

A REVISION OF THE
NEOTROPICAL TERMITE GENUS
NEOCAPRITERMES (ISOPTERA,
TERMITIDAE, TERMITINAE)

KUMAR KRISHNA AND R. L. ARAUJO

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KUMAR KRISHNA

*Research Associate, Department of Entomology
The American Museum of Natural History
Assistant Professor, Department of Biology
City College, City University of New York*

R. L. ARAUJO

*Departamento de Zoologia
São Paulo, Brazil*

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GENUS *NEOCAPRITERMES* HOLMGREN

INTRODUCTION

THE PRESENT PAPER is the first in a series dealing with termite genera having soldiers with asymmetrical snapping mandibles. *Neocapritermes* is a specialized endemic genus from South and Central America, now containing 14 species. The purpose of this paper is to review the genus, to redescribe the previously known species, and to describe a new imago caste and five new species, using abundant new material primarily from the collections of the American Museum of Natural History and the Departamento de Zoologia, São Paulo, Brazil.

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Dr. Alfred E. Emerson generously allowed us the use of his systematic card catalogs. Mrs. Valerie Krishna gave valued editorial assistance, and Mrs. Lynne Robbins helped in the preparation of the drawings.

Genus *NEOCAPRITERMES* Holmgren

<Genus *Termes*: subgenus *Eutermes*: HAGEN, 1858a, pp. 107, 108, 186.

<Genus *Termes*: subgenus *Entermites* (misspelling): HAGEN, 1858b, pp. 16, 26.

<Genus *Termes*: subgenus *Capritermes* WASMANN, 1897, pp. 150, 151.

<Genus *Termes*: subgenus *Eutermes*: DESNEUX, 1904, pp. 26, 28, 39, 40.

<Genus *Capritermes*: SILVESTRI, 1901, pp. 4-5.

<Genus *Capritermes*: SILVESTRI, 1903, p. 63.

<Genus *Capritermes*: HOLMGREN, 1906, p. 37.

<Genus *Capritermes*: HOLMGREN, 1912, pp. 114, 115.

=Subgenus *Neocapritermes* HOLMGREN, 1912, pp. 97, 115, 116.

<Subgenus *Neocapritermes*: EMERSON, 1925, pp. 310, 445.

<Gruppe *Capritermes*: SJÖSTEDT, 1926, p. 281.

=Genus *Neocapritermes*: SJÖSTEDT, 1926, pp. 281, 286-287.

=Subgenus *Neocapritermes*: SNYDER, 1926b, p. 64.

<Genus *Capritermes*: EMERSON, 1928, pp. 412, 542.

=Subgenus *Neocapritermes*: EMERSON, 1928, p. 409.

=Genus *Neocapritermes*: HARE, 1937, pp. 462, 463, 478.

=Genus *Neocapritermes*: SNYDER, 1949, p. 200.

=Genus *Neocapritermes*: GRASSÉ, 1949, p. 539.

=Genus *Neocapritermes*: AHMAD, 1950, pp. 47, 65, 68, 69, 77.

=Genus *Neocapritermes*: EMERSON, 1950, pp. 14, 15.

=Genus *Neocapritermes*: EMERSON, 1952, p. 508.

=Genus *Neocapritermes*: EMERSON, 1955, pp. 469, 495, 512.

=Genus *Neocapritermes*: WEIDNER, 1955, p. 73.

=Genus *Neocapritermes*: EMERSON, 1959, pp. 7, 15.

=Genus *Neocapritermes*: HARRIS, 1961, pp. 55, 64.

TYPE SPECIES: *Neocapritermes opacus* (Hagen).

Holmgren (1912) erected *Neocapritermes* as a subgenus of *Capritermes*, to include four species from South America [*Termes opacus* Hagen (1858a), *Capritermes opacus parvus* Silvestri (1901), *Capritermes talpa* Holmgren, (1906), and *Capritermes opacus villosus* Holmgren (1906)] and one species supposedly from Africa, *Capritermes alienus* von Rosen (1912). He did not mention the type species for the subgenus *Neocapritermes*, but listed *alienus* first in his list of species.

Sjöstedt (1926) gave *Neocapritermes* generic status and designated *C. alienus* as the type species. Subsequently, Emerson studied the unique soldier from the Munich Museum, labeled "*Capritermes alienus* Rosen Gondar Abessinien Typus Rosen det. No. 21a *Capritermes* n. sp.? Gondar, S. W. Afrika im nest von *natalensis*," and discovered that the reported locality of *C. alienus* was almost surely an error in labeling (a mistake anticipated by von Rosen) and that this species

was conspecific with *opacus*. Snyder (1949) therefore relegated it to synonymy and mentioned *N. opacus* as the type species.

IMAGO: Head usually without dense pubescence, in some cases covered with short hair and a few bristles of two sizes; pronotum more densely covered with hair and bristles. Fontanelle plate sclerotized, without visible opening. Ocellus large, not touching eye. Antennae with 16 or 17 articles. Mandibles as in figure 1. Left mandible with apical tooth small, posterior margin of fused first plus second marginal tooth long, third marginal tooth well developed. Right mandible with posterior margin of second marginal tooth straight (fig. 1). Mesonotum and metanotum deeply and widely incised. Tibial spurs 3:2:2, except in *N. bodkini* in which 2:2:2; spines in middle tibia absent or present, if present one, two, or several.



FIG. 1. Mandibles of worker of *Neocapritermes opacus* (Hagen); São Paulo, Brazil.

SOLDIER: Neotropical Termitinae with conspicuously distorted, asymmetrical, snapping mandibles and without "nose" or conical horizontal projection of frons; monomorphic (in spite of variation in size), without frontal gland; fontanelle circular; head not flattened, evenly rounded at posterior margin (except in *bodkini* in which slightly indented in middle). Head usually long, subrectangular (narrowing considerably in front in *bodkini*, *villosus*, and *utiariti*); fontanelle small (larger in *bodkini*), circular, with a distinct line thence to hind margin of head; in some species postclypeus distorted and drawn into a prominent, spinelike protuberance projecting upward. Antennae with 15 or 16 articles; in some species fifth through

sixteenth articles elongated. Labrum asymmetrical, thrust to the right to fit left mandible distortion, with shape of anterior margin variable: tongue-shaped, with sides converging to form a blunt, rounded tip, or with two distinct lobules at sides and an indication of a median one, or distinctly three-lobed. Mandibles asymmetrical. Left mandible with base quite well developed and outer basal region in side view with ridge and concavity; moderately or strongly bent at proximal third, then sinuous to enlarged apex (this bend or curve weakest in *longinotum* and strongest in *talpa* and *guyana*), with toothlike projection near base, fitting into corresponding excavation on right mandible. Right mandible straighter and shorter. Pronotum saddle-shaped, with anterior lobe turned upward. Tibial spurs 3:2:2, except in *bodkini* in which 2:2:2; middle tibia with or without small outer spines, somewhat thicker than normal bristle. Fore coxa with dark, sclerotized, sharp longitudinal ridge, and row of spines on this ridge.

