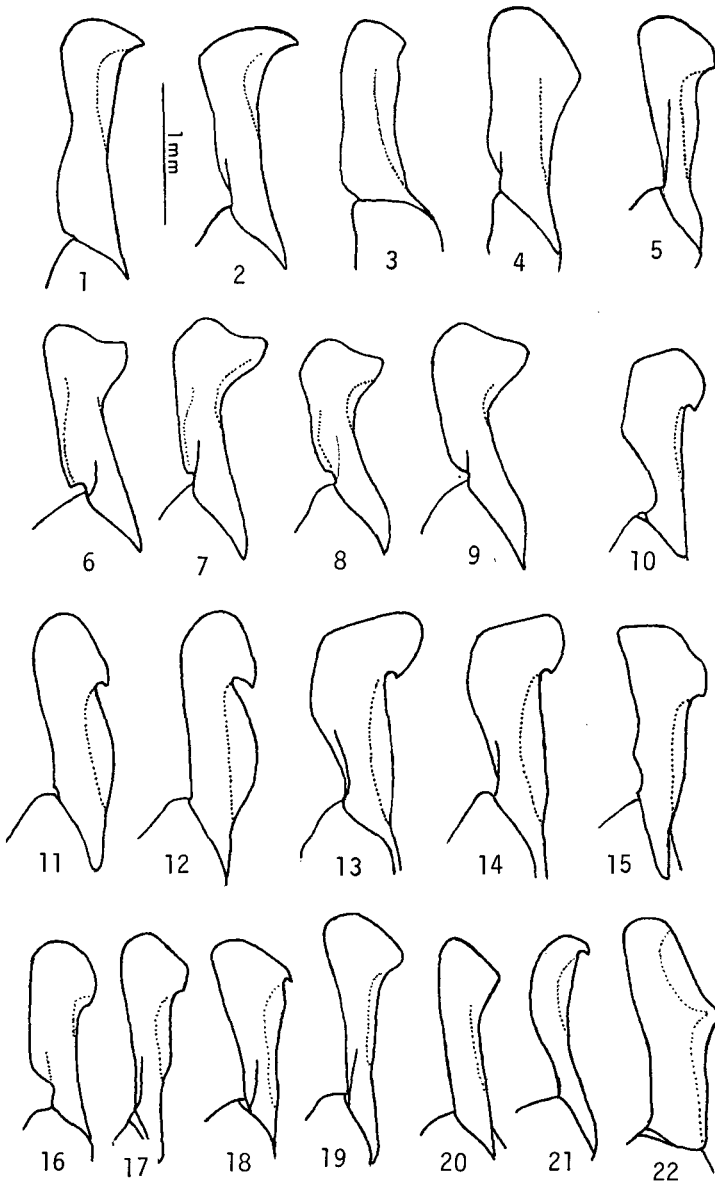


Plate 18. Fig. 1-22 stipites of (1) *Neivamyrmex piraticus*, (2) *N. erichsoni*, (3) *N. jberingi*, (4) *N. minor*, (5) *N. halidayi*, (6-7) *N. fumosus*, (8) *N. pullus*, (9) *N. foveolatus*, (10) *N. shuckardi*, (11) *N. hetschkoi*, (12) *N. raptans*, (13-14) *N. guyanensis*, (15) *N. walkeri*, (16) *N. d'orbignyi*, (17) *N. spinolai*, (18) *N. micans*, (19) *N. halidayi*, (20) *N. detectus*, (21) *N. latiscapus*, (22) *N. carinifrons*.

PLATE 19

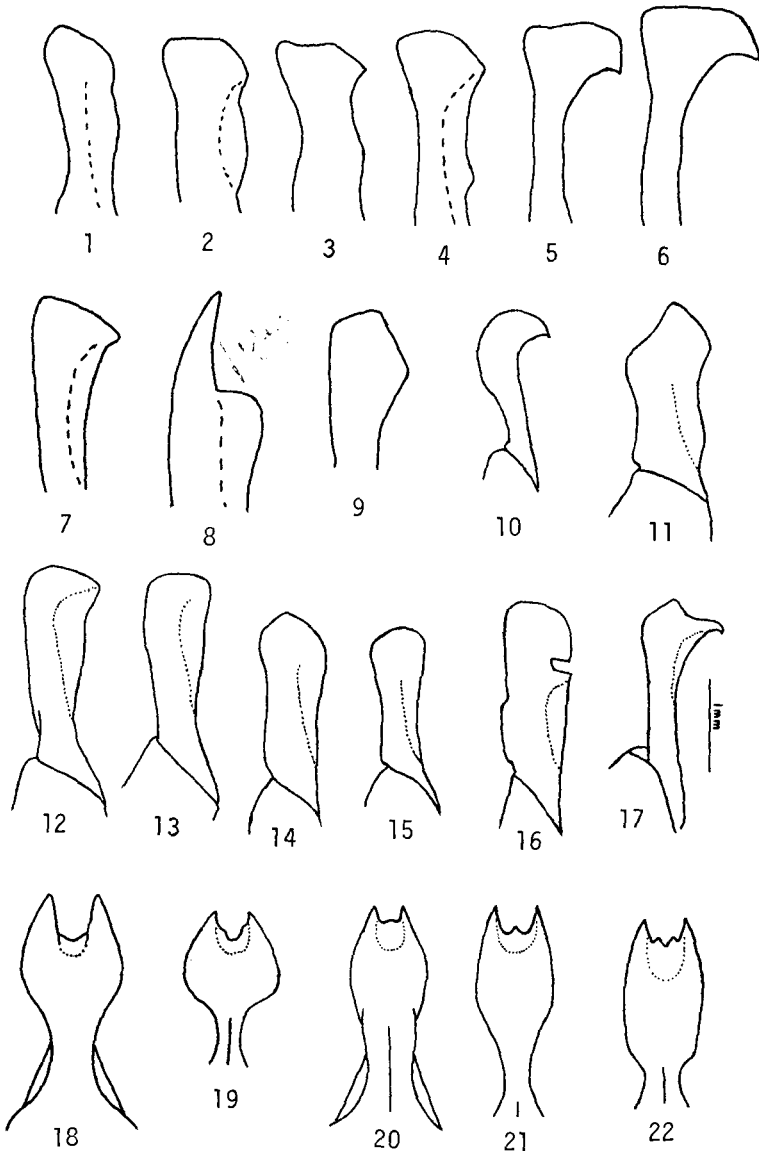


Plate 19. Fig. 1-17 stipites of (1) *Neivamyrmex opacithorax*, (2-4) *N. nigrescens*, (5-6) *N. texanus*, (7) *N. angulimandibulatus*, (8) *N. digitistipus*, (9) *N. baylori*, (10) *N. humilis*, (11) *N. cloosae*, (12-13) *N. romandi*, (14-15) *N. sulcatus*, (16) *N. radoszkowskyi*, (17) *N. cratensis*. Fig. 18-22 subgenital plates of (18) *N. jerrmani*, (19) *N. hopei*, (20) *N. carinifrons*, (21) *N. latiscapus*, (22) *N. spinolai*.

PLATE 20

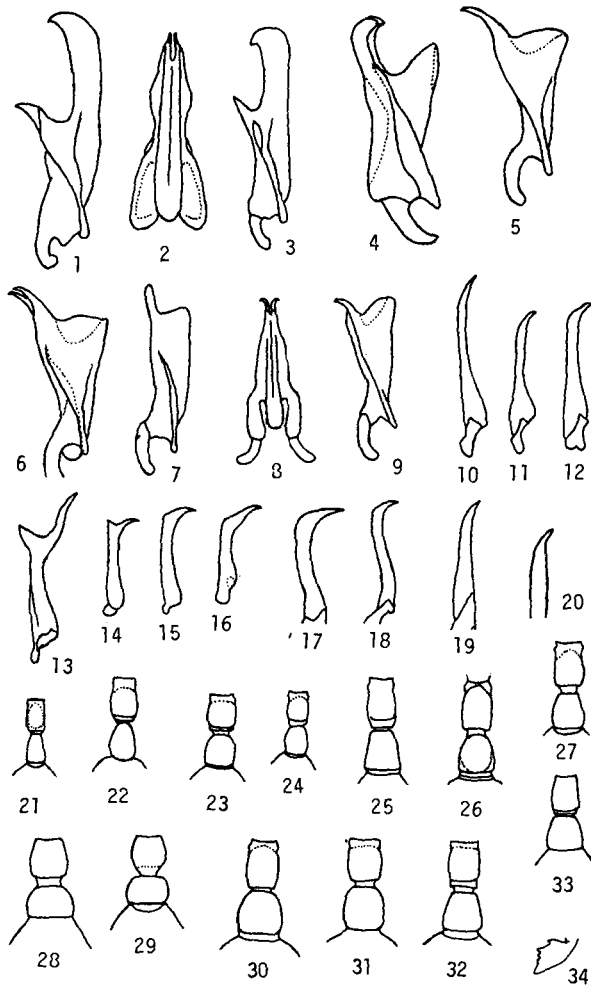


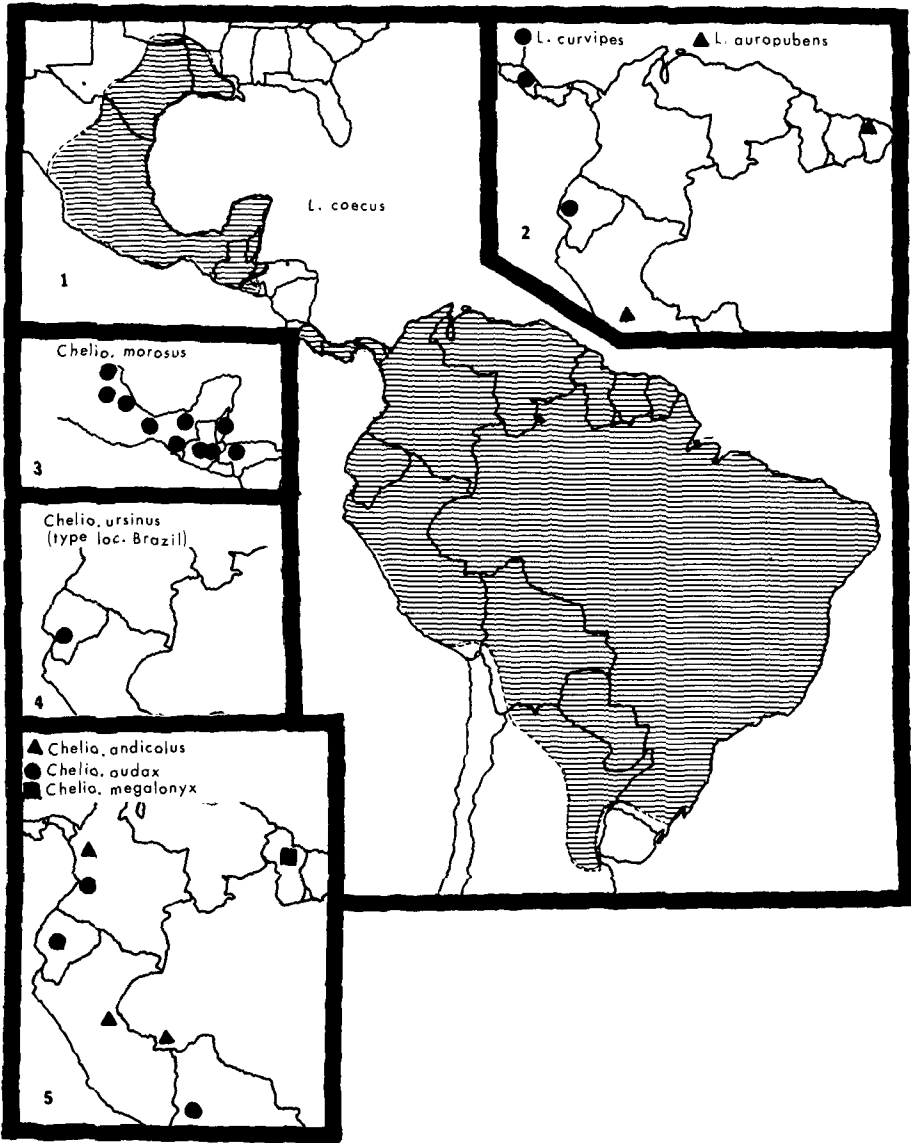
Plate 20. Fig. 1-9 sagittae of (1) *Neivamyrmex fuscipennis*, (2-3) *N. tristis*, (4) *N. jermanni*, (5) *N. inca*, (6) *N. pertyi*, (7) *N. spinolai*, (8-9) *N. swainsoni*. Fig. 10-20 volsellae of (10) *N. genalis*, (11) *N. romandi*, (12) *N. vicinus*, (13) *N. macropterus*, (14-15) *N. swainsoni*, (16) *N. cloosae*, (17) *N. diabolus*, (18) *N. diana*, (19) *N. guyanensis*, (20) *N. baylori*. Fig. 21-33 petioles and postpetioles of major workers of (21) *N. compressinodis*, (22) *N. angustinodis*, (23-24) *N. modestus*, (25) *N. alfaroi*, (26) *N. iridescens*, (27) *N. balzani*, (28) *N. antillanus*, (29) *N. leonardi*, (30) *N. postangustatus*, (31) *N. hetschkoi*, (32) *N. minensis*, (33) *N. bohlsi*. Fig. 34 mandible of major worker of *N. pauxillus*.

INDEX TO MAPS
(map numbers in parentheses)

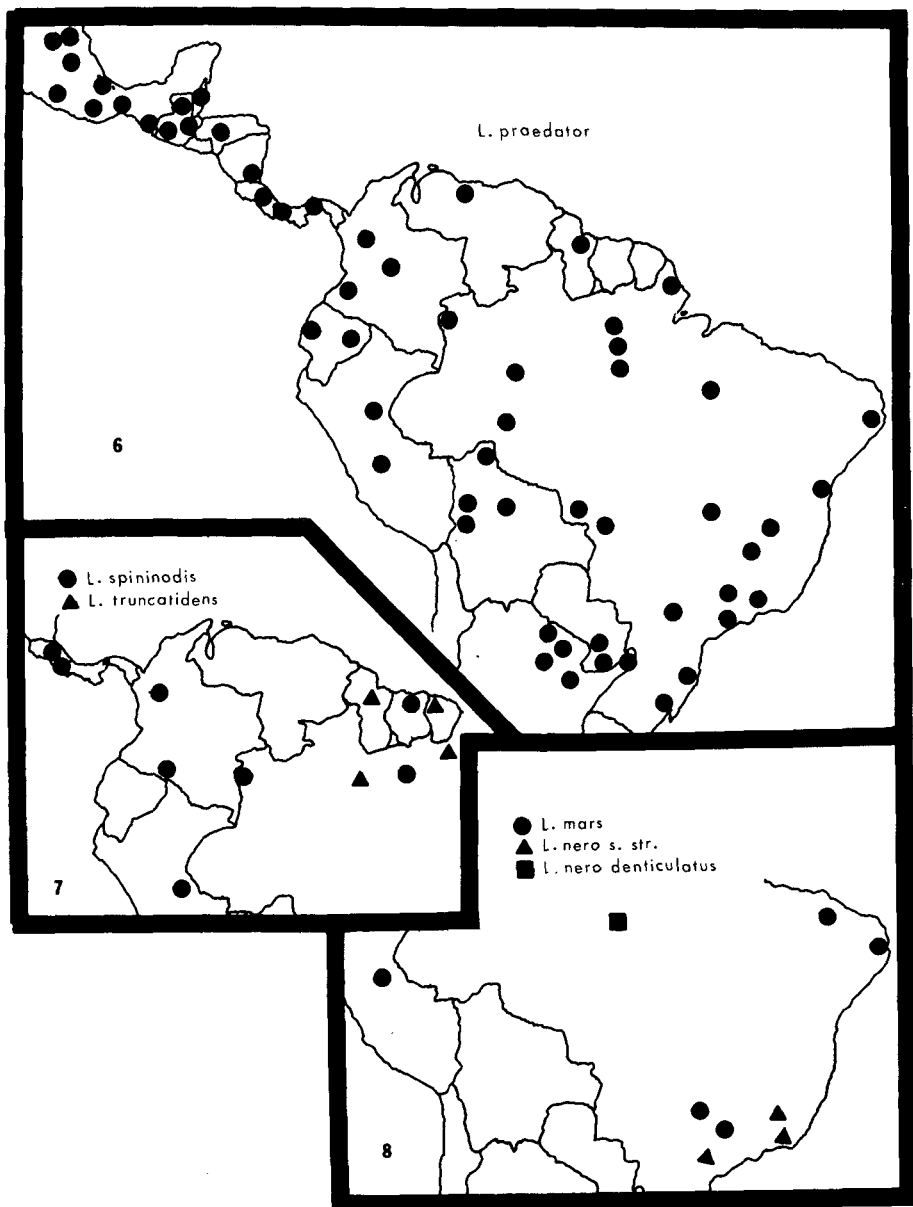
- | | | |
|--|-----------------------------------|------------------------------|
| <i>Cheliomyrmex</i> | <i>L. coecus</i> (1) | <i>N. d'orbignyi</i> (80) |
| <i>C. andicolus</i> (5) | <i>L. curvipes</i> (2) | <i>N. emersoni</i> (88) |
| <i>C. audax</i> (5) | <i>L. mars</i> (8) | <i>N. emeryi</i> (69) |
| <i>C. megalonyx</i> (5) | <i>L. nero s.str.</i> (8) | <i>N. erichsoni</i> (102) |
| <i>C. morosus</i> (3) | <i>L. nero denticulatus</i> (8) | <i>N. falciferus</i> (73) |
| <i>C. ursinus</i> (4) | <i>L. praedator s.lat.</i> (6) | <i>N. fallax</i> (58) |
| | <i>L. spininodis</i> (7) | <i>N. foveolatus</i> (51) |
| <i>Eciton</i> | <i>L. truncatidens</i> (7) | <i>N. fumosus</i> (52) |
| <i>E. burchelli s.str.</i> (15) | | <i>N. fuscipennis</i> (44) |
| <i>E. burchelli cupiens</i> (17) | <i>Neivamyrmex</i> | <i>N. genalis</i> (97) |
| <i>E. burchelli foreli</i> (14) | <i>N. sp. a</i> (68) | <i>N. gibbatus</i> (109) |
| <i>E. burchelli parvispinum</i> (13) | <i>N. adnepos</i> (100) | <i>N. goeldii</i> (67) |
| <i>E. burchelli urichi</i> (14) | <i>N. agilis</i> (60) | <i>N. graciellae</i> (50) |
| <i>E. drepanophorum</i> (16) | <i>N. alfaroi</i> (104) | <i>N. gracilis</i> (96) |
| <i>E. dulcius s.str.</i> (24) | <i>N. andrei</i> (55) | <i>N. gradualis</i> (72) |
| <i>E. dulcius crassinode</i> (25) | <i>N. angulimandibulatus</i> (42) | <i>N. guerini</i> (108) |
| <i>E. hamatum</i> (27) | <i>N. angustinodis</i> (83) | <i>N. guyanensis</i> (89) |
| <i>E. jansoni</i> (26) | <i>N. antillanus</i> (59) | <i>N. halidayi</i> (74) |
| <i>E. lucanoides s.str.</i> (31) | <i>N. asper</i> (40) | <i>N. harrisii</i> (34) |
| <i>E. lucanoides conquistador</i> (31) | <i>N. sp. b</i> (79) | <i>N. hetschkoi</i> (84) |
| <i>E. mexicanum s.lat.</i> (29) | <i>N. balzani</i> (101) | <i>N. hopei</i> (92) |
| <i>E. mexicanum s.str.</i> (28) | <i>N. baylori</i> (47) | <i>N. humilis</i> (63) |
| <i>E. mexicanum argentinum</i> (30) | <i>N. bohlsi</i> (101) | <i>N. imbellis</i> (90) |
| <i>E. mexicanum goianum</i> (30) | <i>N. bruchi</i> (77) | <i>N. impudens</i> (60) |
| <i>E. mexicanum latidens</i> (30) | <i>N. bureni</i> (110) | <i>N. inca</i> (68) |
| <i>E. mexicanum morulum</i> (28) | <i>N. californicus</i> (32) | <i>N. iridescens</i> (104) |
| <i>E. mexicanum panamense</i> (28) | <i>N. carettei</i> (103) | <i>N. jermanni</i> (68) |
| <i>E. quadriglume</i> (22) | <i>N. carinifrons</i> (99) | <i>N. jheringi</i> (102) |
| <i>E. rapax</i> (23) | <i>N. carolinensis</i> (41) | <i>N. klugi s.str.</i> (94) |
| <i>E. setigaster</i> (31) | <i>N. clavifemur</i> (96) | <i>N. klugi distans</i> (94) |
| <i>E. uncinatum</i> (26) | <i>N. cloosae</i> (46) | <i>N. kuertii</i> (110) |
| <i>E. vagans s.str.</i> (21) | <i>N. compressinodis</i> (88) | <i>N. laevigatus</i> (66) |
| <i>E. vagans allognathum</i> (19) | <i>N. cornutus</i> (105) | <i>N. laticapus</i> (91) |
| <i>E. vagans angustatum</i> (18) | <i>N. cratensis</i> (66) | <i>N. legionis</i> (111) |
| <i>E. vagans dispar</i> (20) | <i>N. cristatus</i> (72) | <i>N. leonardi</i> (56) |
| <i>E. vagans dubitatum</i> (21) | <i>N. densepunctatus</i> (79) | <i>N. leptognathus</i> (109) |
| <i>E. vagans fur</i> (21) | <i>N. detectus</i> (77) | <i>N. lieselae</i> (99) |
| <i>E. vagans mutatum</i> (19) | <i>N. diabolus</i> (43) | <i>N. longiscapus</i> (50) |
| | <i>N. diana</i> (65) | <i>N. macrodentatus</i> (57) |
| <i>Labidus</i> | <i>N. digitistipus</i> (46) | <i>N. macropterus</i> (44) |
| <i>L. auropubens</i> (2) | <i>N. diversinodis</i> (81) | <i>N. manni</i> (36) |