RELATIONSHIPS

Holmgren (1912) offered the tentative opinion that *Capritermes* and *Neocapritermes* were closely related and derived from a common stem. He based his suggestion on the similarity between the soldiers, though he recognized that the imagoes of these two genera were very different. Ahmad (1950) stated that *Neocapritermes* and *Planicapritermes* had the most primitive imago-worker mandibles in the Termitinae, the apical tooth being small and the posterior margin of the second right marginal tooth straight, and placed these two genera on a separate branch before the *Hoplognathotermes-Allognathotermes* branch, at the bottom of the Termitinae phylogenetic tree, rather than at the top with the *Capritermes* branch. He thought that the strongly asymmetrical snapping soldier mandibles had evolved twice in the Termitinae—once in the *Neocapritermes-Planicapritermes* branch and again independently in the *Capritermes* branch.

We are inclined to agree with Holmgren (1912) and Emerson (1959, p. 15) and place *Neocapritermes* and *Planicapritermes* on the

same branch as the other genera with asymmetrical snapping soldier mandibles (*Capritermes* and others). It is true that the imago of *Neocapritermes* has unique characteristics not found in genera of the *Capritermes* complex: the 16- or 17-segmented antennae (14- or 15-segmented in all other genera of the *Capritermes* complex), the sharp angle between the right first and second marginal tooth, and the straight posterior margin of the second right marginal tooth (curved margin in all other genera of the *Capritermes* complex). The soldier, however, suggests that *Neocapritermes* and the other genera of the *Capritermes* complex have evolved from a common ancestor. It is hard to conceive that such a complex adaptation as the asymmetrical snapping mandibles could have evolved more than once, particularly since no phylogenetic gradations leading up to this character in *Neocapritermes* are known, whereas almost all gradations leading up to it in genera of the *Capritermes* complex are known. In view of this fact and of the fact that the small apical tooth is also found in some genera of the *Capritermes* complex (such as *Pericapritermes*), we must conclude that this "primitive" imago mandible dentition is in fact a derived character.

Though we are not certain of exactly how *Neocapritermes*, along with *Planicapritermes*, fits into the *Capritermes* complex, we believe that the *Neocapritermes*-*Planicapritermes* branch probably diverged early from the main stem that later gave rise to the other genera with asymmetrical snapping soldier mandibles.

Neocapritermes is most closely related to *Planicapritermes*. The imago-worker mandibles of the two genera are identical. (The imago of *Planicapritermes* is unknown, so comparison of the imagoes is impossible.) The soldier of *Planicapritermes* most closely resembles that of *Neocapritermes*. In *Planicapritermes*, however, the soldier head is much broader and very flat, with its posterior margin having one median and two lateral lobes (in *Neocapritermes* it is either evenly rounded or faintly indented in the middle); the antennae is 14-segmented (15- or 16-segmented in *Neocapritermes*); and the pronotum is much narrower in comparison with the head.

DISTRIBUTION

The Neotropical genus *Neocapritermes* does not occur north of Costa Rica, where it is represented by a single species, *Neocapritermes centralis* (fig. 3). This northwestern distribution resembles that of other tropical and subtropical South American genera (*Cornitermes* and others) that have passed beyond the Andean barrier into Panama and Costa Rica (Emerson, 1952). The genus is represented as far south as Cassapava, Brazil, by *N. opacus*. This locality lies in a warm temperate prairie (fig. 2).

BIOLOGICAL NOTES

Individuals of the genus *Neocapritermes* are often preyed upon by the ant *Termitopone marginata* (Roger) (Hymenoptera, Formicidae). *Neocapritermes* specimens have been collected in Manaus, Amazonas, Brazil, from sandy nests buttressed against bases of trees, and in Minas Gerais, Brazil, from rotten logs and from nests situated in rather damp prairie, at high altitude.

Neocapritermes angusticeps: Adamson (1937, p. 145) stated that *N. angusticeps*, "the only member of its genus known in Trinidad, is not uncommon in forests of many kinds. . . . Alates have been found on only a few occasions in galleries in dead tree-trunks, in June and July."

Neocapritermes opacus: This species has a wide distribution in Brazil and is frequent prey to the *Termitopone* ant. The ant holds a termite securely in its mandibles, bends its abdomen, and stings the termite to death or into paralysis, and captured termites are stored in galleries of the underground ant nests. Sometimes, however, the aggressors are tossed as far as 20 cm. by the snapping action of the termite mandibles. Silvestri (1902, p. 11; 1903, p. 127) reported that the nest of *N. opacus* is subterranean, with irregular galleries at a depth of 10 to 25 cm. The termite forages for dry wood, which is comminuted inside fallen trunks. Silvestri concluded, from his observation of the function of the soldier mandibles, that this caste is exclusively devoted to giving alarm at the approach of danger, using the mandibles at the same time to jump backward, thus dodging the enemy. The soldiers occur in the proportion of a little over 1 per cent. There is no

TABLE 1
LOCALITIES OF SPECIES OF *Neocapritermes*

Locality	Latitude	Longitude
Argentina		
Chaco		
Colonia Benítez	27° 27' S.	58° 57' W.
Formosa		
Formosa	26° 10' S.	58° 20' W.
Riacho de Oro	Ca. 25° 15' S.	57° 50' W.
Misiones		
Bemberg (Puerto)	26° 01' S.	54° 30' W.
Posadas	27° 22' S.	55° 54' W.
San Pedro	26° 37' S.	54° 11' W.
Santa Ana	27° 22' S.	55° 35' W.
Bolivia		
Beni		
Cavinas	12° 38' S.	67° 07' W.
Ivon	11° 11' S.	66° 07' W.
La Paz		
Charupampa (Charopampa)	15° 15' S.	68° 09' W.
Mojos	14° 34' S.	68° 54' W.
Pando		
Rosario (near Lake Rogagua)	13° 58' S.	66° 52' W.
Brazil		
Amapá		
Ponta dos Índios	04° 10' N.	51° 36' W.
Amazonas		
Humaitá	07° 32' S.	63° 00' W.
Kilometer 47 on Manaus-Itacoatiara Road	03° 00' S.	58° 20' W.
Manaus	03° 00' S.	60° 00' W.
Autaz (Rio)	Between 04° to 03° S., 60° W. and 03° S., 59° W.	
São Gabriel	00° 12' S.	67° 01' W.
Sucuba (near Manaus)	03° 00' S.	60° 00' W.
Santa Amélia (Rio Autaz)	Within 03° 20' to 05° 00' S. and 58° 45' to 62° 00' W.	
Taracua	00° 06' N.	68° 23' W.
"União (Lower Rio Madeira)" ^a	—	—
Goiás		
Anápolis	16° 19' S.	48° 57' W.
100 kilometers South of Ilha do Bananal	Ca. 13° 00' S.	51° 00' W.
Guaporé (now Rondônia)		
Santo Antônio	12° 48' S.	63° 50' W.
Mato Grosso		
Coxipó (Cuiabá suburb)	15° 30' S.	56° 00' W.
Utiariti	12° 40' S.	58° 30' W.
Minas Gerais		
Belo Horizonte	19° 51' S.	43° 57' W.
Caraça	20° 07' S.	43° 27' W.
Congonhas	20° 30' S.	43° 55' W.
Diamantina	18° 15' S.	43° 36' W.
Lagoa Santa	19° 37' S.	43° 33' W.
São Sebastião do Paraíso	20° 54' S.	46° 59' W.
Serra do Cipó (Alto do Palácio)	19° 16' S.	43° 32' W.

TABLE 1—(Continued)

Locality	Latitude	Longitude
Pará		
Belém	01° 20' S.	48° 50' W.
Paraná		
Bela Vista	25° 22' S.	54° 35' W.
Castrolândia, colony, <i>ca.</i> 10 kilometers from Castro	24° 47' S.	50° 00' W.
Igaussú	25° 34' S.	54° 36' W.
Rio Negro	26° 05' S.	49° 48' W.
Pernambuco		
Recife	08° 04' S.	34° 50' W.
Rio Branco		
Caracaráí	02° 00' N.	61° 01' W.
Rio de Janeiro		
Kilometer 28 on Terezópolis-Friburgo Road	22° 26' S.	42° 50' W.
Rio Grande do Sul		
Cassapava (now Caçapava do Sul)	30° 31' S.	53° 29' W.
São Leopoldo	29° 45' S.	51° 12' W.
Santa Catarina		
Blumenau	26° 55' S.	49° 01' W.
Humboldt	26° 24' S.	49° 15' W.
Itajaí	26° 54' S.	48° 39' W.
São Paulo		
Agudos	22° 27' S.	49° 00' W.
Araçatuba	21° 17' S.	50° 24' W.
Baurú	22° 19' S.	49° 04' W.
Boracéia (Biological Station)	23° 41' S.	46° 04' W.
Iepê	22° 39' S.	51° 04' W.
Mogi das Cruzes	23° 31' S.	46° 12' W.
Piracaia	23° 03' S.	46° 21' W.
Santa Branca	23° 22' S.	45° 54' W.
Santo Amaro	23° 30' S.	46° 43' W.
São Manoel	22° 43' S.	48° 35' W.
São Paulo	23° 32' S.	46° 38' W.
São Paulo, Água Funda	Suburb, see São Paulo	
São Paulo, Indianópolis	Suburb, see São Paulo	
Colombia		
Magdalena		
Rio Frio	11° 06' N.	74° 11' W.
Meta		
El Mico (probably Los Micos)	03° 19' N.	73° 54' W.
Finca of Captain Series (bank of Guaviare River)	02° 45' N.	71° 00' W.
Costa Rica		
Hamburg Farm, Reventazon River, near San José and Cartago	09° 52' N.	83° 55' W.
Surinam		
Wanoceri Falls, Courantine River	04° 15' N.	58° 00' W.
Ecuador		
Gualaquiza (900 meters)	03° 33' S.	78° 33' W.
East of Zamora River	<i>Ca.</i> 03° 33' S.	78° 05' W.
Guyana (former British Guiana)		
Camaria	06° 25' N.	58° 48' W.
Dunoon	06° 25' N.	58° 18' W.
Second day of foot travel from Frederick William		
IV Falls	03° 16' N.	58° 14' W.
Kamakusa	05° 56' N.	59° 54' W.

TABLE 1—(Continued)

Locality	Latitude	Longitude
Kartabo	06° 23' N.	58° 42' W.
Makouria Creek (Bartica District)	06° 25' N.	58° 34' W.
Oko River	06° 28' N.	58° 50' W.
Tumatumari	05° 22' N.	59° 25' W.
Panama		
Barro Colorado Island	09° 08' to 09° 11' N. and 79° 49' to 79° 52' W.	
Paraguay		
Alto Paraná		
Tacurupucú (Tacurú Pucú)	25° 22' S.	54° 41' W.
Guaira		
Villa Rica (Villarrica)	25° 44' S.	56° 25' W.
Itapuá		
Villa Encarnación (Encarnación)	27° 20' S.	56° 50' W.
Presidente Hayes		
Monte Sociedad	25° 03' S.	57° 34' W.
San Pedro		
Itacorubi	24° 32' S.	56° 51' W.
Peru		
Chaquimayo	13° 35' S.	70° 27' W.
Llinquipata	13° 49' S.	70° 38' W.
Trinidad		
Guaico Forest	10° 35' N.	61° 09' W.
La Montserrat Estate, Maracas Valley	10° 30' N.	61° 20' W.

* Not found but almost surely below Humaita.

special royal cell, and swarming occurs in July and August, the species living especially in forests (Brazil, Paraguay, Argentina). Holmgren (1906, p. 557) stated: "Among my specimens two distinct local forms exist. The first one, found in the dry climate of the bushy steppes region at Mojos, Bolivia, is closer to Silvestri's *C. opacus*. The other form, however, occurs in the humid virgin forest climate, at the Rio San Gaban, and seems a little different from Silvestri's types" (translation). Kaiser (1954) has studied in detail the function of the mandibles of this species (Brazil).

Neocapritermes talpa: Holmgren (1906, pp. 561–562) mentioned the fact that *N. talpa* excavates galleries in loose soil and that the soldier utilizes its mandibles for digging as well as for defense, the species thus being restricted to localities where the earth is soft.

Neocapritermes villosus: Holmgren (1906, p. 559) wrote: "[*N. villosus*] "occurs generally in rain forest, especially under fallen logs, under stones, etc. This form is often found where no other species can dig, in stony

terrain or where a maze of roots prevails" (translation). He added that the soldier mandibles are efficient defense weapons, and are also used for jumping and for digging galleries, especially in solid earth and in root mazes, where they act "sometimes as a crow-bar and sometimes as shears." He has observed that individuals are never found crowded together in great numbers (a few workers, one or two soldiers, one nymph, and some larvae being all that one generally encounters) and that the soldiers are always found at the head of a procession.