- | | | |
|-------------------------------|-------------------------------------|--|
| <i>N. maxillosus</i> (71) | <i>N. pilosus s.str.</i> (62) | <i>N. scutellaris</i> (73) |
| <i>N. melanocephalus</i> (64) | <i>N. pilosus beebei</i> (62) | <i>N. shuckardi</i> (106) |
| <i>N. melsheimeri</i> (45) | <i>N. pilosus mandibularis</i> (61) | <i>N. spatulatus</i> (43) |
| <i>N. mexicanus</i> (110) | <i>N. pilosus mexicanus</i> (61) | <i>N. spinolai</i> (78) |
| <i>N. micans</i> (86) | <i>N. pilosus subsp.</i> (62) | <i>N. spoliator</i> (49) |
| <i>N. microps</i> (47) | <i>N. piraticus</i> (93) | <i>N. sulcatus</i> (107) |
| <i>N. minensis</i> (82) | <i>N. planidens</i> (90) | <i>N. sumichrasti</i> (37) |
| <i>N. minor</i> (51) | <i>N. planidorsus</i> (75) | <i>N. swainsoni</i> (54) |
| <i>N. modestus</i> (83) | <i>N. postangustatus</i> (85) | <i>N. tenuis</i> (97) |
| <i>N. mojave</i> (47) | <i>N. postcarinatus</i> (64) | <i>N. texanus</i> (35) |
| <i>N. moseri</i> (57) | <i>N. pseudops</i> (71) | <i>N. tristis</i> (48) |
| <i>N. nigrescens</i> (33) | <i>N. puerulus</i> (87) | <i>N. vicinus</i> (98) |
| <i>N. nordenskiöldi</i> (70) | <i>N. pulchellus</i> (90) | <i>N. walkeri</i> (76) |
| <i>N. opacithorax</i> (39) | <i>N. pullus</i> (53) | |
| <i>N. orthonotus</i> (100) | <i>N. quadratoocciputus</i> (44) | <i>Nomamyrmex</i> |
| <i>N. pacificus</i> (82) | <i>N. radoszkowskyi</i> (87) | <i>Noma. esenbecki s.str.</i> (12) |
| <i>N. pauxillus</i> (38) | <i>N. raptans</i> (86) | <i>Noma. esenbecki crassicornis</i> (11) |
| <i>N. perplexus</i> (98) | <i>N. romandi</i> (95) | <i>Noma. esenbecki n. subsp.</i> (10) |
| <i>N. pertyi</i> (70) | <i>N. rosenbergi</i> (42) | <i>Noma. esenbecki wilsoni</i> (10) |
| <i>N. physognathus</i> (111) | <i>N. rugulosus</i> (36) | <i>Noma. hartigi</i> (9) |