KEY TO THE SPECIES OF *Neocapritermes*

IMAGO¹

1. Tibial spurs 3:2:2 2
Tibial spurs 2:2:2 *N. bodkini*
2. Pronotum densely covered with a mat of long hairs (fig. 4) *N. angusticeps*
Pronotum moderately covered with hairs (figs. 10, 15, 20) 3
3. Smaller species: head length, 0.87–0.92 mm.; head width, 1.22 mm.; eye diameter, 0.38–

¹ Known for only five species.

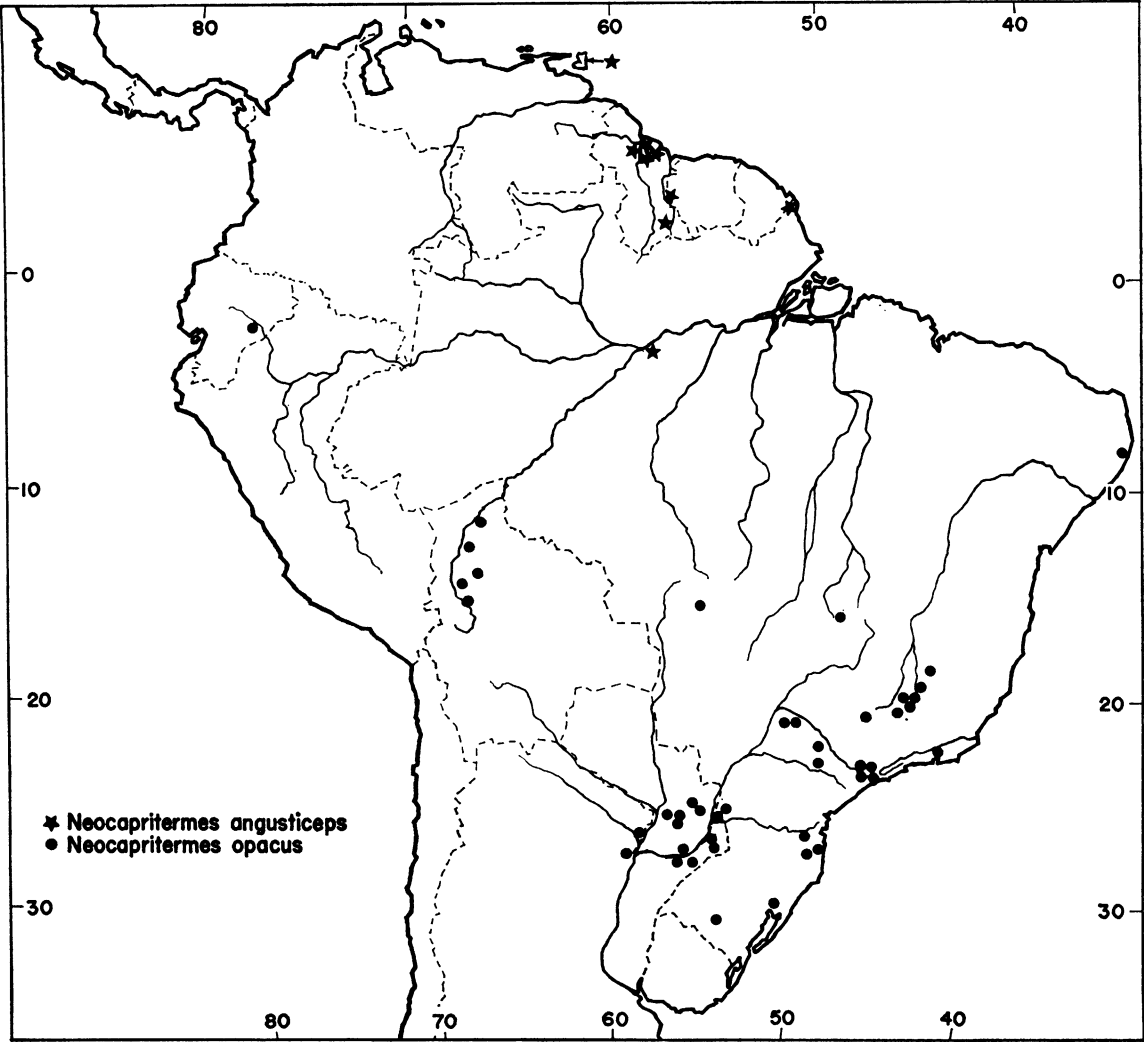


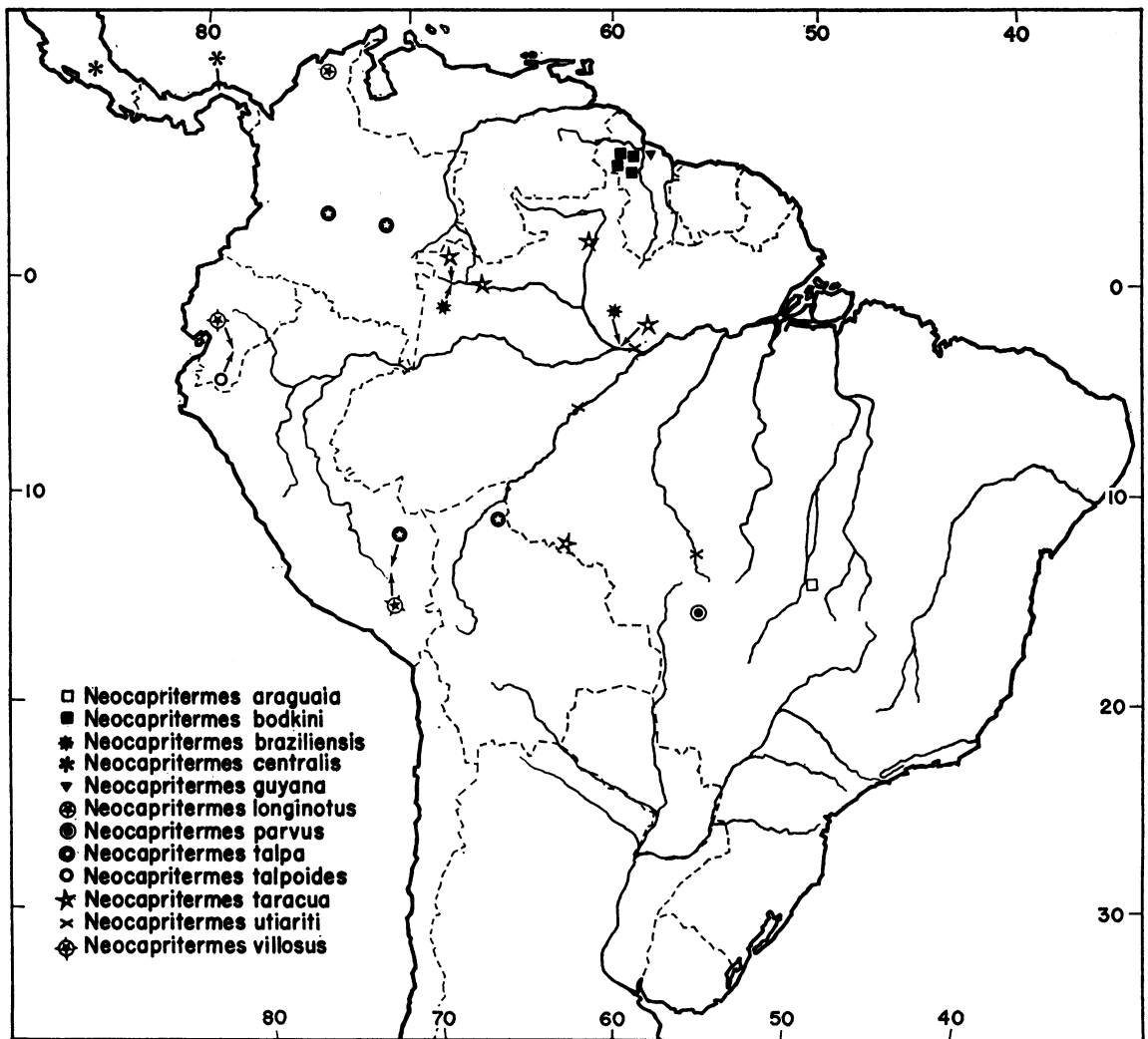
FIG. 2. Distribution of species of the genus *Neocapritermes*.