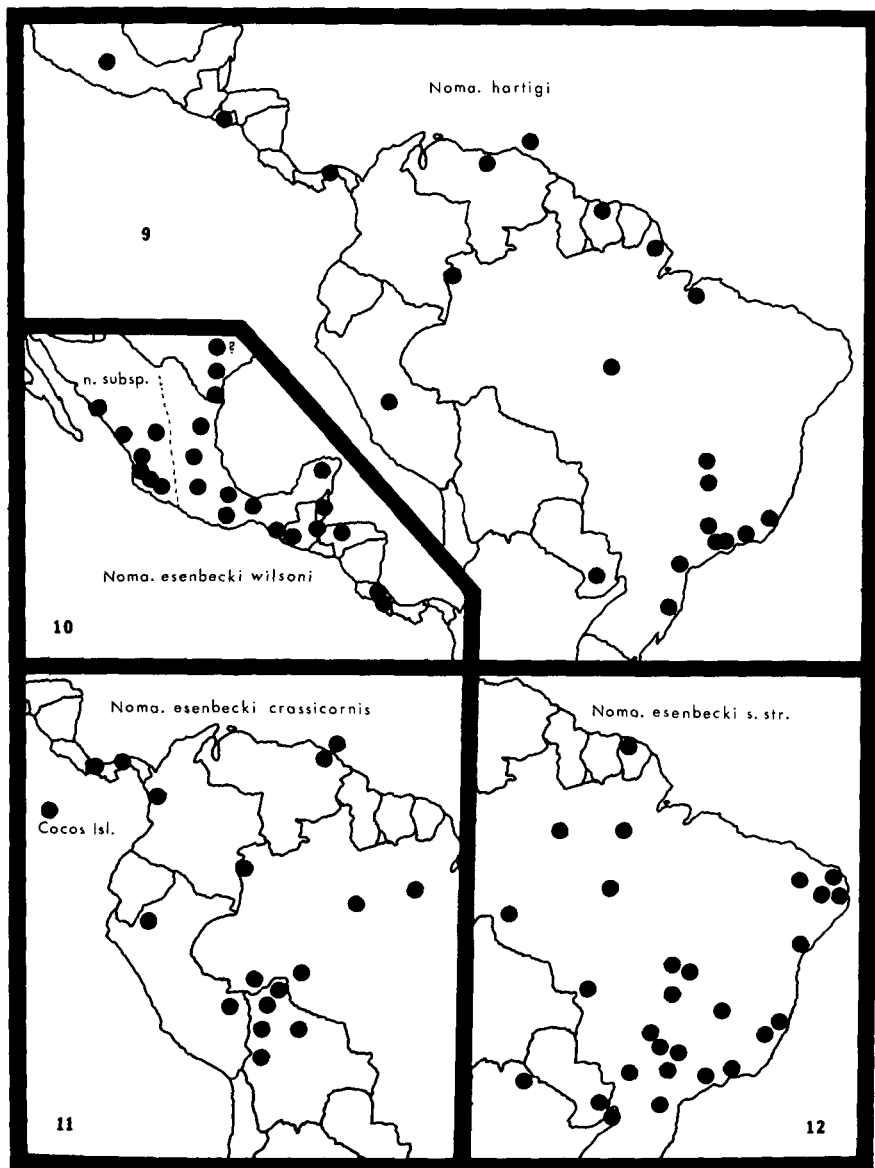
MAPS 1-5



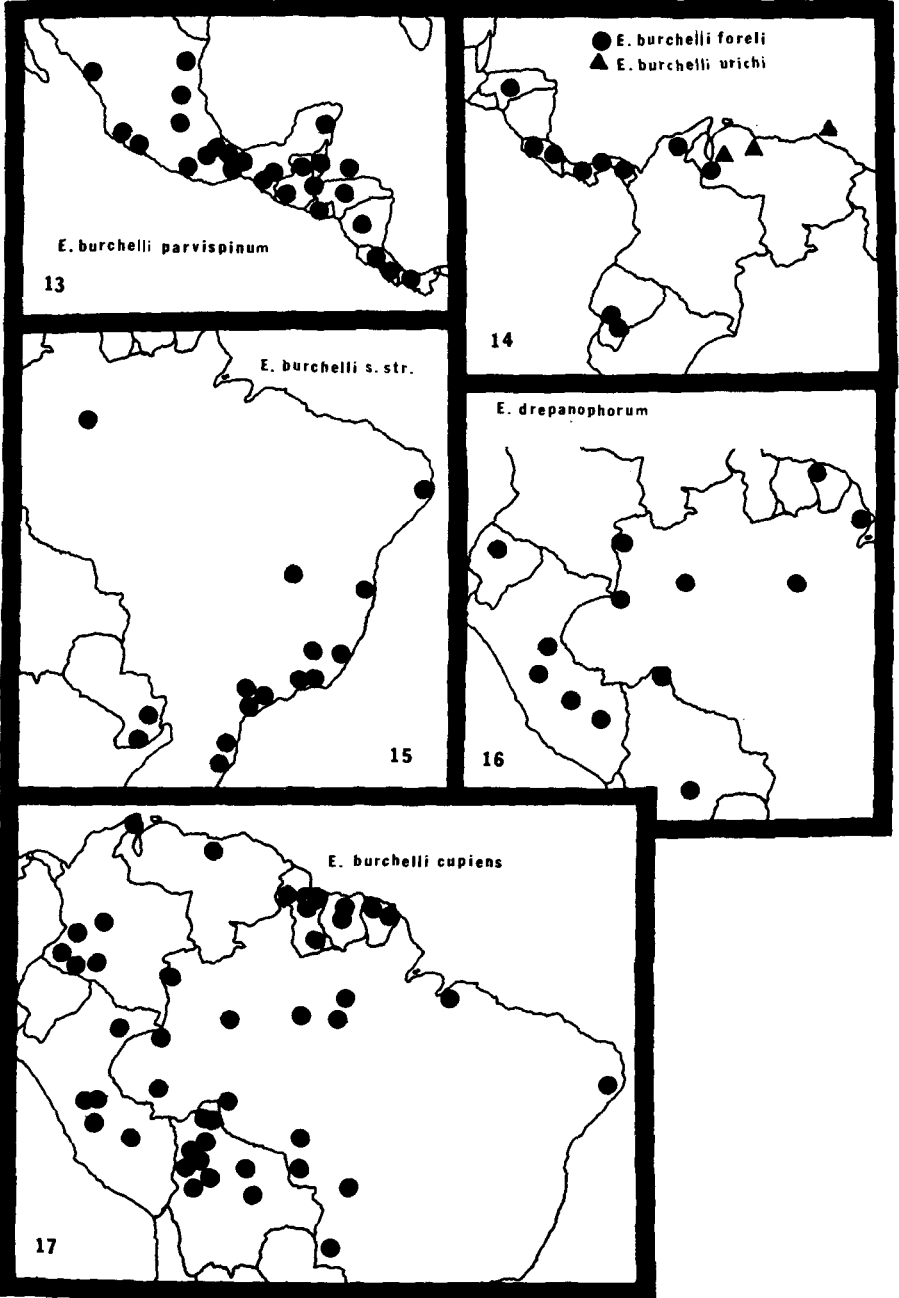
MAPS 6-8



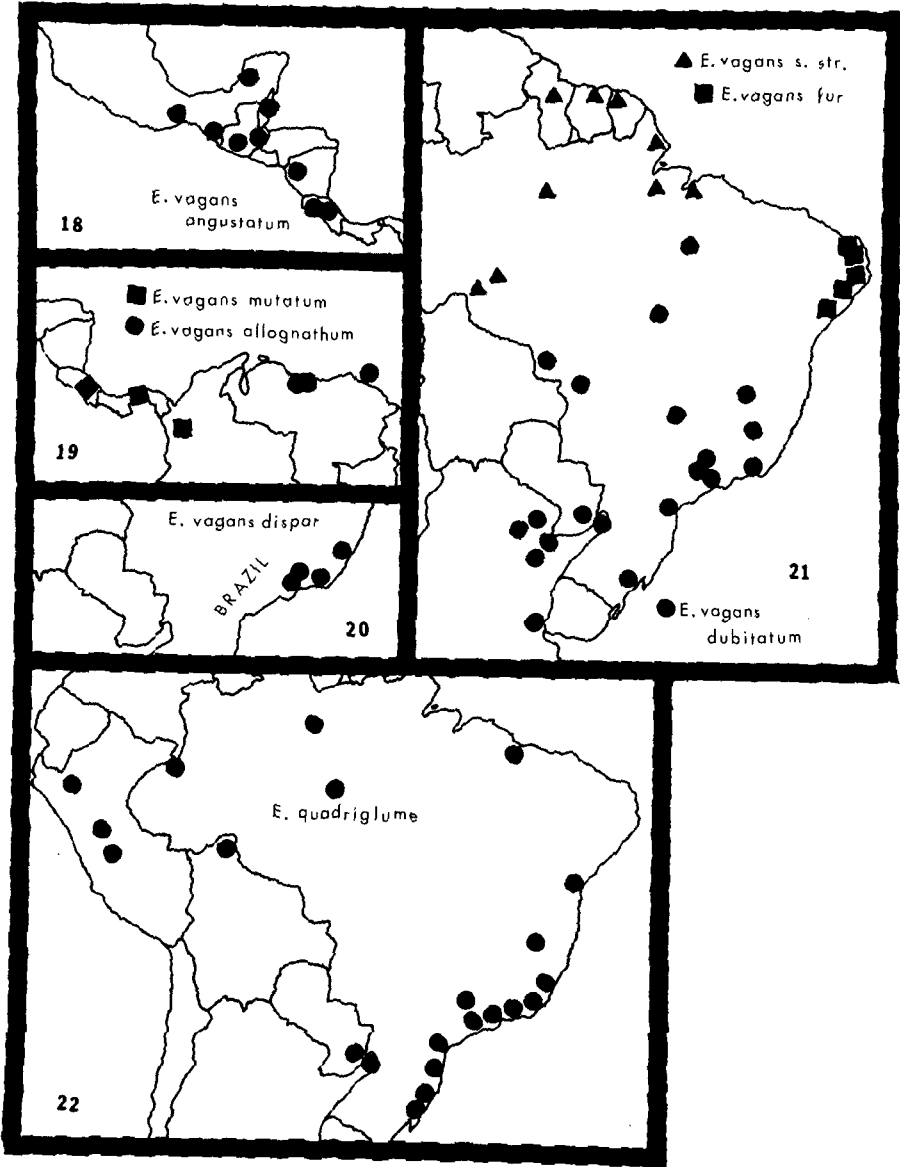
MAPS 9-12



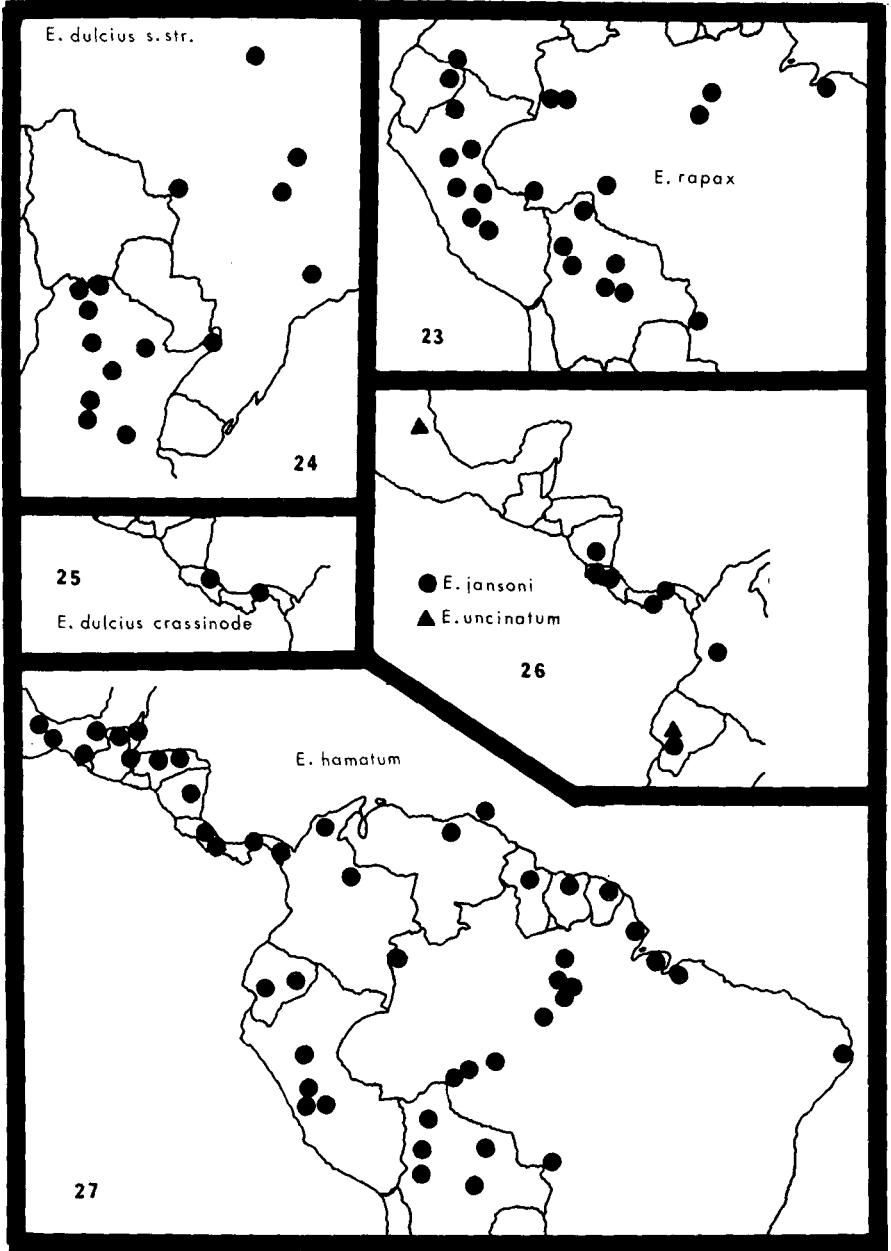
MAPS 13-17



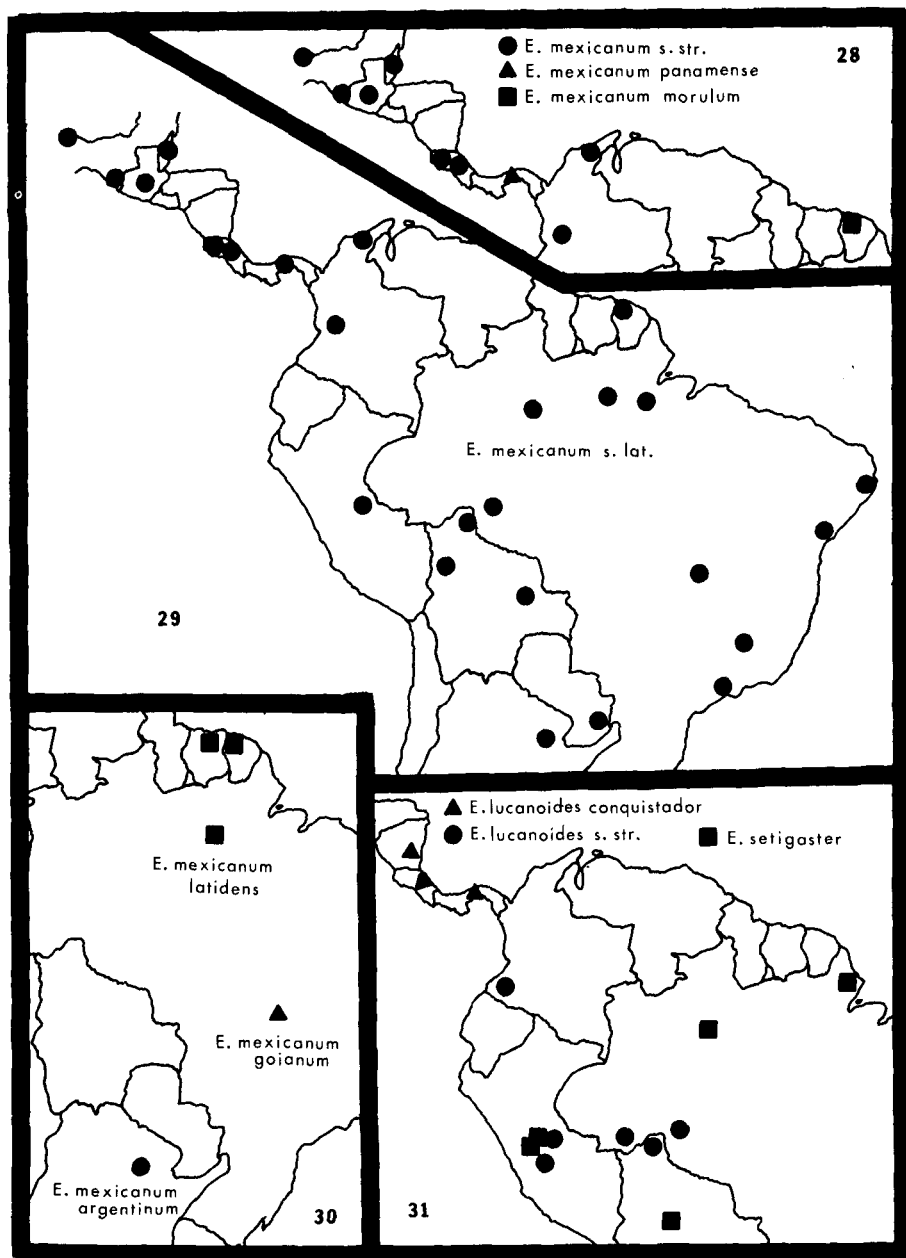
MAPS 18-22



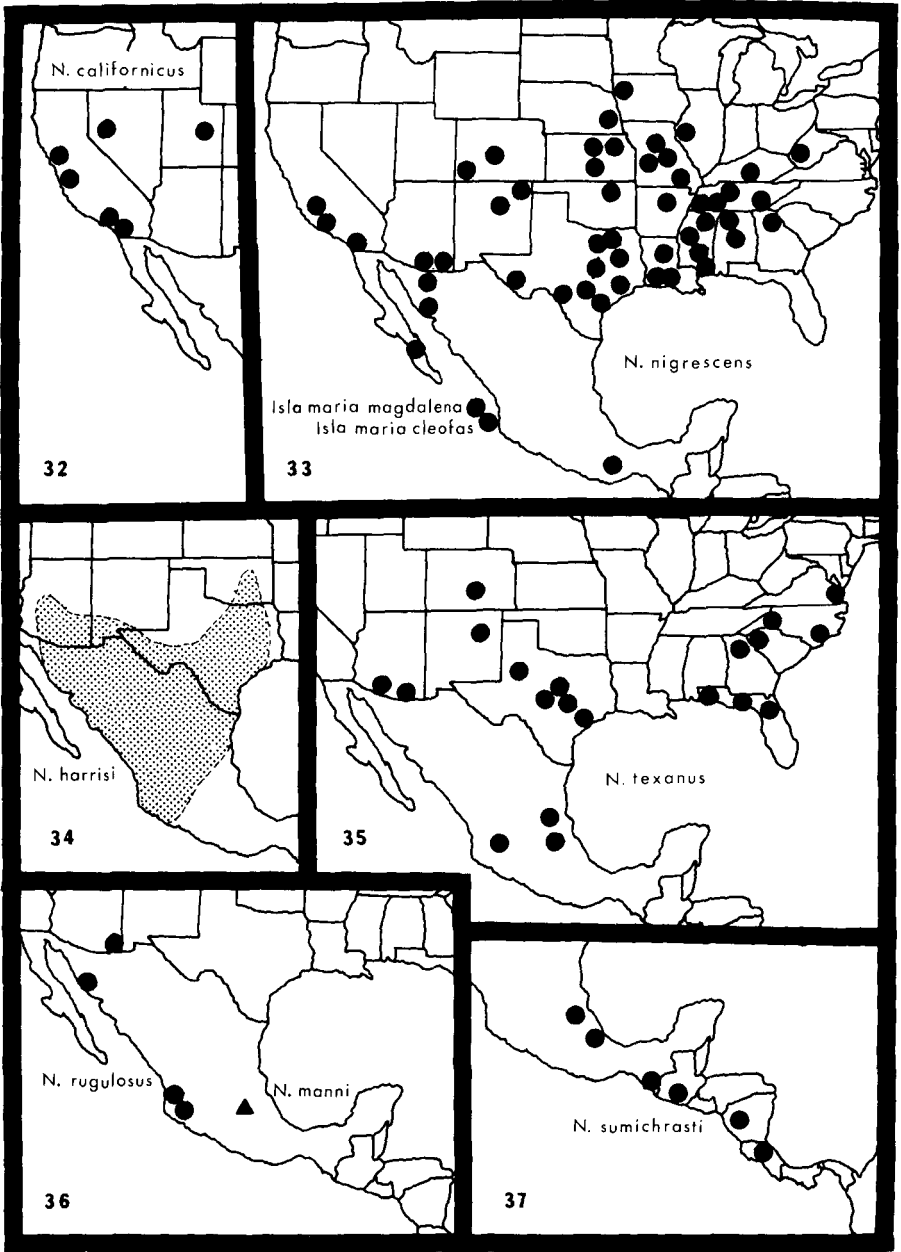
MAPS 23-27



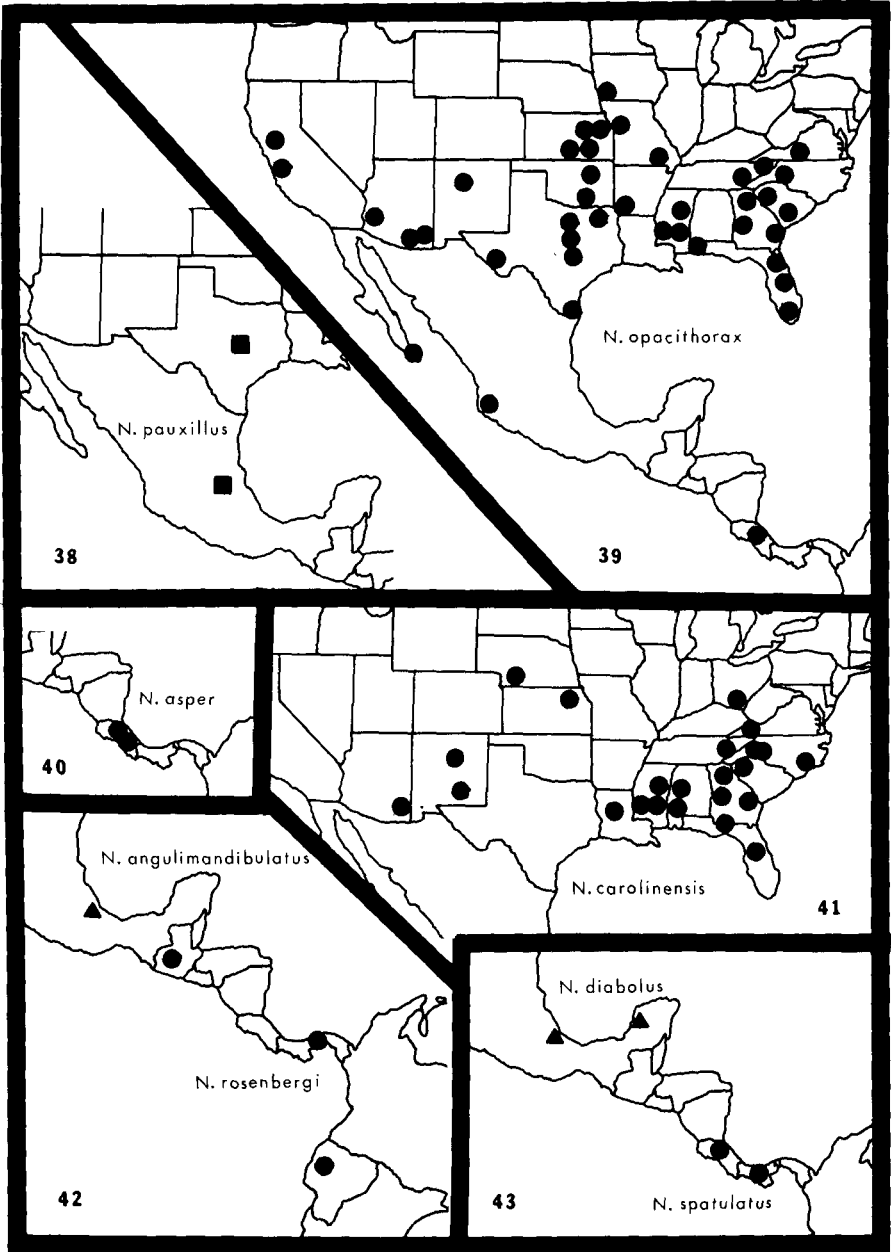
MAPS 28-31



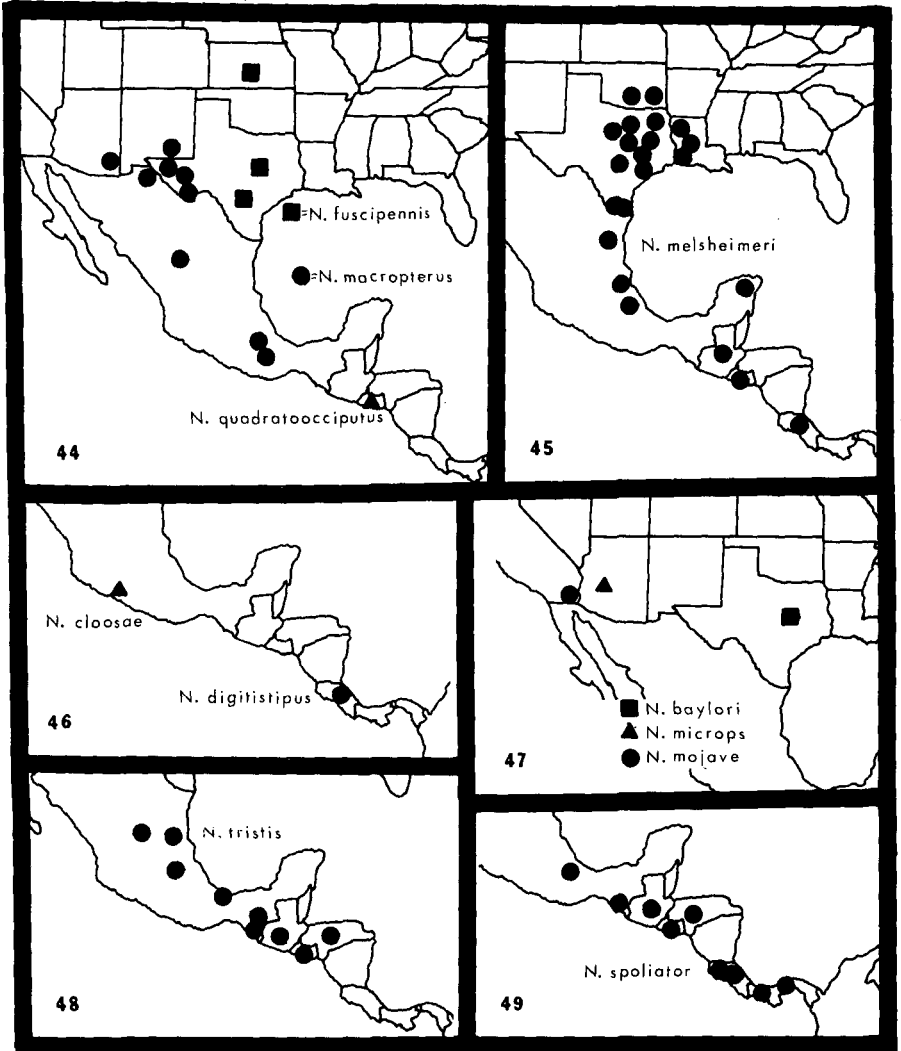
MAPS 32-37



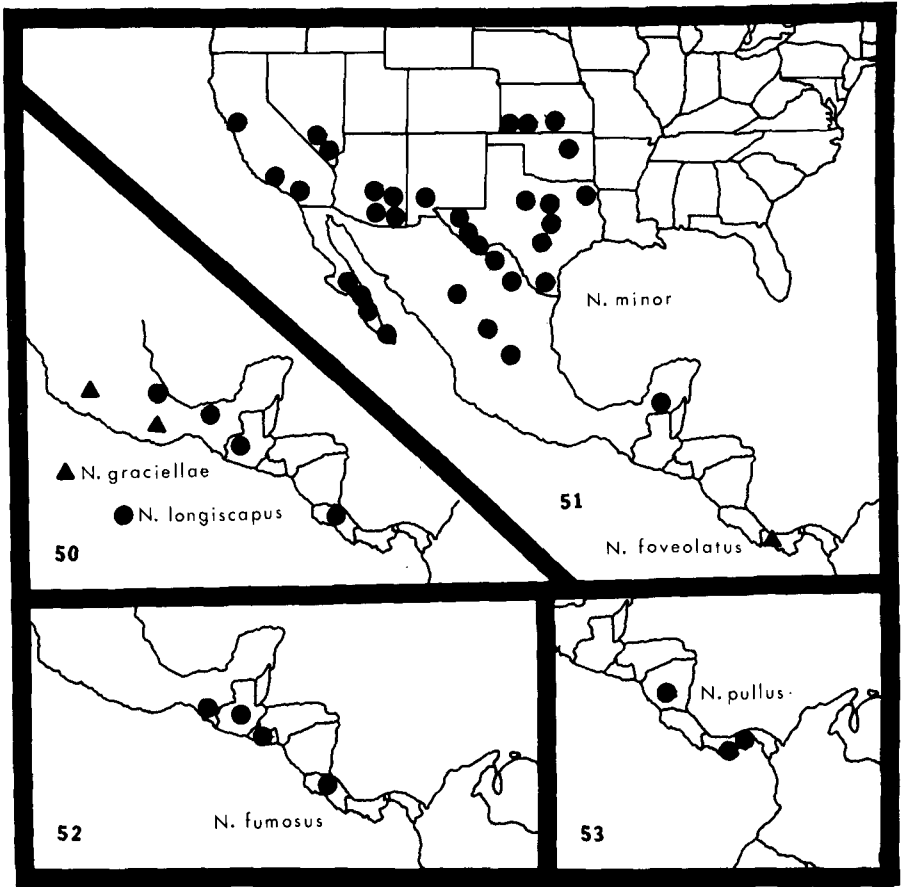
MAPS 38-43



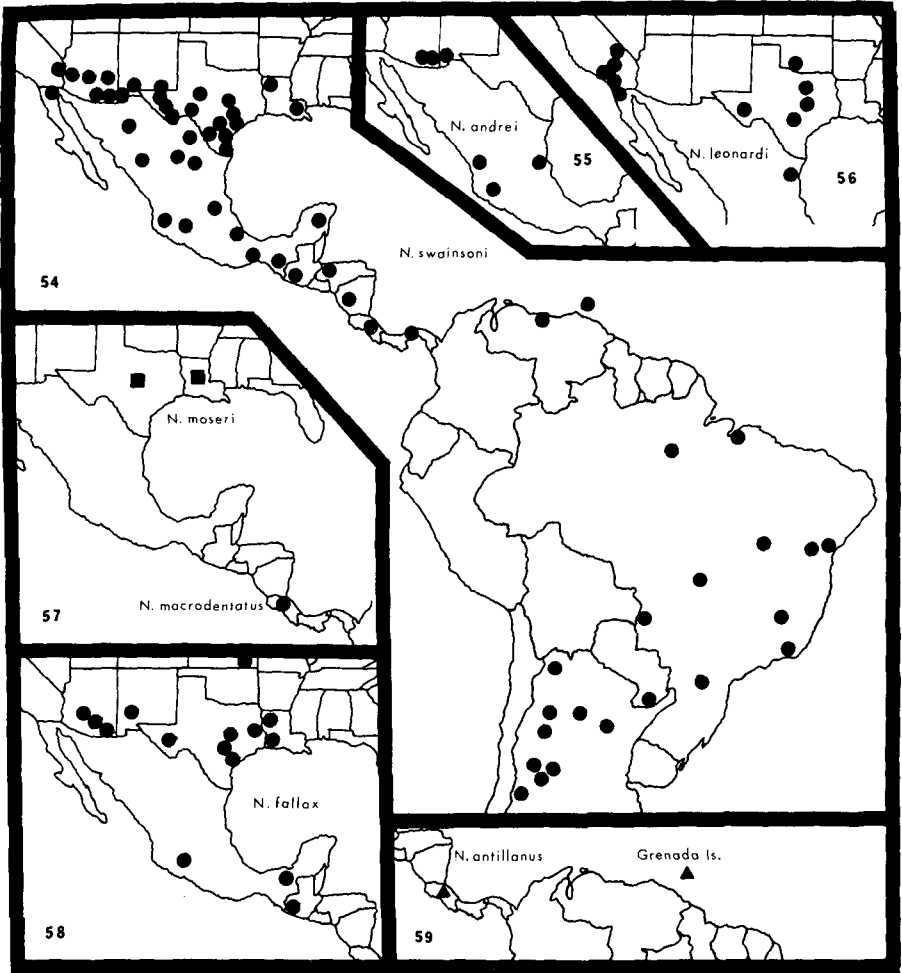
MAPS 44-49



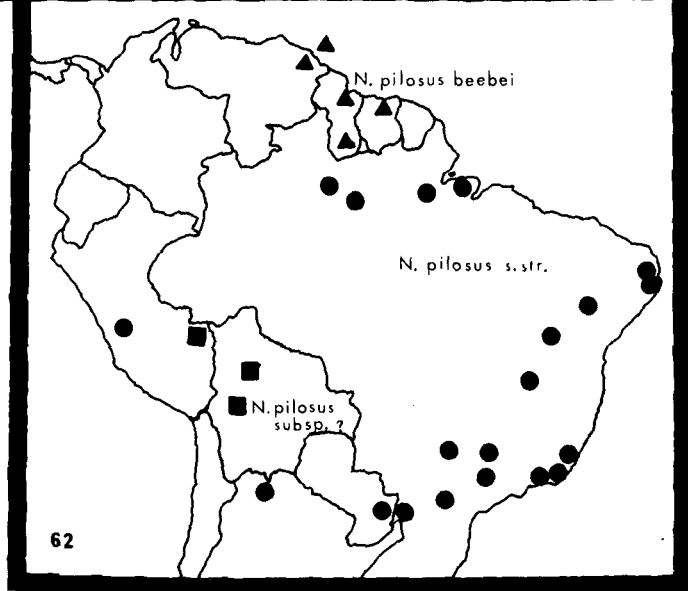
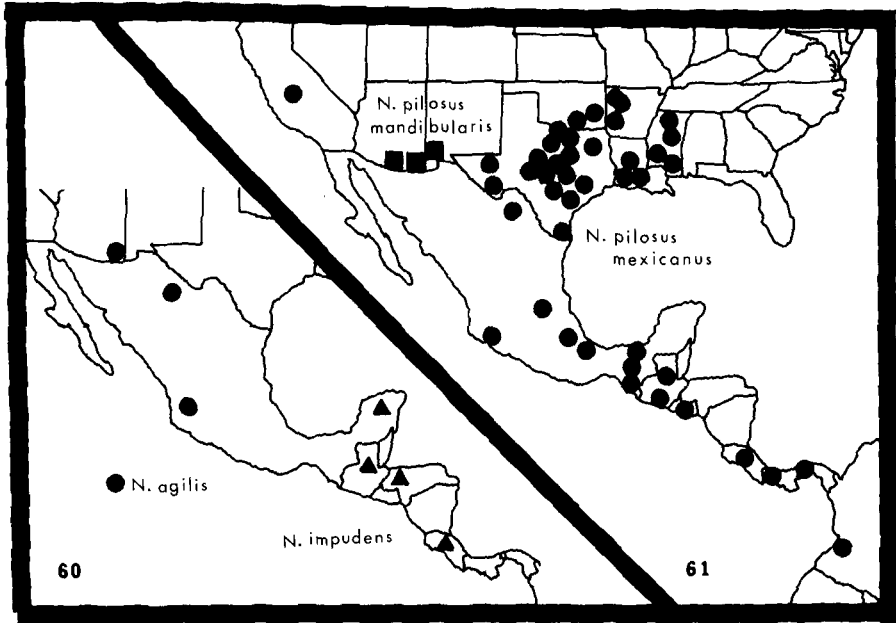
MAPS 50-53