0.41 mm.; fontanelle plate length, 0.10–0.12 mm.; forewing length, 9.70–9.80 mm. (fig. 10, table 7) *N. braziliensis*
Larger species: head length, 1.22–1.43 mm.; head width, 1.73–1.94 mm.; eye diameter, 0.46–0.51 mm.; forewing length, 14.10–14.90 mm.; fontanelle plate length, 0.17–0.23 mm. 4
4. Ocellus farther from eye: 0.13 mm. from eye. Ocellus smaller, long diameter, 0.13–0.15 mm.; short diameter, 0.10 mm. Pronotum width, 1.53–1.68 mm. Fontanelle plate length, 0.20–0.23 mm. (fig. 15, table 12) *N. opacus*
Ocellus closer to eye: 0.08 mm. from eye. Ocel-

lus larger, long diameter, 0.23 mm.; short diameter, 0.18 mm. Pronotum width, 1.48 mm. Fontanelle plate length, 0.17 mm. (fig. 20, table 17) *N. taracua*

SOLDIER

- 1. Head with a prominent spinelike projection in postclypeal region 2
- Head rounded in postclypeal region, without a prominent spinelike projection. 4
- 2. Head only slightly longer proportionally than mandible. Head/mandibular index (length of left mandible/head length), 0.83–0.92 3

FIG. 3. Distribution of species of the genus *Neocapritermes*.

- Head much longer proportionally than mandible. Head/mandibular index, 0.65 (fig. 17) *N. parvus*
3. Larger species: head length, 3.10–4.30 mm.; head width, 1.75–2.20 mm.; head height, 1.50–1.88 mm. Median lobule of labrum weak compared with lateral lobes. Left mandible only slightly bent in middle (figs. 5, 6) *N. angusticeps*
- Smaller species: head length, 2.24 mm.; head width, 1.20 mm.; head height, 1.02 mm. Three apical lobules of labrum of equal size. Left mandible moderately bent in middle (fig. 7) *N. araguaia*
4. Left mandible strongly bent and twisted (figs. 13, 18, 19) 5
- Left mandible moderately bent (figs. 9, 11, 12, 14, 16, 23) 7
5. Labrum with anterior margin drawn into a median point. Metanotum with posterior margin deeply emarginate. Head small: width, 1.28–1.39 mm.; height, 1.07–1.10 mm. (fig. 13) *N. guyana*
- Labrum with anterior margin faintly concave or bluntly rounded. Metanotum with posterior margin shallowly emarginate. Head large: width, 1.38–1.89 mm.; height, 1.28–1.66 mm. 6
6. Labrum with anterior margin faintly concave. Larger species: head length, 3.05–3.72 mm.;