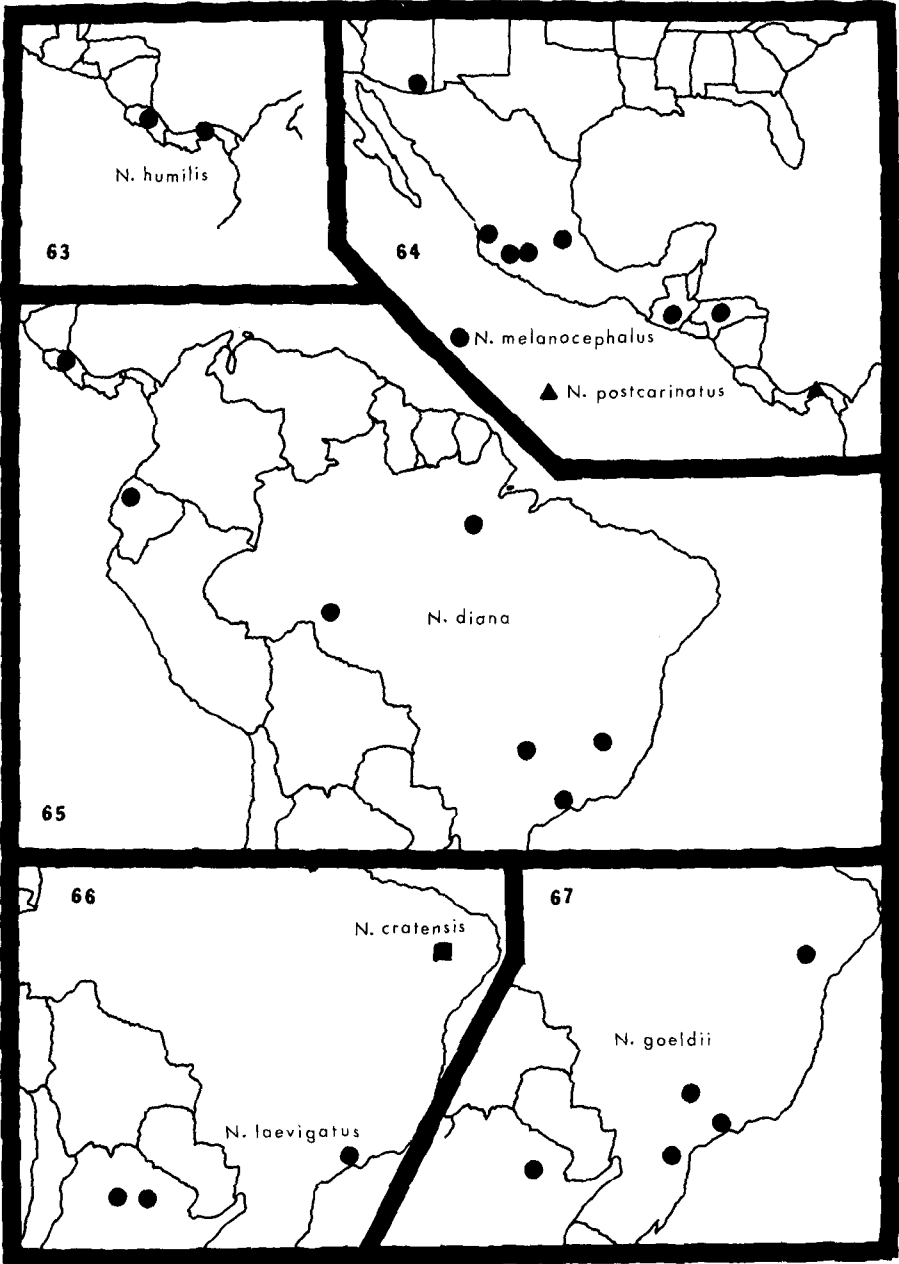
MAPS 54-59



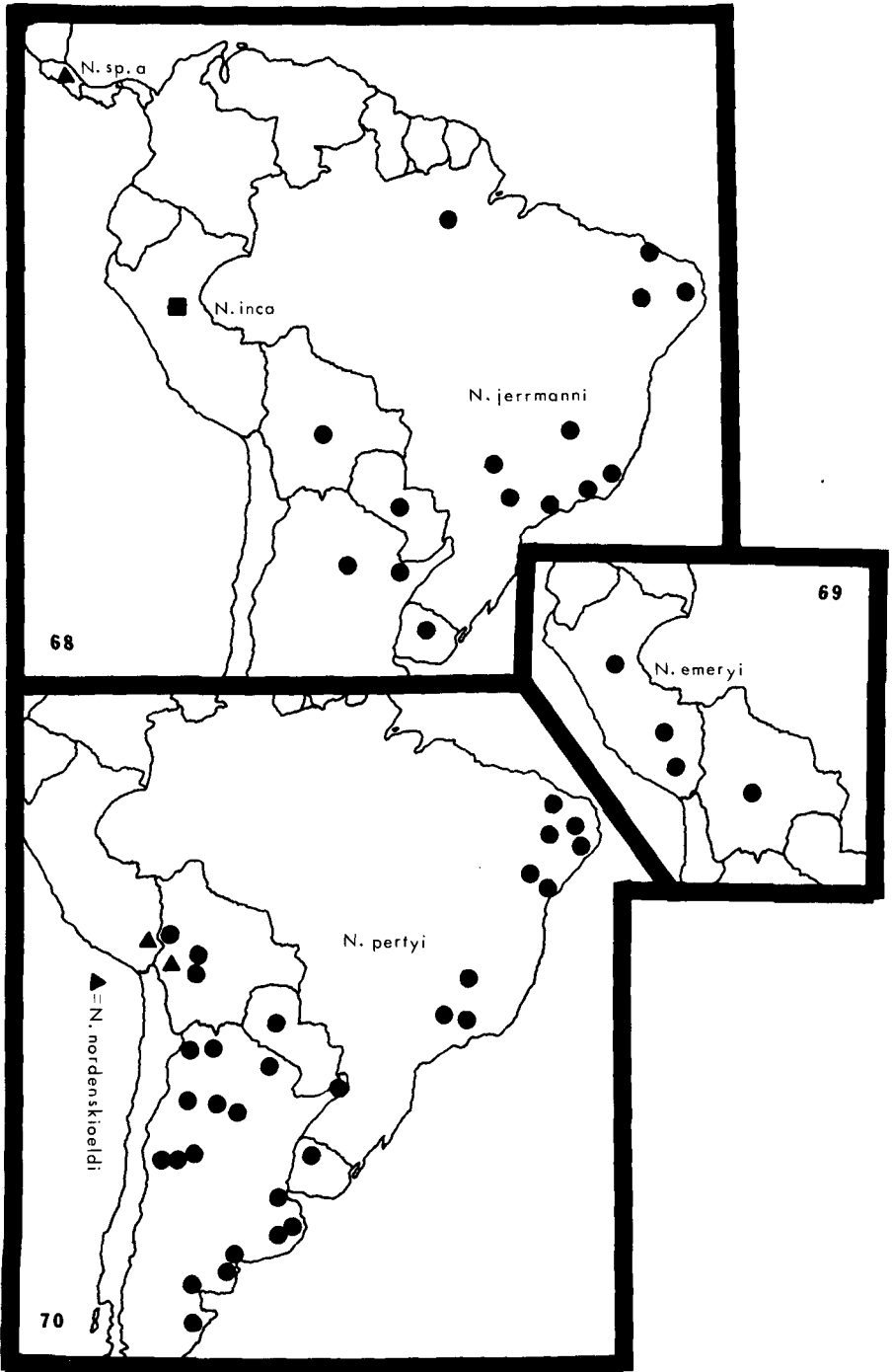
MAPS 60-62



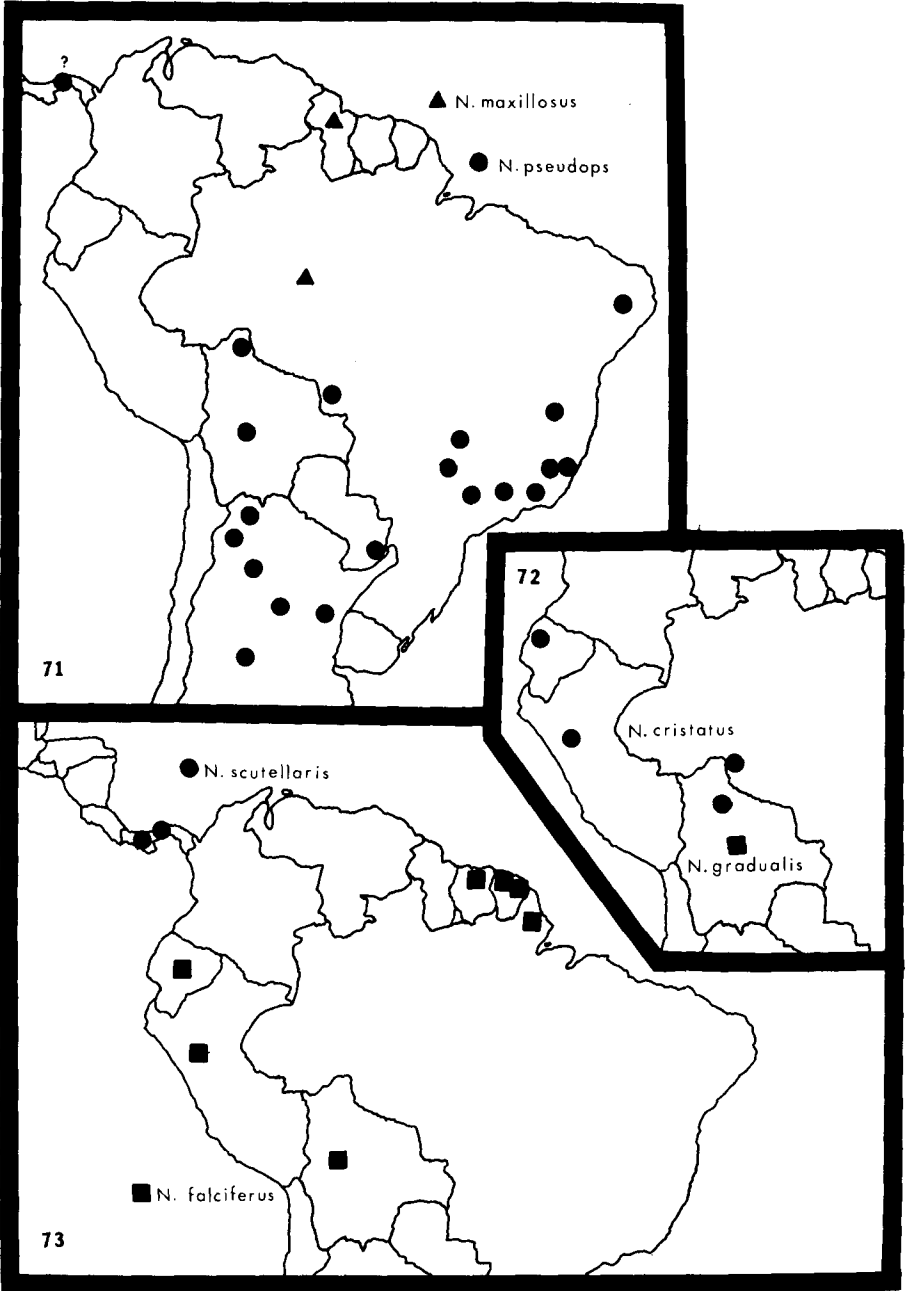
MAPS 63-67



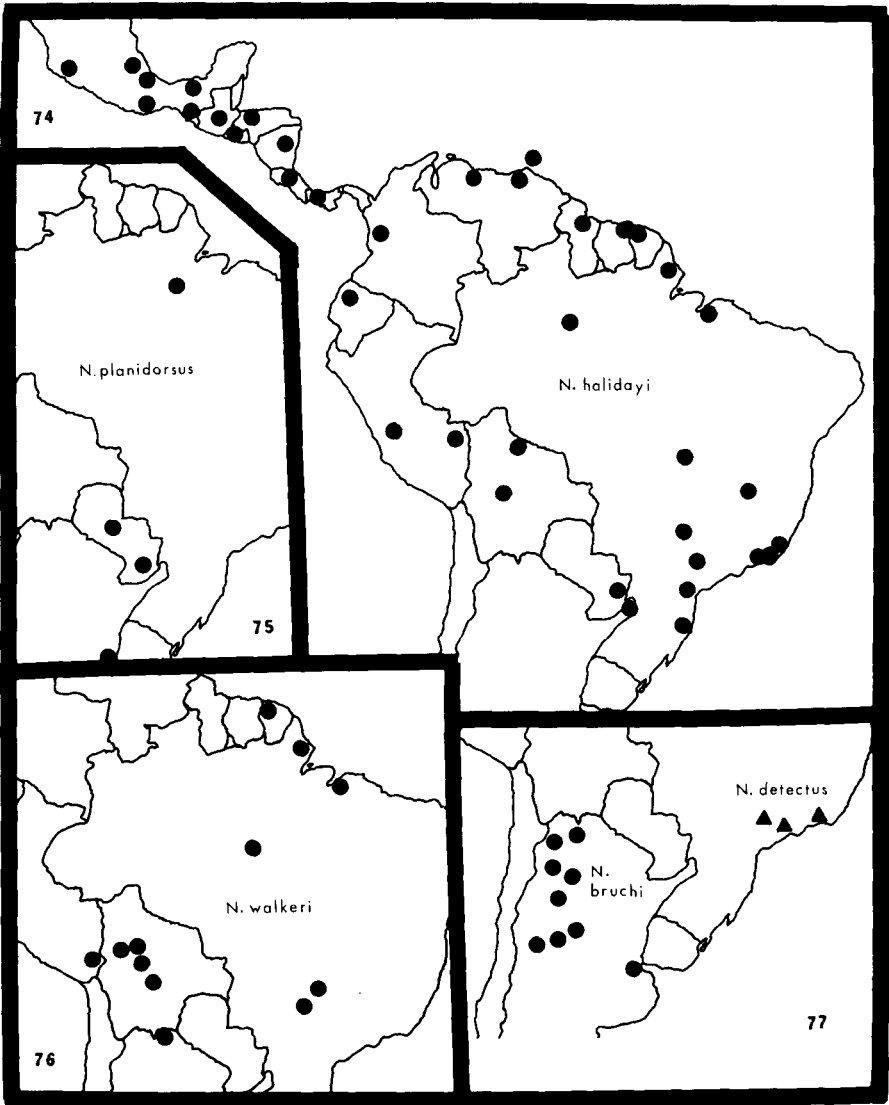
MAPS 68-70



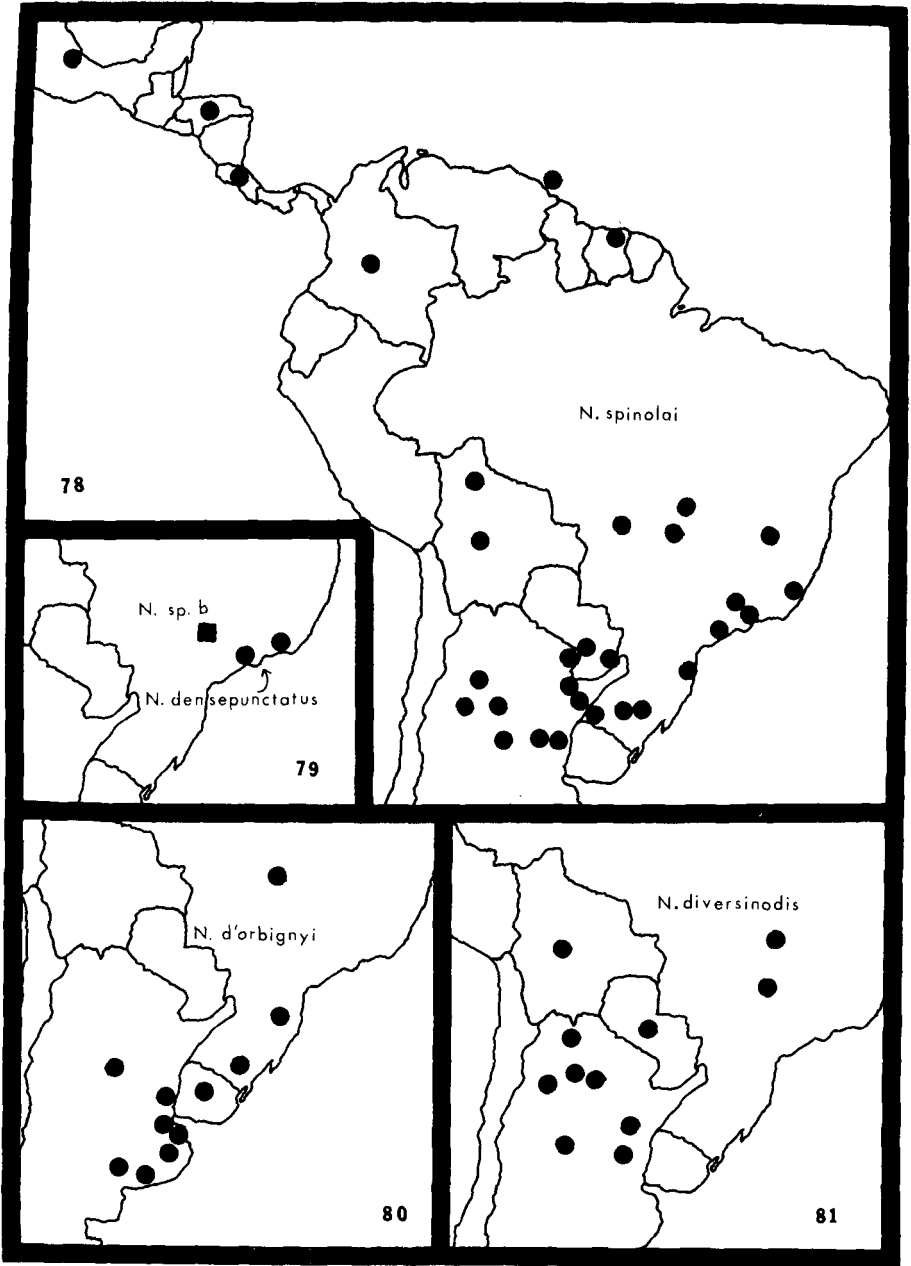
MAPS 71-73



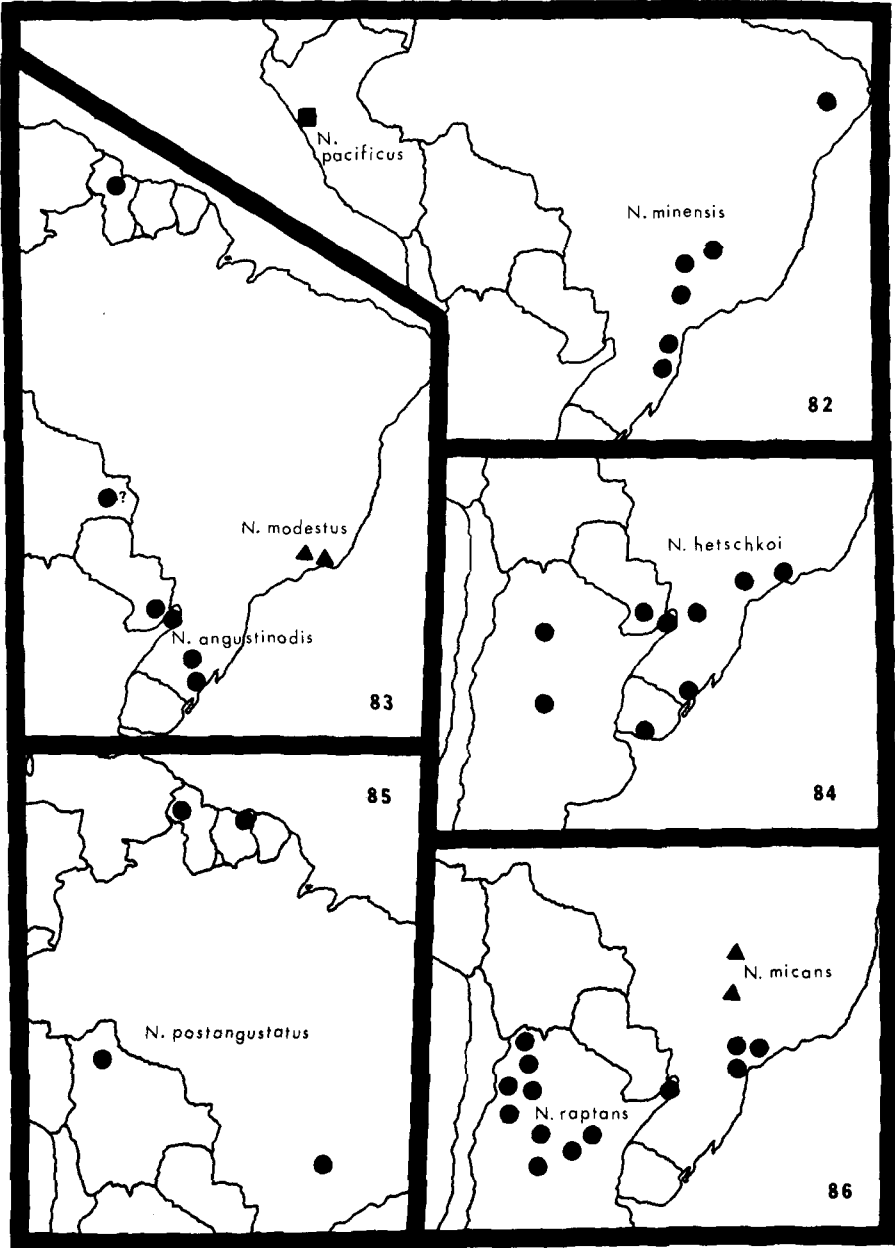
MAPS 74-77



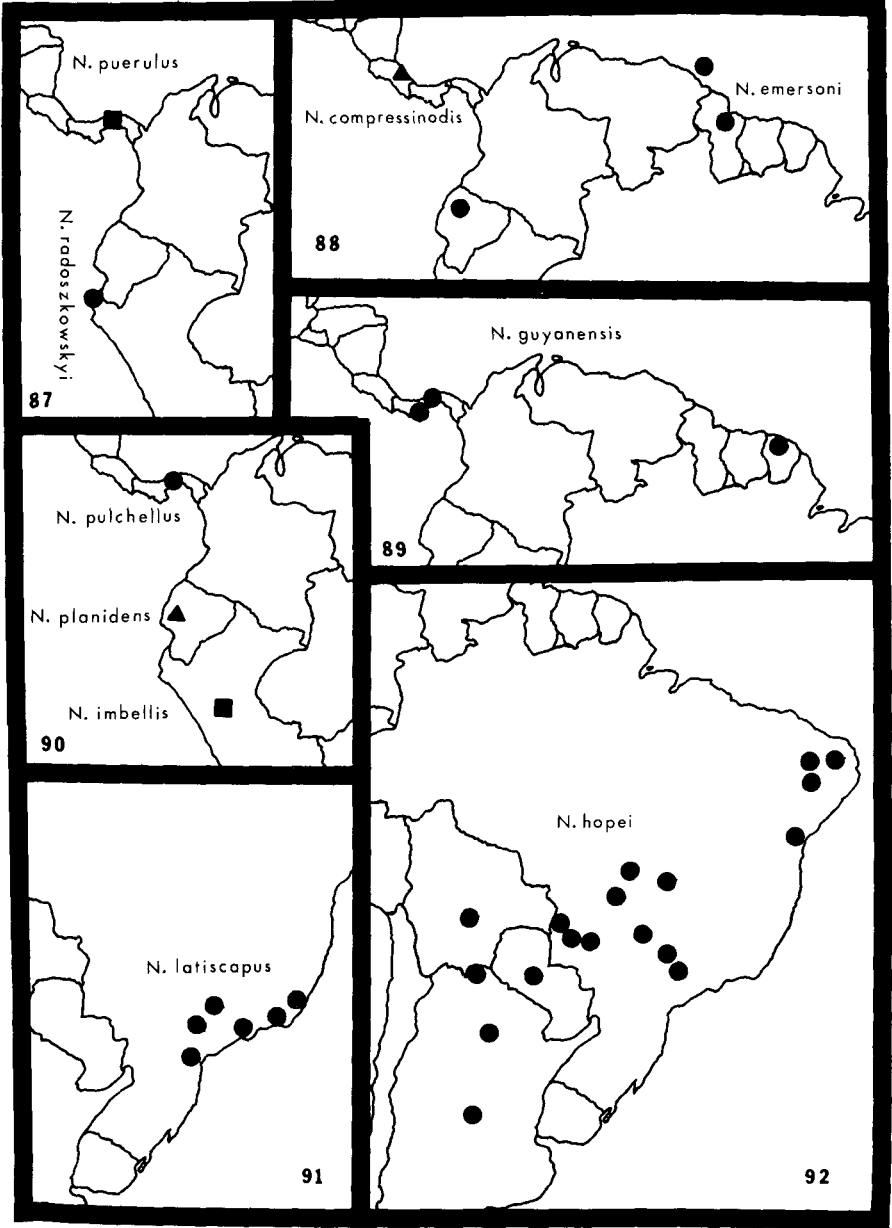
MAPS 78-81



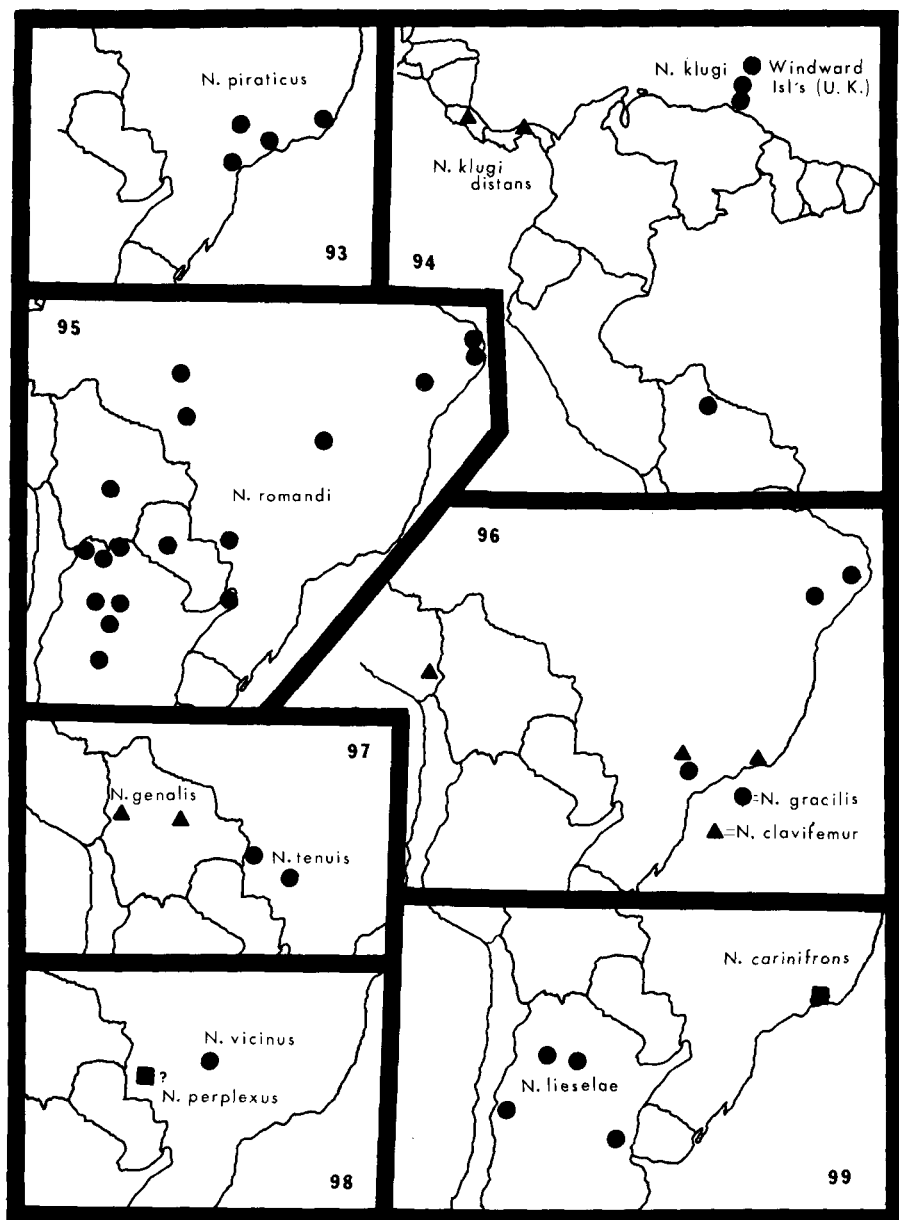
MAPS 82-86



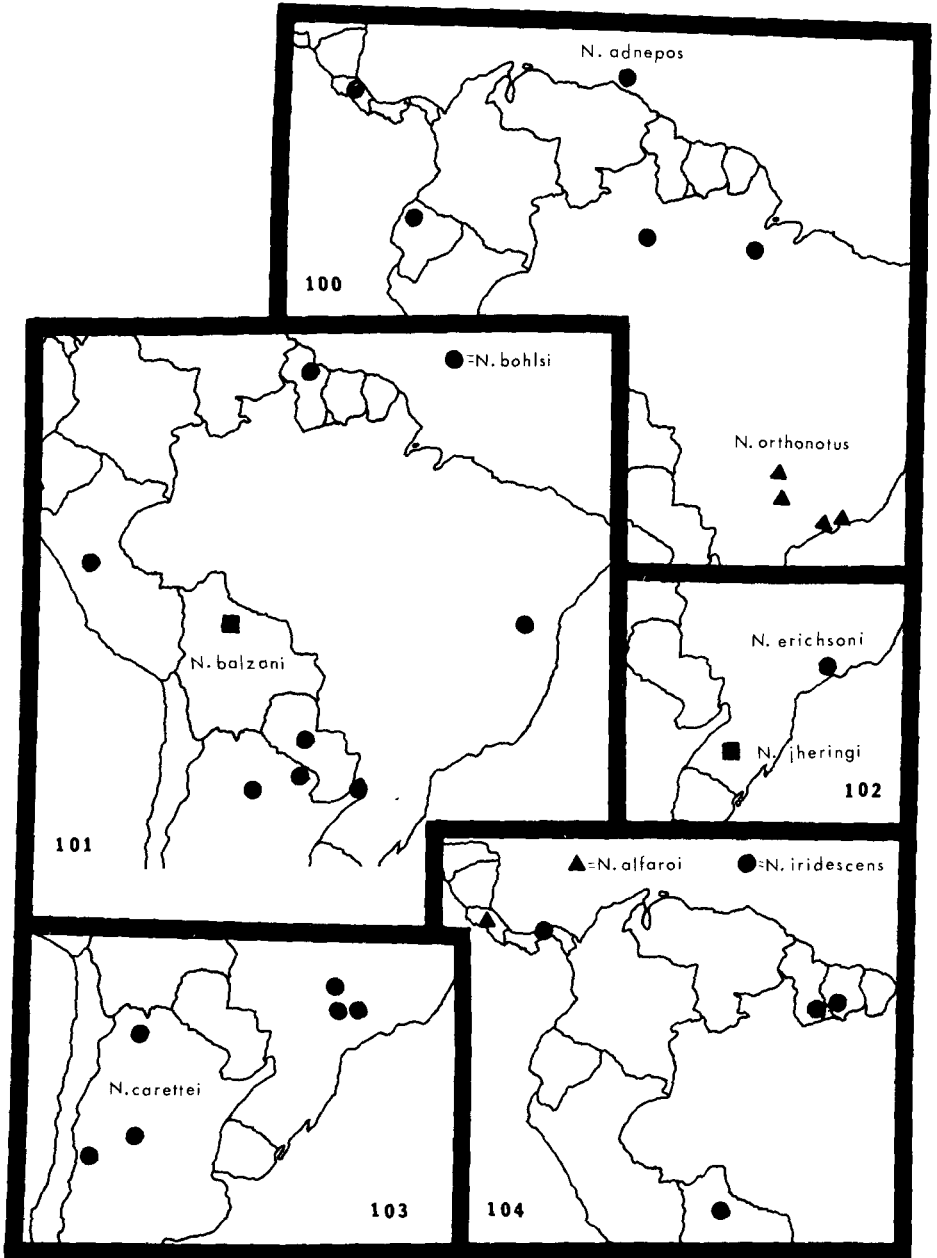
MAPS 87-92



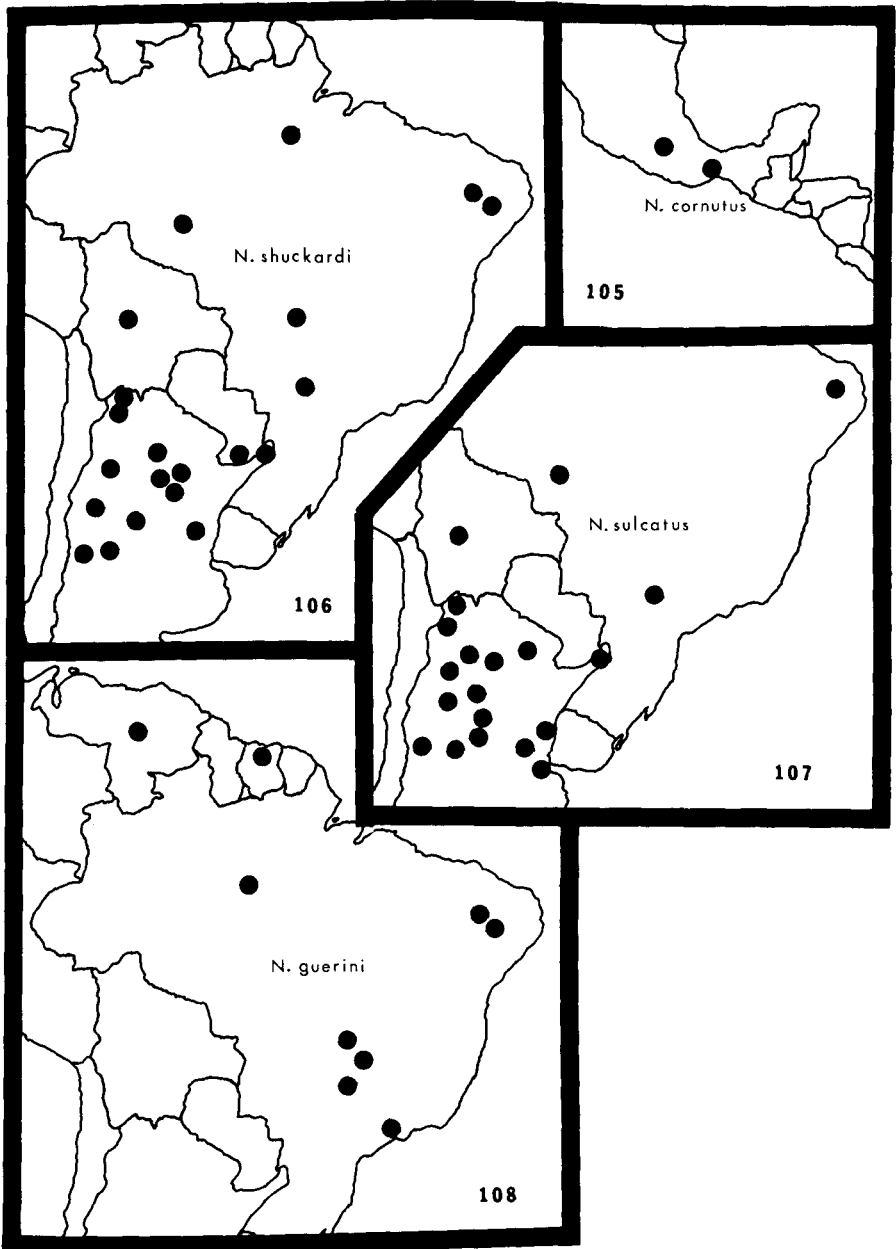
MAPS 93-99



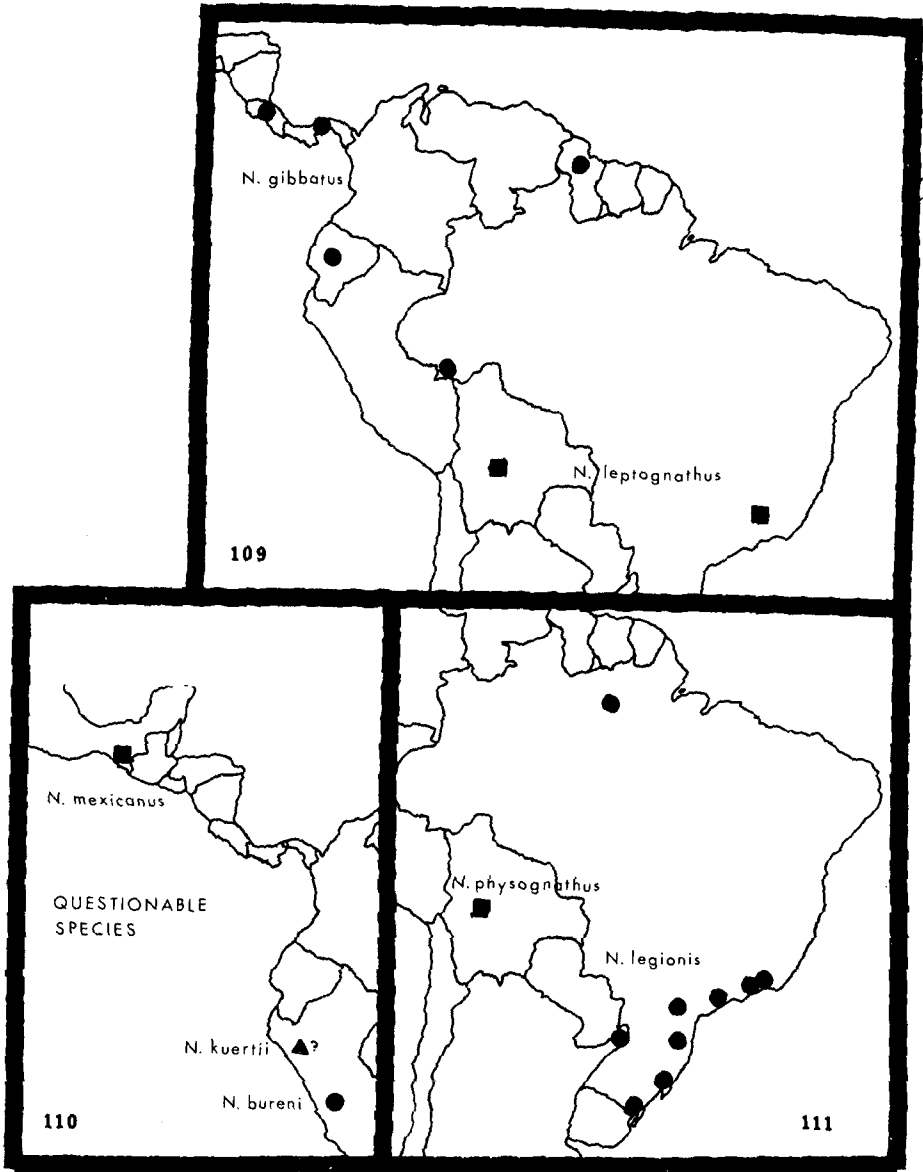
MAPS 100-104



MAPS 105-108



MAPS 109-111



LIST (ALPHABETICAL) OF NEW WORLD DORYLINAE:
GENUS: SPECIES: COUNTRY: STATE

CHELIOMYRMEX

andicolus

Brazil

Acre

Colombia

Antioquia

Peru

Panamarca

audax

Bolivia

La Paz

Colombia

Valle del Cauca

Ecuador

megalonyx

Guyana (Br. Guiana)

mosus

British Honduras

Guatemala

Honduras

Mexico

Chiapas

San Luis Potosi

Veracruz

ursinus

Brazil

Ecuador

Bolivar

ECITON

burchelli s. str.

Brazil

Amazonas

Bahia

Distrito Federal

Espirito Santo

Guanabara

Minas Gerais

Para

Pernambuco

Rio de Janeiro

Santa Catarina

Sao Paulo

Paraguay

burchelli cupiens

Bolivia

Beni

La Paz

Pando

Santa Cruz

Brazil

Acre

Amazonas

Mato Grosso

Para

Pernambuco

Rondonia

Colombia

Caqueta

Cauca

Cundinamarca

Guajira

Putumayo

Valle de Cauca

French Guiana

Guyana (Br. Guiana)

Peru

Cuzco

Huanuco

Junin

Loreto

Surninam (Du. Guiana)

Venezuela

burchelli foreli

Colombia

Magdalena

Costa Rica

Guanacaste

Limon

Ecuador

Guayas

Morona Santiago

Honduras

Panama

Canal Zone

Darien

Panama

Veraguas

Venezuela

burchelli parvispinum

British Honduras

Costa Rica

Cartago

Limon

Puntarenas

San Jose

El Salvador

Guatemala

Honduras

Mexico

Chiapas

Colima

Guerrero

Jalisco

Oaxaca

Puebla

Quintana Roo

San Luis Potosi

Tamaulipas

Veracruz

Nicaragua

Panama

Chiriqui

burchelli urichi

Trinidad	Brazil	Colombia
Venezuela	Amapa	Costa Rica
Aragua	Amazonas	Guanacaste
Trujillo	Mato Grosso	Limon
	Para	Ecuador
<i>drepanophorum</i>	Pernambuco	Nicaragua
Bolivia	Rondonia	Panama
Pando	British Honduras	Canal Zone
Santa Cruz	Colombia	Los Santos
Brazil	Magdalena	Panama
Amapa	Costa Rica	
Amazonas	Cartago	<i>lucanoides s. str.</i>
Para	Limon	Bolivia
Ecuador	Puntarenas	Pando
French Guiana	San Jose	Brazil
Peru	Ecuador	Acre
Cuzco	Guyas	Rondonia
Huanuco	Pastaza	Colombia
Loreto	French Guiana	Peru
	Guatemala	Junin
	Paten	
<i>dulcius s. str.</i>	Guyana (Br. Guiana)	<i>lucanoides conquistador</i>
Argentina	Honduras	Costa Rica
Chaco	Mexico	Limon
Cordoba	Chiapas	Nicaragua
Jujuy	Oaxaca	Panama
Misiones	Veracruz	Canal Zone
Salta	Nicaragua	Colon
Santa Fe	Panama	Panama
Santiago del Estero	Canal Zone	
Tucuman	Chiriqui	<i>mexicanum s. lat.</i>
Brazil	Cocle	Argentina
Goias	Colon	Chaco
Mato Grosso	Darien	Bolivia
Sao Paulo	Panama	Beni
	Peru	La Paz
	Ancash	Brazil
<i>dulcius crassinode</i>	Huanuco	Amazonas
Costa Rica	Junin	Bahia
Limon	San Martin	Goias
Panama	Surinam (Du. Guiana)	Minas Gerais
Canal Zone	Trinidad	Para
	Venezuela	Pernambuco
<i>hamatum</i>		Rondonia
Bolivia		Sao Paulo
Beni	<i>jansoni</i>	
La Paz		

British Honduras
 Colombia
 Costa Rica
 Limon
 French Guiana
 Guatemala
 Mexico
 Chiapas
 Veracruz
 Panama
 Canal Zone
 Colon
 Panama
 Paraguay
 Peru
 Surinam (Du. Guiana)

mexicanum s. str.
 British Honduras
 Colombia
 Costa Rica
 Limon
 Guatemala
 Mexico
 Chiapas
 Veracruz

mexicanum argentinum
 Argentina
 Chaco

mexicanum goianum
 Brazil
 Goias

mexicanum latidens
 Brazil
 Para
 French Guiana
 Surinam (Du. Guiana)

mexicanum morulum
 French Guiana

mexicanum panamense

Panama
 Canal Zone
 Colon
 Panama

quadriglume
 Argentina
 Misiones
 Bolivia
 Beni
 Brazil
 Amazonas
 Bahia
 Espirito Santo
 Guanabara
 Maranhao
 Minas Gerais
 Para
 Parana
 Rio de Janeiro
 Rio Grande do Sul
 Santa Catarina
 Sao Paulo
 Paraguay
 Peru
 Amazonas
 Huanuco
 Junin

rapax
 Bolivia
 Beni
 Cochabamba
 La Paz
 Santa Cruz
 Brazil
 Amazonas
 Mato Grosso
 Para
 Rondonia
 Colombia
 Putumayo
 Ecuador
 Peru
 Cuzco

Huanuco
 Junin
 Loreto
 San Martin

setigaster
 Bolivia
 Cochabamba
 Brazil
 Amapa
 Amazonas
 Peru
 Huanuco

uncinatum
 Ecuador
 Chimborazo
 Mexico
 San Luis Potosi

vagans s. str.
 Brazil
 Amapa
 Amazonas
 Para
 Rondonia
 French Guiana
 Guyana (Br. Guiana)
 Surinam (Du. Guiana)

vagans allognathum
 Trinidad
 Venezuela
 Carabobo
 Miranda

vagans angustatum
 British Honduras
 Costa Rica
 Guanacaste
 Limon
 San Jose
 Guatemala
 Mexico
 Chiapas

Oaxaca
Yucatan
Nicaragua

vagans dispar

Brazil
Espirito Santo
Guanabara
Rio de Janeiro
Sao Paulo

vagans dubitatum

Argentina
Chaco
Misiones
Santa Fe
Brazil
Goias
Mato Grosso
Minas Gerais
Parana
Rio de Janeiro
Rio Grande do Sul
Sao Paulo
Paraguay

vagans fur

Brazil
Bahia
Paraiba
Pernambuco
Rio Grande do Norte
Sergipe

vagans mutatum

Colombia
Costa Rica
Limon
Puntarenas
San Jose
Panama
Canal Zone

LABIDUS

auropubens
French Guiana
Peru
Huanuco

coecus

Argentina
Buenos Aires
Chaco
Corrientes
Formosa
Jujuy
Misiones
Santa Fe
Santiago del Estero

Bolivia

Beni
Ceara
La Paz

Brazil

Acre
Amapa
Amazonas
Bahia
Ceara
Distrito Federal
Espirito Santo
Goias
Guanabara
Mato Grosso
Minas Gerais
Para
Paraiba
Parana
Pernambuco

Rio de Janeiro
Rio Grande do Norte
Rio Grande do Sul
Rondonia
Santa Catarina
Sao Paulo

British Honduras
Colombia

Costa Rica

Cartago
Limon
Puntarenas
San Jose
Ecuador
El Salvador
French Guiana
Guatemala
Guyana (Br. Guiana)
Honduras

Mexico

Chiapas
Coahuila
Distrito Federal
Guerrero
Hidalgo
Jalisco
Michoacan
Nayarit
Nuevo Leon
Oaxaca
San Luis Potosi
Sinaloa
Tamaulipas
Veracruz

Nicaragua

Panama
Canal Zone
Chiriqui
Los Santos
Panama

Paraguay

Peru

Cuzco
Huanuco
Madre de Dios
Surinam (Du. Guiana)

U.S.A.

Arkansas
Louisiana
Oklahoma
Texas

Venezuela

Federal District

Merida	Minas Gerais	Costa Rica
<i>curvipes</i>	Para	Cartago
Costa Rica	Paraiba	Limon
Ecuador	Parana	Puntarenas
	Pernambuco	San Jose
	Rio de Janeiro	Panama
<i>mars</i>	Rio Grande do Sul	Canal Zone
Brazil	Rondonia	Colon
Ceara	Santa Catarina	Venezuela
Goias	Sao Paulo	
Pernambuco	British Honduras	<i>spinioidis</i>
Sao Paulo	Colombia	Brazil
Peru	Antioquia	Amazonas
	Costa Rica	Para
<i>nero s. str.</i>	Limon	Colombia
Brazil	Ecuador	Antioquia
Minas Gerais	Guatemala	Putumayo
Rio de Janeiro	Guyana (Br. Guiana)	Costa Rica
Sao Paulo	Honduras	Alajuela
	Mexico	Heredia
<i>nero denticulatus</i>	Chiapas	Puntarenas
Brazil	Guerrero	Peru
Para	Oaxaca	Surinam (Du. Guiana)
	San Luis Potosi	
	Veracruz	<i>truncatidens</i>
<i>praedator s. str.</i>	Nicaragua	Brazil
Argentina	Panama	Amapa
Chaco	Canal Zone	Amazonas
Corrientes	Chiriqui	French Guiana
Formosa	Paraguay	Guyana (Br. Guiana)
Jujuy	Peru	
La Rioja	Huanuco	<i>NEIVAMYRMEX</i>
Misiones	Loreto	<i>sp. a</i>
Santa Fe	Pasco	Costa Rica
Bolivia	Venezuela	Panama
Beni		
La Paz	<i>praedator sedulus</i>	
Brazil	Bolivia	<i>adnepos</i>
Amapa	Beni	Brazil
Amazonas	Cochabamba	Amazonas
Bahia	Colombia	Para
Distrito Federal	Antioquia	Costa Rica
Goias	Cauca	Limon
Guanabara	Cundinamarca	San Jose
Maranhao	Magdalena	Ecuador
Mato Grosso		

Trinidad	<i>sp. b</i>	Mendoza
<i>agilis</i>	Brazil	Salta
Mexico	Sao Paulo	Brazil
Chihuahua	<i>balzani</i>	Goiias
Jalisco	Bolivia	Minas Gerais
U.S.A.	Beni	<i>carinifrons</i>
Arizona	<i>baylori</i>	Brazil
<i>alfaroi</i>	U.S.A.	Guanabara
Costa Rica	Texas	Rio de Janeiro
San Jose	<i>boblsi</i>	<i>carolinensis</i>
<i>andrei</i>	Argentina	U.S.A.
Mexico	Formosa	Alabama
Colima	Misiones	Arizona
Nayarit	Santiago del Estero	Florida
Veracruz	Brazil	Georgia
U.S.A.	Minas Gerais	Kansas
Arizona	Guianas (Kempf, 1972)?	Louisiana
New Mexico	Paraguay	Mississippi
<i>angulimandibulatus</i>	Peru	Nebraska
Mexico	<i>bruchi</i>	New Mexico
Veracruz	Argentina	North Carolina
<i>angustinodis</i>	Buenos Aires	Ohio
Argentina	Catamarca	South Carolina
Misiones	Cordoba	Tennessee
Bolivia	Salta	Virginia
Brazil	San Luis	<i>clavifemur</i>
Rio Grande do Sul	Tucuman	Brazil
Guianas (Kempf, 1972)?	<i>bureni</i>	Guanabara
Paraguay	Peru	Rio de Janeiro
<i>antillanus</i>	Junin	Sao Paulo
Costa Rica	<i>californicus</i>	Peru
San Jose	U.S.A.	<i>cloosae</i>
West Indies	California	Mexico
Grenada	Nevada	Guerrero
<i>asper</i>	Utah	<i>compressinodis</i>
Costa Rica	<i>carettei</i>	Costa Rica
Limon	Argentina	Limon
	Cordoba	Peru
		<i>cornutus</i>

Mexico	<i>diversinodis</i>	Bolivia
Morelos	Argentina	Brazil
Oaxaca	Catamarca	Amapa
<i>cratensis</i>	Cordoba	Ecuador
Brazil	Salta	French Guiana
Ceara	Santa Fe	Peru
<i>cristatus</i>	Santiago del Estero	Surinam (Du. Guiana)
Bolivia	Tucuman	<i>fallax</i>
Beni	Bolivia	Guatemala
Brazil	Cochabamba	Mexico
Rondonia	Brazil	Michoacan
Ecuador	Goias	Tabasco
Peru	Paraguay	U.S.A.
<i>densepunctatus</i>	<i>d'orbigny</i>	Arizona
Brazil	Argentina	Kansas
Rio de Janeiro	Buenos Aires	Louisiana
Sao Paulo	Cordoba	New Mexico
<i>detectus</i>	Entre Rios	Texas
Brazil	La Pampa	<i>foveolatus</i>
Rio de Janeiro	Brazil	Panama
Sao Paulo	Goias	Chiriqui
<i>diabolus</i>	Santa Catarina	<i>fumosus</i>
Mexico	Rio Grande do Sul	Costa Rica
Campeche	Uruguay	Limon
Veracruz	<i>emersoni</i>	El Salvador
<i>diana</i>	Ecuador	Guatemala
Brazil	Guyana (Br. Guiana)	Mexico
Goias	Trinidad	Chiapas
Minas Gerais	<i>emeryi</i>	<i>fuscipennis</i>
Para	Bolivia	U.S.A.
Rondonia	Cochabamba	Kansas
Sao Paulo	Peru	Texas
Costa Rica	Arequipa	Mexico
Limon	Cuzco	<i>genalis</i>
Ecuador	San Martin	Bolivia
<i>digitistipus</i>	<i>erichsoni</i>	Cochabamba
Costa Rica	Brazil	La Paz
Cartago	Guanabara	<i>gibbatus</i>
	Rio de Janeiro	Brazil
	<i>falciferus</i>	Acre

Costa Rica
Limon
Ecuador
Guyana (Br. Guiana)
Panama

goeldii
Argentina
Chaco
Brazil
Bahia
Goias
Sao Paulo

graciellae
Mexico
Jalisco

gracilis
Brazil
Bahia
Paraiba
Sao Paulo

gradualis
Bolivia

guerini
Brazil
Ceara
Goias
Minas Gerais
Para
Pernambuco
Sao Paulo
Surinam (Du. Guiana)
Venezuela

guyanensis
French Guiana
Panama

halidayi
Argentina
Misiones

Bolivia
Beni
Cochabamba
Brazil
Amapa
Amazonas
Goias
Guanabara
Minas Gerais
Para
Parana
Rio de Janeiro
Santa Catarina
Sao Paulo

Colombia
Costa Rica
Limon
Ecuador
El Salvador
French Guiana
Guatemala
Guyana (Br. Guiana)
Mexico
Chiapas
Colima
Oaxaca
Tabasco
Veracruz