- head width, 1.63–1.89 mm.; head height, 1.43–1.66 mm. (fig. 18) *N. talpa*
- Labrum with anterior margin bluntly rounded. Smaller species: head length, 2.35–2.50 mm.; head width, 1.38–1.43 mm.; head height, 1.28 mm. (fig. 19) *N. talpoides*
7. Head densely covered with hairs and bristles 8
- Head sparsely or moderately covered with hairs and bristles 9
8. Head densely covered with fine, silky hairs. Smaller species: head length, 4.80–5.70 mm.; head width, 3.30–3.80 mm.; head height, 2.20–2.60 mm. Middle lobe of labrum projecting and bluntly tapering anteriorly. Anterior lobe of pronotum at right angle with posterior lobe (fig. 23) *N. villosus*
- Head densely and conspicuously studded with minute, stiff bristles. Larger species: head length, 6.00–6.30 mm.; head width, 4.50–4.70 mm.; head height, 3.10–3.30 mm. Middle lobe of labrum not projecting, evenly rounded. Pronotum broadly saddle-shaped, with angle between anterior and posterior lobe not sharp (fig. 22) *N. utiarii*
9. Head with sides converging in front, fontanelle large. Tibial spurs 2:2:2. Anterior lobe of pronotum at right angle with posterior lobe. Posterior margin of head with an indentation (fig. 9) *N. bodkini*
- Head almost parallel-sided, fontanelle small. Tibial spurs 3:2:2. Angle between anterior and posterior lobe not sharp. Posterior margin of head evenly rounded 10
10. Left mandible hooked, with pointed apex. Labrum anteriorly with or without a single pimple-like, median lobule 11
- Left mandible blunt, without a hook. Labrum anteriorly with three lobules 12
11. Labrum asymmetrical, with right side longer than left, no definite lobule, and anterior margin distorted, slanting, with a concavity in left half. Antennae 15-jointed. Smaller species: head length, 2.55–2.75 mm.; head width, 1.33–1.40 mm.; head height, 1.03–1.12 mm. (fig. 11) *N. braziliensis*
- Labrum long, with anterior margin having a definite, pimple-like, median lobule. Antennae 16-jointed. Larger species: head length 3.90–4.25 mm.; head width, 2.20–2.40 mm.; head height, 1.80–1.90 mm. (fig. 21) *N. taracua*
12. Pronotum almost twice as wide as long. Larger species: head length, 2.80–5.00 mm.; head width, 1.68–3.10 mm.; head height, 1.30–2.20 mm. (fig. 16)
- *N. opacus*
- Pronotum only slightly wider than long. Smaller species: head length, 2.09–2.81 mm.; head width, 1.12–1.48 mm.; head height, 1.02–1.28 mm. 13
13. Anterior margin of pronotum deeply incised. Smaller species: head length, 2.09–2.30 mm.; head width, 1.12–1.21 mm.; head height, 1.02–1.05 mm. (fig. 12) *N. centralis*
- Anterior margin of pronotum with shallow median incision. Larger species: head length, 2.55–2.81 mm.; head width, 1.28–1.48 mm.; head height, 1.12–1.28 mm. (fig. 14) *N. longinotus*
- Neocapritermes angusticeps** (Emerson)
- ?*Capritermes cingulatus*: BANKS, 1918, p. 666 (locality).
- Capritermes* (*Neocapritermes*) *angusticeps* EMERSON, 1925, pp. 294, 310 (key), 447–449 (imago, soldier), fig. 91 (imago, soldier).
- Capritermes* (*Neocapritermes*) *angusticeps*: HARE, 1937, pp. 469, fig. 49 (worker, soldier, mandible).
- Neocapritermes angusticeps*: ADAMSON, 1937, p. 8.
- Neocapritermes angusticeps*: WEBER, 1941, p. 326 (locality).
- Neocapritermes angusticeps*: BROOKS, ADAMSON, BAKER, AND CROWDY, 1941, pp. 103–110 (biology).
- Neocapritermes angusticeps*: SNYDER, 1949, p. 200 (systematics).
- Neocapritermes angusticeps*: SNYDER, 1956, pp. 190, 195 (distribution).
- IMAGO FEMALE (FIG. 4): Head and thoracic and abdominal nota light brown; wing veins brownish; mouth parts, labrum, mandibles (except black apex), antennae, legs, thoracic and some abdominal sterna yellowish; some sutures and some abdominal sterna brownish. Head with very few fine, erect, longish bristles; labrum with a few longish hairs; cervical sclerites with numerous short bristles; pronotum hirsute, with many long and medium-sized bristles and rather dense, low pubescence; mesonotum and metanotum with less dense pubescence; wing with scales strongly pubescent, veins with regular rows of inclined hairs, denser toward distal end, and membrane with very small hairs, visible only in side view; front coxae with conspicuous row of bristles of different lengths (some very long) on longitudinal ridge and sparse,

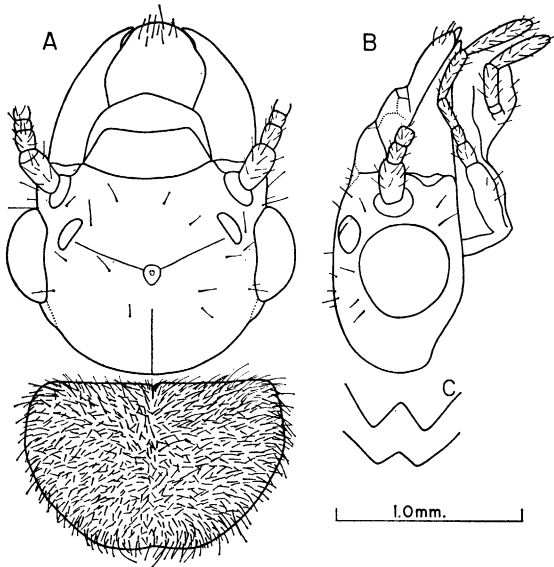


FIG. 4. Imago of *Neocapritermes angusticeps* (Emerson); paramorphotype from type colony. A. Head and pronotum from above. B. Head from side. C. Hind margins of mesonotum and metanotum from above.

long bristles on inner surface; middle and posterior coxae with sparse bristles of different sizes on ridge and inner surface; abdominal terga and sterna densely covered with low pubescence and with many medium-sized recumbent bristles; intersegmental membrane in pleural area densely clothed with short, soft hairs. Head in profile with top line straight, disc slightly depressed, fontanelle plate circular or slightly pear-shaped and light in color, with a dark sclerotized spot in center. Eyes very prominent, convex, almost circular, except for straight posterolateral section. Ocelli oblong, with inferior margin almost straight. Antennae with 17 articles, third and fourth very small, together equaling second in length, fifth slightly longer than fourth, sixth slightly thicker than seventh, eighth through fourteenth increasing in length, fifteenth through seventeenth subequal, last oblong. Pronotum almost flat, except for slight transverse depression near anterior margin, with anterior margin straight, anterolateral corners rounded, sides and hind margin in a semi-circle, and slight median excision at rear margin. Mesonotum and metanotum with

posterior margins deeply indented; incision on latter with outer angles projecting into short but neat, stubby points.

COMPARISONS: Differences between the imago of *Neocapritermes angusticeps* and the known imagoes of other species are as follows: In *N. opacus* the head and fontanelle plate are larger, the eyes and ocelli are smaller, with the ocelli farther from the eyes, the pronotum is wider and moderately hairy, and the forewings are longer. In *N. taracua* the head is wider, the fontanelle plate is larger and convex in profile, the ocelli are larger and farther from the eyes, and the third antennal segment is longer. *Neocapritermes bodkini* has a larger head and fontanelle plate, its forewings are shorter and wider, its pronotum is larger and moderately hairy, and its tibial spurs are 2:2:2 in number. *Neocapritermes braziliensis* is smaller in all respects.

SOLDIER (FIGS. 5, 6): Head brownish; margins of postmentum brown; antennae and mouth parts brownish; mandibles shiny black; labrum yellow; thorax and legs straw-

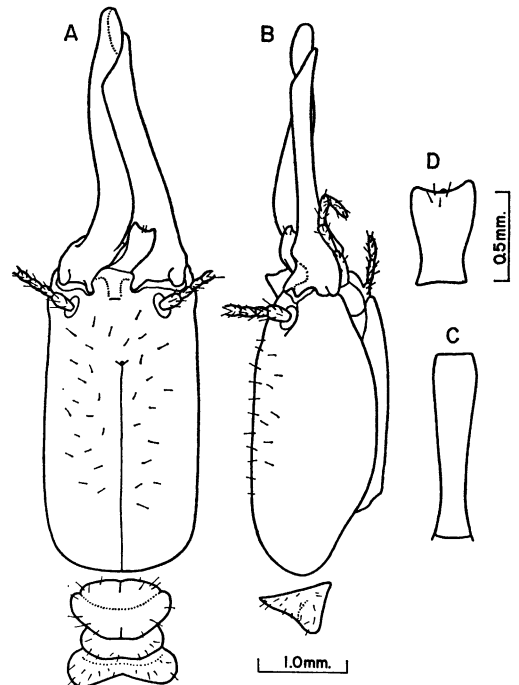


FIG. 5. Holotype soldier of *Neocapritermes angusticeps* (Emerson). A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

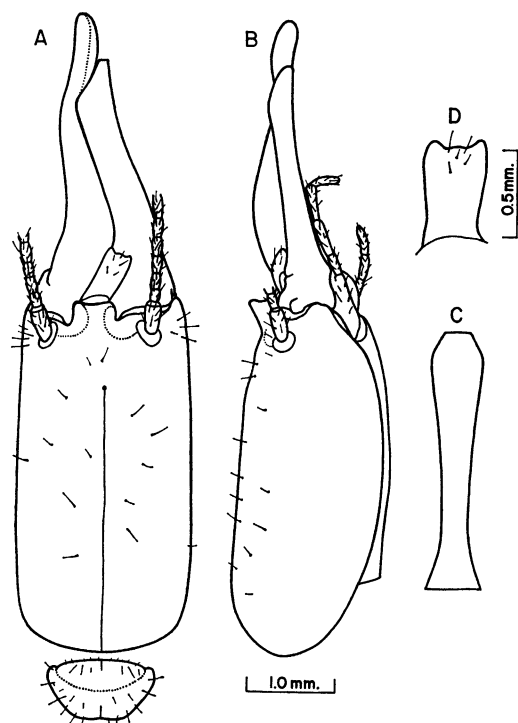


FIG. 6. Soldier of *Neocapritermes angusticeps* (Emerson); Santa Amélia, Rio Autaz, Amazonas, Brazil. A. Head and pronotum from above. B. Head from side. C. Postmentum from below. D. Labrum from above.

colored; abdomen dirty white. Head with a few scattered, long, slender, colorless, erect bristles, denser near anterolateral corners, absent from under side; postmentum with two bristles on each anterior corner; pronotum with long, erect, darker, stouter, sparse bristles; legs barely pilose, with a few longish hairs on longitudinal ridge of fore coxae; abdomen with numerous stouter, darker bristles of two sizes. Head elongate (1.9 times longer than wide, very slightly [1.1 times] longer than left mandible), with sides parallel, except for very slight constriction behind swelling on anterolateral corners; top straight in profile, sloping in front of fontanelle, rounded off behind; postclypeus strongly distorted, its left side drawn into small but neat, stout, spinelike projection with wide base; and fontanelle minute, not in a depression. Antennae very little longer than left mandible, with 16 articles, fourth shortest,

slightly longer than third, fifth through twelfth increasing in length (eighth through twelfth proportionally longer), thirteenth through fifteenth shorter than preceding ones, decreasing, sixteenth oblong, equal to fifteenth. Labrum broadly or faintly constricted in middle, with anterior margin concave, with either a pimple-like projection or a broad bump between conspicuous lobes. Mandibles proportionally very long, only slightly shorter than head. Left mandible in profile with proximal half very broadly bowed, extending sinuously to elongate apical club. Right mandible in profile straight except slightly curved apically, shallowly excavated on upper surface, and ending in rather sharp point. Postmentum with distal half elongate and club-shaped; apical sixth slightly expanded laterally, its sides converging to shallowly convex front margin; sides of proximal half slightly concave, diverging strongly at base; and hind margin shallowly convex. Pronotum equal to 0.61 of head width, with anterior lobe broadly semicircular, a little longer than posterior lobe, its front margin with a barely perceptible median depression, and posterior lobe broadly semicircular, with faint indication of depression in middle of hind margin. Mesonotum transverse, with sides rounded and hind margin straight. Metanotum broader than pronotum, with sides slightly angular, hind margin broadly and shallowly excised, and transverse, shallow depression on distal half. Middle tibia with one or two spines, somewhat thicker than normal bristles.

COMPARISONS: The prominent, spinelike projection on the postclypeus of the *Neocapritermes angusticeps* soldier is also found in *N. parvus* (Silvestri) and *N. araguaia*, new species. *Neocapritermes parvus* and *N. araguaia* are smaller in all measurements. In *N. parvus*, the head is long and narrow, the mandibles are proportionally shorter than the head capsule, and the left mandible is more bent in the middle, with its outer margin more deeply concave. In *N. araguaia*, the sides of the labrum are almost parallel, the three apical lobules are small and of equal size, and the outer margin of the left mandible is more deeply concave.

LOCALITIES AND MATERIAL EXAMINED: GUYANA: Kartabo (type locality), imagoes

TABLE 2
MEASUREMENTS (IN MILLIMETERS) OF FOUR IMAGOS
OF *Neocapritermes angusticeps* (EMERSON)

	Range	Mean
Lateral length of head capsule	1.12- 1.22	1.17
Width of head with eyes	1.58- 1.66	1.63
Diameter of eye	0.54- 0.59	0.56
Eye from lower margin	0.03- 0.04	0.04
Longest diameter of ocellus	0.20- 0.26	0.22
Shortest diameter of ocellus	0.13- 0.15	0.14
Ocellus from eye	0.05- 0.06	0.05
Long diameter of fontanelle plate	0.10- 0.12	0.11
Maximum length of pronotum	0.92- 0.97	0.95
Median length of pronotum	0.90- 0.92	0.91
Maximum width of pronotum	1.43- 1.48	1.46
Length of hind tibia	1.84- 1.94	1.19
Length of forewing from suture	12.70-13.50	13.02
Width of forewing	3.19- 3.30	3.22

(morphotype and paramorphotypes), soldiers (holotype and paratypes), one worker, collected by A. E. Emerson, April 19, 1924, field number 24.102. Camaria, one soldier, workers, collected by A. E. Emerson, March 9, 1924. Dunoon, one soldier, workers, collected by F. M. Gaige, 1914, field number 93. Oko River, soldiers, workers, nymphs, collected by N. A. Weber, June 24, 1936, field number 510. "Two days travel above King Frederick William IV Falls," New River, one soldier, collected by N. A. Weber, July 18, 1936, field number 576.

SURINAM: "Noon stop above Wanoceri Falls," Courantyne River, one soldier, workers, collected by N. A. Weber, July 14, 1936, field number 563.2.

WEST INDIES: *Trinidad*: La Montserrat Estate, Maracas Valley, imagoes, collected by N. A. Weber, May 29, 1936, field number 448.1, "Flew to light 10:30 PM. Overcast but no rain." Guaico Forest, imagoes, soldiers, workers, collected by A. M. Adamson, June 25, 1936, field number 1290.