Nicaragua
Panama
Paraguay
Peru
Junin
Madre de Dios
Surinam (Du. Guiana)
Trinidad
Venezuela

barrisi
Mexico
Aguascalientes
Chihuahua
Coahuila
Colima
Durango

Jalisco
Nayarit
Nuevo Leon
San Luis Potosi
Sinaloa
Sonora
Tamaulipas
Zacatecas
U.S.A.
Arizona
New Mexico
Oklahoma
Texas

betschkoi
Argentina
Cordoba
Misiones
Santiago del Estero
Brazil
Parana
Rio Grande do Sul
Sao Paulo
Paraguay
Uruguay

hopei
Argentina
Cordoba
Salta
Santiago del Estero
Bolivia
Santa Cruz
Brazil
Bahia
Ceara
Goias
Mato Grosso
Minas Gerais
Paraiba
Pernambuco
Sao Paulo
Paraguay

humilis

Costa Rica	Brazil	Baja California
San Jose	Rio Grande do Sul	Tamaulipas
Panama		U.S.A.
<i>imbellis</i>	<i>klugi s. str.</i>	California
Peru	Bolivia	Texas
	Beni	Oklahoma
<i>impudens</i>	West Indies	
Costa Rica	Grenada	<i>leptognathus</i>
Limon	St. Vincent	Bolivia
Guatemala	Trinidad	Brazil
Honduras		Minas Gerais
Mexico	<i>klugi distans</i>	
Yucatan	Costa Rica	<i>lieselae</i>
	Limon	Argentina
<i>inca</i>	Panama	Catamarca
Peru		Mendoza
	<i>laevigatus</i>	Santa Fe
<i>iridescens</i>	Argentina	Santiago del Estero
Bolivia	Chaco	
Beni	Santiago del Estero	<i>longiscapus</i>
La Paz	Brazil	Costa Rica
Guyana (Br. Guiana)	Sao Paulo	Limon
Panama		Guatemala
Surinam (Du. Guiana)	<i>laticapus</i>	Mexico
	Brazil	Tabasco
<i>jerrmanni</i>	Espirito Santo	Veracruz
Argentina	Guanabara	
Corrientes	Parana	<i>macrodentatus</i>
Santiago del Estero	Rio de Janeiro	Costa Rica
Bolivia	Sao Paulo	Alajucla
Santa Cruz		San Jose
Brazil	<i>legionis</i>	
Ceara	Argentina	<i>macropterus</i>
Espirito Santo	Misiones	Mexico
Goias	Brazil	Chihuahua
Minas Gerais	Guanabara	Durango
Para	Para	Oaxaca
Paraiba	Parana	Puebla
Rio de Janeiro	Rio de Janeiro	U.S.A.
Sao Paulo	Rio Grande do Sul	Arizona
Paraguay	Santa Catarina	New Mexico
Uruguay	Sao Paulo	Texas
	<i>leonardi</i>	
<i>jberingi</i>	Mexico	<i>manni</i>
		Mexico

Hidalgo	Santa Catarina	Kentucky
<i>maxillosus</i>	Sao Paulo	Louisiana
Brazil	<i>minor</i>	Mississippi
Amazonas	Mexico	Missouri
Guyana (Br. Guiana)	Baja California	Nebraska
<i>melanocephalus</i>	Coahuila	New Mexico
Guatemala	U.S.A.	Oklahoma
Honduras	Arizona	Tennessee
Mexico	California	Texas
Hidalgo	Kansas	West Virginia
Jalisco	Nevada	<i>nordenskioldi</i>
Michoacan	New Mexico	Bolivia
Nayarit	Oklahoma	La Paz
U.S.A.	Texas	Peru
Arizona	<i>modestus</i>	Puno
<i>melsheimeri</i>	Brazil	<i>opacithorax</i>
Costa Rica	Rio de Janeiro	Costa Rica
El Salvador	Sao Paulo	San Jose
Guatemala	<i>mojave</i>	Mexico
Mexico	U.S.A.	Baja California
Tamaulipas	California	Jalisco
Veracruz	<i>moseri</i>	U.S.A.
Yucatan	U.S.A.	Alabama
U.S.A.	Louisiana	Arizona
Louisiana	Texas	Arkansas
Oklahoma	<i>nigrescens</i>	California
Texas	Mexico	Florida
<i>micans</i>	Nayarit	Georgia
Brazil	Oaxaca	Iowa
Goias	Sonora	Kansas
Mato Grosso	U.S.A.	Mississippi
<i>microps</i>	Alabama	Missouri
U.S.A.	Arizona	New Mexico
Arizona	Arkansas	North Carolina
<i>minensis</i>	California	Oklahoma
Brazil	Colorado	South Carolina
Goias	Georgia	Tennessee
Minas Gerais	Illinois	Texas
Pernambuco	Iowa	Virginia
	Kansas	<i>orthonotus</i>
		Brazil
		Goias

Guanabara	Pernambuco	Costa Rica
Minas Gerais	Rio Grande del Norte	Cartago
Rio de Janeiro	Sao Paulo	Limon
Sao Paulo	Paraguay	San Jose
	Uruguay	El Salvador
<i>pacificus</i>	Cuchilla de Haedo	Guatemala
Peru		Mexico
La Libertad	<i>physognathus</i>	Chiapas
	Bolivia	Coahuila
<i>pauillus</i>		Colima
Mexico	<i>pilosus s. str.</i>	Michoacan
Hidalgo	Argentina	San Luis Potosi
U.S.A.	Jujuy	Tabasco
Texas	Salta	Veracruz
	Brazil	Panama
<i>perplexus</i>	Amazonas	Canal Zone
Brazil	Bahia	U.S.A.
Mato Grosso	Espirito Santo	Arkansas
	Goias	California
<i>pertyi</i>	Guanabara	Louisiana
Argentina	Mato Grosso	Mississippi
Buenos Aires	Minas Gerais	Oklahoma
Catamarca	Para	Texas
Chaco	Paraiba	
Chubut	Parana	<i>pilosus subsp.</i>
Cordoba	Pernambuco	Bolivia
Entre Rios	Rio de Janeiro	Beni
Formosa	Rio Grande do Sul	Peru
Jujuy	Sao Paulo	Madre de Dios
La Rioja	Paraguay	
Mendoza	Peru	<i>piraticus</i>
Misiones		Brazil
Rio Negro	<i>pilosus beebei</i>	Espirito Santo
Salta	Guyana (Br. Guiana)	Parana
San Luis	Surinam (Du. Guiana)	Sao Paulo
Santa Fe	Trinidad	
Santiago del Estero	Venezuela	<i>planidens</i>
Tucuman		Ecuador
Bolivia	<i>pilosus mandibularis</i>	
Cochabamba	U.S.A.	<i>planidorsus</i>
Brazil	Arizona	Argentina
Bahia	New Mexico	Buenos Aires
Ceara		Brazil
Minas Gerais	<i>pilosus mexicanus</i>	Para
Paraiba	Colombia	Paraguay

postangustus
Bolivia
Beni
Brazil
Goias
Guyana (Br. Guiana)
Surinam (Du. Guiana)

postcarinatus
Panama
Canal Zone

pseudops
Argentina
Cordoba
Jujuy
Salta
Santa Fe
Tucuman
Bolivia
Beni
Cochabamba
Brazil
Espirito Santo
Goias
Mato Grosso
Minas Gerais
Pernambuco
Sao Paulo
Panama
Paraguay

puerulus
Panama
Panama

pulchellus
Panama
Canal Zone

pullus
Nicaragua
Panama
Canal Zone

quadratoocipitus
El Salvador

radoszkowskyi
Peru
Tumbes

raptans
Argentina
Catamarca
Cordoba
Jujuy
La Rioja
Misiones
Salta
Santa Fe
Santiago del Estero
Tucuman
Brazil
Sao Paulo

romandi
Argentina
Cordoba
Jujuy
Misiones
Salta
Santiago del Estero
Tucuman
Bolivia
Santa Cruz
Brazil
Goias
Mato Grosso
Pernambuco
Rio Grande do Norte
Paraguay

rosenbergi
Ecuador
Guatemala
Panama
Canal Zone

rugulosus

Mexico
Jalisco
Nayarit
Sonora
U.S.A.
Arizona

scutellaris
Panama
Canal Zone

shuckardi
Argentina
Catamarca
Chaco
Cordoba
Entre Rios
Jujuy
La Rioja
Mendoza
Misiones
San Luis
Santa Fe
Santiago del Estero
Bolivia
Cochabamba
Brazil
Ceara
Goias
Mato Grosso
Paraiba
Paraguay

spatulatus
Costa Rica
Limon
Panama
Chiriqui

spinolai
Argentina
Catamarca
Chaco
Corrientes

Cordoba	<i>sulcatus</i>	Brazil
Entre Rios	Argentina	Bahia
Formosa	Buenos Aires	Goias
La Rioja	Catamarca	Mato Grosso
Santa Fe	Chaco	Minas Gerais
Tucuman	Cordoba	Para
Bolivia	Entre Rios	Parana
Beni	Jujuy	Rio de Janeiro
Cochabamba	La Rioja	Costa Rica
Brazil	Mendoza	San Jose
Distrito Federal	Misiones	Guatemala
Espirito Santo	Salta	Honduras
Goias	San Luis	Mexico
Guanabara	Santa Fe	Chiapas
Mato Grosso	Santiago del Estero	Chihuahua
Minas Gerais	Tucuman	Coahuila
Rio de Janeiro	Bolivia	Durango
Rio Grande do Sul	Cochabamba	Jalisco
Santa Catarina	Brazil	Michoacan
Sao Paulo	Mato Grosso	Oaxaca
Colombia	Paraiba	San Luis Potosi
Cundinamarca	Sao Paulo	Veracruz
Costa Rica		Yucatan
San Jose	<i>sumichrasti</i>	Nicaragua
Honduras	Costa Rica	Panama
Mexico	Puntarenas	Canal Zone
Veracruz	Guatemala	Panama
Paraguay	Mexico	Paraguay
Surinam (Du. Guiana)	Chiapas	Trinidad
Trinidad	Hidalgo	U.S.A.
	Morelos	Arizona
<i>spoliator</i>	Veracruz	California
Costa Rica	Nicaragua	Louisiana
Guanacaste		New Mexico
Limon	<i>swainsoni</i>	Texas
San Jose	Argentina	Venezuela
El Salvador	Catamarca	Distrito Federal
Guatemala	Jujuy	
Honduras	La Pampa	<i>tenuis</i>
Mexico	La Rioja	Brazil
Chiapas	Mendoza	Mato Grosso
Veracruz	San Luis	
Panama	Santa Fe	<i>texanus</i>
Canal Zone	Santiago del Estero	Mexico
Panama	Tucuman	Hidalgo

Jalisco
San Luis Potosi
U.S.A.
Arizona
Colorado
Florida
Georgia
New Mexico
North Carolina
South Carolina
Texas
Virginia

tristis
British Honduras
Guatemala
Mexico
Chiapas
San Luis Potosi
Veracruz

vicinus
Brazil
Goias

walkeri
Argentina
Salta
Bolivia
Beni
Cochabamba
Santa Cruz
Brazil
Amapa
Goias
Para
French Guiana
Peru

NOMAMYRMEX

esenbecki s. str.
Argentina
Formosa
Misiones
Brazil
Amazonas

Bahia
Ceara
Distrito Federal
Espirito Santo
Goias
Guanabara
Mato Grosso
Minas Gerais
Para
Paraiba
Parana
Pernambuco
Rio de Janeiro
Rio Grande do Norte
Sao Paulo
French Guiana
Paraguay

esenbecki crassicornis

Bolivia
Amazonas
Beni
La Paz
Brazil
Acre
Amazonas
Para
Rondonia
Colombia
Panama
Canal Zone
Chiriqui
Peru
Amazonas
Madre de Dios
Trinidad
Venezuela

esenbecki n. subsp.

Mexico
Durango
Jalisco
Michoacan
Nayarit
Sinaloa
Sonora

esenbecki wilsoni
British Honduras
Costa Rica
Limon
Puntarenas
Guatemala
Honduras
Mexico
Chiapas
Distrito Federal
Morelos
Oaxaca
San Luis Potosi
Tamaulipas
Veracruz
Yucatan
U.S.A.
Texas

hartigi

Brazil
Amapa
Amazonas
Distrito Federal
Espirito Santo
Goias
Guanabara
Mato Grosso
Minas Gerais
Para
Parana
Rio de Janeiro
Santa Catarina
Sao Paulo
El Salvador
Mexico
Distrito Federal
Panama
Canal Zone
Colon
Paraguay
Sta. Trinidad
Peru
Huanuco
Surinam (Du. Guiana)
Venezuela

LIST (ALPHABETICAL) OF NEW WORLD DORYLINAE:
COUNTRY: GENUS: SPECIES

ARGENTINA

Eciton

dulcius s. str.
mexicanum s. lat.
mexicanum argentinum
quadriglume
vagans dubitatum

Labidus

coecus
praedator s. str.

Neivamyrmex

angustinodis
bohlsi
bruchi
carettei
diversinodis
d'orbignyi
goeldii
halidayi
hetschkoi
hopei
jerrmanni
laevigatus
legionis
lieselae
pertyi
pilosus s. str.
planidorsus
pseudops
raptans
romandi
shuckardi
spinolai
sulcatus
swainsoni
walkeri

Nomamyrmex

esenbecki s. str.

BOLIVIA

Cheliomyrmex

audax

Eciton

burchelli cupiens
drepanophorum
hamatum
lucanoides s. str.
mexicanum s. lat.
quadriglume
rapax
setigaster

Labidus

coecus
praedator s. str.
praedator sedulus

Neivamyrmex

angustinodis
balzani
cristatus
diversinodis
emeryi
falciferus
genalis
gradualis
halidayi
hopei
iridescens
jerrmanni
klugi s. str.
leptognathus
nordenskioldi
pertyi
physognathus
pilosus subsp.
postangustatus
pseudops
romandi
shuckardi
spinolai
sulcatus
walkeri

Nomamyrmex

esenbecki crassicornis

BRAZIL

Cheliomyrmex

andicolus
ursinus

Eciton

burchelli s. str.
burchelli cupiens
drepanophorum
dulcius s. str.
hamatum
lucanoides s. str.
mexicanum s. lat.
mexicanum s. str.
mexicanum goianum
mexicanum latidens
quadriglume
rapax
setigaster
vagans s. str.
vagans dispar
vagans dubitatum
vagans fur

Labidus

coecus
mars
nero s. str.
nero denticulatus
praedator s. str.
spininodis
truncatidens

Neivamyrmex

adnepos
angustinodis
sp. b
bohlsi
carettei
carinifrons
clavifemur
cratensis
cristatus
densepunctatus
detectus

diana
diversinodis
d'orbigny
erichsoni
falciferus
gibbatus
goeldii
gracilis
guerini
halidayi
hetschkei
hopei
jerrmanni
jberingi
laevigatus
laticapus
legionis
leptognathus
maxillosus
micans
minensis
modestus
orthonotus
perplexus
pertyi
pilosus s. str.
piraticus
planidorsus
postangustatus
pseudops
raptans
romandi
shuckardi
spinolai
sulcatus
swainsoni
tenuis
vicinus
walkeri
Nomamyrmex
esenbecki s. str.
esenbecki crassicornis
hartigi

BRITISH HONDURAS
Cheliomyrmex

morosus
Eciton
burchelli parvispinum
hamatum
mexicanum s. lat.
mexicanum s. str.
vagans s. str.
vagans angustatum
Labidus
coecus
praedator s. str.
Neivamyrmex
tristis
Nomamyrmex
esenbecki wilsoni

COLOMBIA

Cheliomyrmex
andicolus
audax
Eciton
burchelli cupiens
burchelli foreli
hamatum
jansoni
lucanoides s. str.
mexicanum s. lat.
mexicanum s. str.
rapax
vagans mutatum

Labidus
coecus
praedator s. str.
praedator sedulus
spininodis

Neivamyrmex
halidayi
pilosus mexicanus
spinolai

Nomamyrmex
esenbecki crassicornis

COSTA RICA

Eciton
burchelli foreli

burchelli parvispinum
dulcius crassinode
hamatum
jansoni
lucanoides conquistador
mexicanum s. lat.
mexicanum s. str.
vagans s. str.
vagans angustatum
vagans mutatum

Labidus

coecus
curvipes
praedator s. str.
praedator sedulus
spininodis
Neivamyrmex
sp. a
adnepos
alfaroi
antillanus
asper

compressinodis
diana
digitistipus
fumosus
gibbatus
halidayi
humilis
impudens
klugi distans
longiscapus
macrodentatus
melsheimeri
opacithorax
spatulatus
spinolai
spoliator
sumichrasti
swainsoni

Nomamyrmex
esenbecki wilsoni

ECUADOR
Cheliomyrmex

audax
ursinus
Eciton
burchelli foreli
drepanophorum
hamatum
jansoni
rapax
uncinatum
Labidus
coecus
curvipes
praedator s. str.
Neivamyrmex
adnepos
cristatus
diana
emersoni
falciferus
gibbatus
halidayi
planidens
rosenbergi

EL SALVADOR

Eciton
burchelli parvispinum
Labidus
coecus
Neivamyrmex
fumosus
halidayi
melsheimeri
pilosus mexicanus
quadratoocciputus
spoliator
Nomamyrmex
bartigi

FRENCH GUIANA

Eciton
burchelli cupiens
drepanophorum
hamatum

mexicanum s. lat.
mexicanum latidens
mexicanum morulum
vagans s. str.
Labidus
auropubens
coecus
truncatidens
Neivamyrmex
falciferus
guyanensis
halidayi
walkeri
Nomamyrmex
esenbecki s. str.

GUATEMALA

Cheliomyrmex
morosus
Eciton
burchelli parvispinum
hamatum
mexicanum s. lat.
mexicanum s. str.
vagans s. str.
vagans angustatum

Labidus
coecus
praedator s. str.
Neivamyrmex
fallax
fumosus
halidayi
impudens
longiscapus
melanocephalus
melsheimeri
pilosus mexicanus
rosenbergi
spoliator
sumichrasti
swainsoni
tristis
Nomamyrmex
esenbecki wilsoni

GUYANA (BR. GUIANA)

Cheliomyrmex
audax
megalonyx
Eciton
burchelli cupiens
hamatum
vagans s. str.
Labidus
coecus
truncatidens
praedator s. str.
Neivamyrmex
emersoni
gibbatus
halidayi
iridescens
maxillosus
pilosus beebei

HONDURAS

Cheliomyrmex
morosus
Eciton
burchelli foreli
burchelli parvispinum
hamatum
Labidus
coecus
praedator s. str.
Neivamyrmex
impudens
melanocephalus
spinolai
spoliator
swainsoni
Nomamyrmex
esenbecki wilsoni

MEXICO

Cheliomyrmex
morosus
Eciton
burchelli parvispinum
hamatum

mexicanum s. lat.
mexicanum s. str.
uncinatum
vagans s. str.
vagans angustatum

Labidus
coecus
praedator s. str.

Neivamyrmex
agilis
andrei
angulimandibulatus
cloosae
cornutus
diabolus
fallax
fumosus
graciellae
halidayi
harrisii
impudens
leonardi
longiscapus
macropterus
manni
melanocephalus
melsheimeri
minor
nigrescens
opacithorax
paucillus
pilosus s. str.
pilosus mexicanus
rugulosus
spinolai
spoliator
sumichrasti
swainsoni
texanus
tristis

Nomamyrmex
esenbecki n. subsp.
esenbecki wilsoni
hartigi

NICARAGUA

Eciton
burchelli parvispinum
hamatum
jansonii
lucanoides conquistador
vagans angustatum

Labidus
coecus
praedator s. str.

Neivamyrmex
halidayi
pullus
sumichrasti
swainsoni

PANAMA

Eciton
burchelli foreli
burchelli parvispinum
dulcius crassinode
hamatum
jansonii
lucanoides conquistador
mexicanum s. lat.
mexicanum panamense
vagans mutatum

Labidus
coecus
praedator s. str.
praedator sedulus

Neivamyrmex
sp. a
foveolatus
gibbatus
guyanensis
halidayi
humilis
iridescens
klugi distans
pilosus s. str.
pilosus mexicanus
postcarinatus
pseudops
puerulus

pulchellus
pullus
rosenbergi
scutellaris
spatulatus
spoliator
swainsoni
Nomamyrmex
esenbecki crassicornis
hartigi

PARAGUAY

Eciton
burchelli s. str.
mexicanum s. lat.
quadriglume
vagans dubitatum

Labidus
coecus
praedator s. str.

Neivamyrmex
angustinodis
bohlsi
diversinodis
halidayi
hetschkoi
hopei
jerrmanni
pertyi
pilosus s. str.
planidorsus
pseudops
romandi
shuckardi
spinolai
swainsoni
Nomamyrmex
esenbecki s. str.
hartigi

PERU

Cheliomyrmex
andicolus f. C. meg. 2. 1. 1974
Eciton
burchelli cupiens

- drepanophorum*
hamatum
lucanoides s. str.
mexicanum s. lat.
quadriglume
rapax
setigaster
- Labidus**
auropubens
coecus
mars ♂, *Nova Guinea*
praedator s. str.
spininodis (♂, *rostratus* *golobus*)
- Neivamyrmex**
boblsi
bureni
clavifemur
compressinodis
cristatus
emeryi
falciferus *guyanaensis*
halidayi
imbellis
inca
klugi distans (♂, *seno* *q* *vestib*)
nordenskioldi
pacificus
pilosus s. str.
pilosus subsp. (♀, *pubescentis*)
radoszkowskyi
walkeri
- Nomamyrmex**
hartigi
esenbecki *crassicornis*
- SURINAM**
(DUTCH GUIANA)
- Eciton**
burchelli cupiens
hamatum
mexicanum latidens
vagans s. str.
- Labidus**
coecus
spininodis
- Neivamyrmex**
falciferus
guerini
halidayi
iridescens
pilosus beebei
spinolai
- Nomamyrmex**
hartigi
- TRINIDAD**
- Eciton**
burchelli urichi
hamatum
vagans allognathum
- Neivamyrmex**
adnepos
emersoni
halidayi
klugi s. str.
pilosus beebei
spinolai
swainsoni
- Nomamyrmex**
esenbecki crassicornis
hartigi
- U.S.A.**
- Labidus**
coecus
- Neivamyrmex**
agilis
andrei
baylori
californicus
carolinensis
fallax
fuscipennis
harrisi
leonardi
macropterus
melanocephalus
melsheimeri
microps
- minor*
mojave
moseri
nigrescens
opacithorax
pauillus
pilosus mandibularis
pilosus mexicanus
rugulosus
swainsoni
texanus
- Nomamyrmex**
esenbecki wilsoni
- URUGUAY**
- Neivamyrmex**
d'orbigny
hetschkoi
jerrmanni
pertyi
- VENEZUELA**
- Eciton**
burchelli cupiens
burchelli foreli
burchelli urichi
hamatum
vagans allognathum
- Labidus**
coecus
praedator s. str.
praedator sedulus
- Neivamyrmex**
guerini
halidayi
pilosus beebei
swainsoni
- Nomamyrmex**
esenbecki crassicornis
hartigi
- WEST INDIES**
- Neivamyrmex**
antillanus
klugi s. str.

**LIST (ALPHABETICAL) OF NEW WORLD DORYLINAE:
BRAZIL, MEXICO, U.S.A.: STATE: GENUS: SPECIES**

BRAZIL

ACRE

Cheliomyrmex
andicolus

Eciton

burchelli cupiens
lucanoides s. str.

Labidus

coecus

Neivamyrmex

gibbatus

Nomamyrmex

esenbecki crassicornis

AMAPA

Eciton

drepanophorum
hamatum
setigaster
vagens s. str.

Labidus

coecus
praedator s. str.
truncatidens

Neivamyrmex

falciferus
halidayi
walkeri

Nomamyrmex

hartigi

AMAZONAS

Eciton

burchelli s. str.
burchelli cupiens
drepanophorum
esenbecki s. str.
hamatum
mexicanum s. lat.
quadriglume
rapax

setigaster

vagens s. str.

Labidus

coecus
praedator s. str.
spininodis
truncatidens

Neivamyrmex

adnepos
halidayi
maxillosus
pilosus s. str.

Nomamyrmex

esenbecki crassicornis
hartigi

BAHIA

Eciton

burchelli s. str.
mexicanum s. lat.
quadriglume
vagens fur

Labidus

coecus
praedator s. str.

Neivamyrmex

goeldii
gracilis
hopei
pertyi
pilosus s. str.
swainsoni

Nomamyrmex

esenbecki s. str.

CEARA

Labidus

coecus
mars

Neivamyrmex

cratensis

guerini

hopei

jerrmanni

pertyi

shuckardi

Nomamyrmex

esenbecki s. str.

DISTRITO FEDERAL

Eciton

burchelli s. str.

Labidus

coecus
praedator s. str.

Neivamyrmex

spinolai

Nomamyrmex

esenbecki s. str.
hartigi

ESPIRITO SANTO

Eciton

burchelli s. str.
quadriglume
vagens dispar

Labidus

coecus

Neivamyrmex

jerrmanni
laticapus
pilosus s. str.
piraticus
pseudops
spinolai

Nomamyrmex

esenbecki s. str.
hartigi

GOIAS

Eciton

dulcius s. str.

mexicanum s. lat.
mexicanum goianum
vagans dubitatum

Labidus

coecus
mars
praedator s. str.

Neivamyrmex

carettei
diana
diversinodis
d'orbignyi
goeldii
guerini
halidayi
hopei
jerrmanni
micans
minensis
orthonotus
pilosus s. str.
postangustatus
pseudops
romandi
shuckardi
spinolai
swainsoni
vicinus
walkeri

Nomamyrmex
esenbecki s. str.
hartigi

GUANABARA

Eciton
burchelli s. str.
quadriglume
vagans dispar

Labidus
coecus
praedator s. str.

Neivamyrmex
carinifrons
clavifemur
erichsoni

halidayi
laticapus
legionis
orthonotus
pilosus s. str.
spinolai
Nomamyrmex
esenbecki s. str.
hartigi

MARANHAO

Eciton
quadriglume
Labidus
praedator s. str.

MATO GROSSO

Eciton
burchelli cupiens
dulcius s. str.
hamatum
rapax
vagans dubitatum

Labidus
coecus
praedator s. str.

Neivamyrmex
hopei
micans
perplexus
pilosus s. str.
pseudops
romandi
shuckardi
spinolai
sulcatus
swainsoni
tenuis

Nomamyrmex
esenbecki s. str.
hartigi

MINAS GERAIS

Eciton
burchelli s. str.

mexicanum s. lat.
quadriglume
vagans dubitatum

Labidus

coecus
nero s. str.
praedator s. str.

Neivamyrmex

boblsi
carettei
diana
guerini
halidayi
hopei
jerrmanni
leptognathus
minensis
orthonotus
pertyi
pilosus s. str.
pseudops
spinolai
swainsoni
Nomamyrmex
esenbecki s. str.
hartigi

PARA

Eciton
burchelli s. str.
burchelli cupiens
burchelli foreli
drepanophorum
hamatum
mexicanum s. lat.
mexicanum latidens
quadriglume
rapax
vagans s. str.

Labidus
coecus
nero denticulatus
praedator s. str.
spininodis
Neivamyrmex

adnepos
diana
guerini
halidayi
jerrmanni
legionis
pilosus s. str.
planidorsus
swainsoni
walkeri
Nomamyrmex
esenbecki s. str.
esenbecki crassicornis
hartigi

PARAIBA

Eciton
vagans fur
Labidus
coecus
praedator s. str.
Neivamyrmex
gracilis
hopei
jerrmanni
pertyi
pilosus s. str.
shuckardi
sulcatus
Nomamyrmex
esenbecki s. str.

PARANA

Eciton
quadriglume
vagans dubitatum
Labidus
coecus
praedator s. str.
Neivamyrmex
halidayi
hetschkoi
laticapus
legionis
pilosus s. str.

piraticus
swainsoni
Nomamyrmex
esenbecki s. str.
hartigi

PERNAMBUCO

Eciton
burchelli s. str.
burchelli cupiens
hamatum
mexicanum s. lat.
vagans fur

Labidus

coecus
mars
praedator s. str.

Neivamyrmex

guerini
hopei
minensis
pertyi
pilosus s. str.
pseudops
romandi

Nomamyrmex
esenbecki s. str.

RIO DE JANEIRO

Eciton
burchelli s. str.
quadriglume
vagans dispar
vagans dubitatum

Labidus

coecus
nero s. str.
praedator s. str.

Neivamyrmex
carinifrons
clavifemur
densepunctatus
detectus
erichsoni
halidayi

jerrmanni
laticapus
legionis
modestus
orthonotus
pertyi
pilosus s. str.
spinolai
swainsoni
Nomamyrmex
esenbecki s. str.
hartigi

RIO GRANDE DO NORTE

Eciton
vagans fur
Labidus
coecus
Neivamyrmex
pertyi
romandi
Nomamyrmex
esenbecki s. str.

RIO GRANDE DO SUL

Eciton
quadriglume
vagans dubitatum
Labidus
coecus
praedator s. str.
Neivamyrmex
angustinodis
d'orbignyi
hetschkoi
jberingi
legionis
pilosus s. str.
spinolai

RONDONIA

Eciton
burchelli cupiens
hamatum
lucanoides s. str.

mexicanum s. lat.
rapax
vagans s. str.

Labidus

coecus
praedator s. str.

Neivamyrmex

cristatus
diana

Nomamyrmex

esenbecki crassicornis

SANTA CATARINA

Eciton

burchelli s. str.
quadriglume

Labidus

coecus
praedator s. str.

Neivamyrmex

d'orbigny
halidayi
legionis
minensis
spinolai

Nomamyrmex

hartigi

SAO PAULO

Eciton

burchelli s. str.
dulcius s. str.
mexicanum s. lat.
quadriglume
vagans dispar
vagans dubitatum

Labidus

coecus
mars
nero s. str.
praedator s. str.

Neivamyrmex

sp. b.
clavifemur
densepunctatus

detectus

diana
goeldii
gracilis
guerini
halidayi
hetschkoi
hopei
jerrmanni
laticapus
legionis
minensis
modestus
orthonotus
pertyi
pilosus s. str.

piraticus

pseudops
raptans
spinolai
sulcatus

Nomamyrmex

esenbecki s. str.
hartigi

SERGIPE

Eciton

vagans fur

MEXICO

AGUASCALIENTES

Neivamyrmex

barrisi

BAJA CALIFORNIA

Neivamyrmex

leonardi
minor
opacithorax

CAMPECHE

Neivamyrmex

diabolus

CHIAPAS

Cheliomyrmex

morosus

Eciton

burchelli parvispinum
hamatum
mexicanum s. lat.
mexicanum s. str.
vagans angustatum

Labidus

coecus
praedator s. str.

Neivamyrmex

fumosus
halidayi
pilosus mexicanus
spoliator
sumichrasti
swainsoni
tristis

Nomamyrmex

esenbecki wilsoni

CHIHUAHUA

Neivamyrmex

agilis
barrisi
macropterus
swainsoni

COAHUILA

Labidus
coecus
Neivamyrmex
harrisi
minor
pilosus mexicanus
swainsoni

COLIMA

Eciton
burchelli parvispinum
Neivamyrmex
andrei
halidayi
harrisi
pilosus mexicanus

DISTRITO FEDERAL

Labidus
coecus
Nomamyrmex
esenbecki wilsoni
hartigi

DURANGO

Neivamyrmex
harrisi
macropterus
swainsoni
Nomamyrmex
esenbecki n. subsp.

GUERRERO

Eciton
burchelli parvispinum
Labidus
coecus
praedator s. str.
Neivamyrmex
cloosae

HIDALGO

Labidus
coecus

Neivamyrmex
manni
melanocephalus
pauxillus
sumicbrasti
texanus

JALISCO

Eciton
burchelli parvispinum
Labidus
coecus
Neivamyrmex
agilis
graciellae
harrisi
melanocephalus
opacithorax
rugulosus
swainsoni
texanus

Nomamyrmex
esenbecki n. subsp.

MICHOACAN

Labidus
coecus
Neivamyrmex
fallax
melanocephalus
pilosus mexicanus
swainsoni
Nomamyrmex
esenbecki n. subsp.

MORELOS

Neivamyrmex
cornutus
sumicbrasti
Nomamyrmex
esenbecki wilsoni

NAYARIT

Labidus
coecus

Neivamyrmex
andrei
harrisi
melanocephalus
minor
rugulosus
Nomamyrmex
esenbecki n. subsp.

NUEVO LEON

Labidus
coecus
Neivamyrmex
harrisi

OAXACA

Eciton
burchelli parvispinum
hamatum
vagans angustatum
Labidus
coecus
praedator s. str.
Neivamyrmex
cornutus
halidayi
macropterus
nigrescens
swainsoni
Nomamyrmex
esenbecki wilsoni

PUEBLA

Eciton
burchelli parvispinum
Neivamyrmex
macropterus

QUINTANA ROO

Eciton
burchelli parvispinum

SAN LUIS POTOSI

Cheliomyrmex
morosus

Eciton
burchelli parvispinum
uncinatum

Labidus
coecus
praedator s. str.

Neivamyrmex
harrisi
pilosus mexicanus
swainsoni
texanus
tristis

Nomamyrmex
esenbecki wilsoni

SINALOA

Labidus
coecus
Neivamyrmex
harrisi

Nomamyrmex
esenbecki n. subsp.

SONORA

Neivamyrmex
harrisi
minor
rugulosus

Nomamyrmex
esenbecki n. subsp.

TABASCO

Neivamyrmex
fallax
halidayi
longiscapus
pilosus mexicanus

TAMAULIPAS

Eciton
burchelli parvispinum
Labidus
coecus
Neivamyrmex
harrisi

leonardi
melsheimeri
Nomamyrmex
esenbecki wilsoni

VERACRUZ

Cheliomyrmex
morosus
Eciton
burchelli parvispinum
hamatum
mexicanum s. str.

Labidus
coecus
Neivamyrmex
andrei
angulimandibulatus
diabolus
halidayi
longiscapus
melsheimeri
pilosus mexicanus
spinolai
spoliator
sumichrasti
swainsoni
tristis

Nomamyrmex
esenbecki wilsoni

YUCATAN

Eciton
vagans angustatum
Neivamyrmex
melsheimeri
swainsoni
impudens
Nomamyrmex
esenbecki wilsoni

ZACATECAS

Neivamyrmex
harrisi

U.S.A.

ALABAMA
Neivamyrmex
carolinensis
nigrescens
opacithorax

ARIZONA

Neivamyrmex
agilis
andrei
carolinensis
fallax
harrisi
macropterus
melanocephalus
microps
minor
nigrescens
opacithorax
pilosus mandibularis
rugulosus
swainsoni
texanus

ARKANSAS

Labidus
coecus
Neivamyrmex
nigrescens
opacithorax
pilosus mexicanus

CALIFORNIA

Neivamyrmex
californicus
leonardi
minor
mojave
nigrescens
opacithorax
pilosus mexicanus
swainsoni

COLORADO

Neivamyrmex
nigrescens
texanus

FLORIDA

Neivamyrmex
carolinensis
opacithorax
texanus

GEORGIA

Neivamyrmex
carolinensis
nigrescens
opacithorax
texanus

ILLINOIS

Neivamyrmex
nigrescens

IOWA

Neivamyrmex
nigrescens
opacithorax

KANSAS

Neivamyrmex
carolinensis
fallax
fuscipennis
minor
nigrescens
opacithorax

KENTUCKY

Neivamyrmex
nigrescens

LOUISIANA

Labidus
coecus
Neivamyrmex
carolinensis

fallax
melsheimeri
moseri
nigrescens
pilosus mexicanus
swainsoni

MISSISSIPPI

Neivamyrmex
carolinensis
nigrescens
opacithorax
pilosus mexicanus

MISSOURI

Neivamyrmex
nigrescens
opacithorax

NEBRASKA

Neivamyrmex
carolinensis
nigrescens

NEVADA

Neivamyrmex
californicus
minor

NEW MEXICO

Neivamyrmex
andrei
carolinensis
fallax
harrisi
macropterus
minor
nigrescens
opacithorax
pilosus mandibularis
swainsoni
texanus

NORTH CAROLINA

Neivamyrmex

carolinensis
opacithorax
texanus

OHIO

Neivamyrmex
carolinensis

OKLAHOMA

Labidus
coecus
Neivamyrmex
harrisi
leonardi
melsheimeri
minor
nigrescens
opacithorax
pilosus mexicanus

SOUTH CAROLINA

Neivamyrmex
carolinensis
opacithorax
texanus

TENNESSEE

Neivamyrmex
carolinensis
nigrescens
opacithorax

TEXAS

Labidus
coecus
Neivamyrmex
baylori
fallax
fuscipennis
harrisi
leonardi
macropterus
melsheimeri
minor
moseri

nigrescens
opacithorax
pauxillus
pilosus mexicanus
swainsoni
texanus
Nomamyrmex
esenbecki wilsoni

UTAH
Neivamyrmex
californicus

VIRGINIA
Neivamyrmex
carolinensis
opacithorax

texanus
WEST VIRGINIA
Neivamyrmex
nigrescens

LITERATURE CITED

- Borgmeier, T. 1955. Die Wanderameisen der neotropischen Region (Hym. Formicidae). Stud. Entomol., Nr. 3: 1-716.
- Cole, A. C., Jr. 1966. Ants of the Nevada test site. Brigham Young Univ. Sci. Bull. 7(3): 1-27.
- Gotwald, W. H., Jr. 1971. Phylogenetic affinities of the ant genus *Cbeliomyrmex* (Hymenoptera: Formicidae). J. N. Y. Entomol. Soc. 79(3): 161-173.
- Hymenoptera of America North of Mexico. Synoptic catalog. U.S. Dept. Agr., Agr. Monogr. No. 2:1-1420, 1951. (First supplement, 1958; Second supplement, 1967).
- Kannowski, P. B. 1969. Daily and seasonal periodicities in the nuptial flights of neotropical ants. I. Dorylinae. Proc. VI Cong. Int. Union Study Social Insects, 77-83.
- Kempf, W. W. 1972. Catalago abreviado das formigas da regioa neotropical (Hym. Formicidae). Stud. Entomol. 15(1-4): 3-344.
- LaRivers, I. 1968. A first listing of the ants of Nevada (Hymenoptera: Formicidae). Occ. Papers Biol. Soc. Nevada, No. 17: 1-12.
- Rettenmeyer, C. W. 1974. Description of the queen and male with some biological notes on the army ant, *Eciton rapax*. Memoires, Conn. Entomol. Soc. 1974: 291-302.
- Schneirla, T. C. 1971. Army ants, a study in social organization. W. H. Freeman, San Francisco. 349 p.
- Smith, M. R. 1942. The legionary ants of the United States belonging to *Eciton* subgenus *Neivamyrmex* Borgmeier. Amer. Midl. Natural. 27(3): 537-590.
- Warren, L. O. and E. P. Rouse. 1969. The ants of Arkansas. Agr. Exp. Sta., Univ. Ark. Bull. 742: 1-67.
- Watkins, J. F., II. 1972. The taxonomy of *Neivamyrmex texanus*, n. sp., *N. nigrescens* and *N. californicus* (Formicidae: Dorylinae), with distribution map and keys to the species of *Neivamyrmex* of the United States. J. Kans. Entomol. Soc. 45(3): 347-372.
- Wheeler, W. M. 1908. The ants of Texas, New Mexico and Arizona. Bull. Amer. Mus. Natur. Hist. 24: 399-485.