BRAZIL: *Amazonas*: Santa Amélia, Rio Autaz, soldiers, workers, collected by A.

TABLE 3
MEASUREMENTS (IN MILLIMETERS) OF FOURTEEN SOLDIERS OF
Neocapritermes angusticeps (EMERSON)

	Holotype	Range	Mean
Lateral length of head capsule	3.60	3.10-4.30	3.56
Maximum width of head	1.88	1.75-2.20	1.87
Maximum height of head	1.60	1.50-1.88	1.61
Length of left mandible	3.25	2.80-3.60	3.19
Length of right mandible	3.00	2.50-3.05	2.86
Maximum width of postmentum	0.60	0.50-0.60	0.55
Minimum width of postmentum	0.30	0.28-0.35	0.30
Length of postmentum	2.30	2.10-3.10	2.44
Median length of pronotum	0.60	0.60-0.78	0.64
Maximum length of pronotum	0.65	0.60-0.78	0.65
Maximum width of pronotum	1.15	1.10-1.33	1.16
Length of hind tibia	1.50	1.30-1.70	1.48

Roman, August 24, 1914; soldiers, workers, collected by A. Roman. *Amapá*: Ponta dos Índios (previously in state of Pará), soldiers, workers, collected by H. Hinton, October 9, 1939; one soldier, workers, collected by H. Hinton, October 9, 1939.

TYPE MATERIAL: The holotype, paratypes, and morphotype are in the collection of the American Museum of Natural History.

***Neocapritermes araguaia*, new species**

SOLDIER (FIG. 7): Head light yellow, brownish yellow on sides, with under side lighter; distal areas of anterior margin light brown; mandibles shiny black; mouth parts, antennae, and labrum light yellow; thoracic nota creamy, with dark patches on median area; legs and abdominal segments dirty white. Head with a few fine, scattered, erect bristles of two sizes on upper surface and halfway down sides, none on under side; two long bristles placed laterally at distal end of postmentum; a few small bristles pointing forward at median lobe of labrum; sparse bristles of two sizes on pronotum, longer than

those on head; long, stiff hairs near posterior margins of mesonotum and metanotum; scattered stiff bristles on legs, with inner row of about 10 short regular ones on front tibia; numerous rather fine, erect hairs of two sizes on abdominal segments. Head rectangular, longish (1.88 times longer than broad and 1.20 times longer than left mandible), with sides parallel, converging slightly at rounded posterior corners; small bump below antennal socket at anterior corner; left side of distorted postclypeus between antennae drawn into a conspicuous, spinelike, erect projection with a wide base; right side of distorted area only slightly elevated; upper margin straight in profile, sloping gently at hind part, a little more steeply behind spine-like projection, there forming a concavity; and fontanelle minute and circular. Antennae with 16 articles, third and fourth shortest, fifth through seventh gradually increasing in length, eighth through eleventh subequal, twelfth through fourteenth decreasing, fifteenth through sixteenth subequal. Labrum with left side straight, right slightly convex, and frontal margin distinctly three-lobed, the lobes neat, but small. Left mandible with proximal half twice as broad as distal fourth; viewed from side, strongly bent at proximal third, extending straight to clublike distal fourth, which is slightly turned upward. Right mandible viewed from side slightly and evenly bent downward; viewed from top with outer margin slightly concave at distal half and inner margin more deeply concave, with rounded expansion at distal fourth followed by short concavity and rather sharp point. Postmentum with distal half broadened, with very small portion narrowing to straight anterior margin, and sides of hind half almost straight, only slightly divergent toward somewhat concave posterior margin. Pronotum slightly more than half as broad as head (equal to 0.53 of head width), with large anterior upturned lobe and semicircular anterior margin, having only a slight median depression; upturned anterior lobe forming very wide angle with posterior lobe; and posterior lobe roundly projecting anterolaterally, with almost straight converging sides and nearly straight posterior margin, where indication of notch is perceptible. Mesonotum with rounded projecting sides,

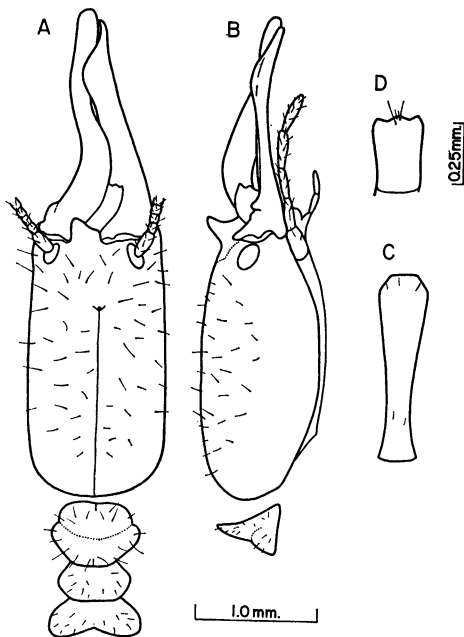


FIG. 7. Soldier of *Neocapritermes araguaia*, new species; paratype from type colony. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

straight posterior margin. Metanotum as wide as pronotum, with rounded sides and posterior margin broadly angular. Middle tibia with one spine near middle of outer margin, somewhat thicker than normal bristle.

TABLE 4
MEASUREMENTS (IN MILLIMETERS) OF
SOLDIERS OF *Neocapritermes araguaia*,
NEW SPECIES

	Holo- type	Para- type
Lateral length of head capsule	2.24	2.24
Maximum width of head	1.20	1.17
Maximum height of head	1.02	1.02
Length of left mandible	1.94	1.86
Length of right mandible	1.79	1.79
Maximum width of postmentum	0.41	0.41
Minimum width of postmentum	0.20	0.20
Length of postmentum	1.63	1.58
Median length of pronotum	0.56	0.56
Minimum length of pronotum	0.56	0.56
Maximum length of pronotum	0.59	0.56
Maximum width of pronotum	0.77	0.74
Length of hind tibia	0.97	0.97

COMPARISONS: In the group of species with a prominent spinelike projection on the front of the soldier head, *Neocapritermes araguaia* comes closest to *N. angusticeps* and *N. parvus*, which are, however, larger in all measurements. In *N. parvus* the spinelike projection on the head is less prominent, the lateral lobules of the labrum are more prominent, and the mandibles are much shorter proportionally than the head capsule, the head/mandibular index (left mandible length/head length) being 0.65 (in contrast to 0.85 in *N. araguaia*).

LOCALITIES AND MATERIAL EXAMINED: BRAZIL: *Goiás*: Fazenda Piedade, about 100 kilometers south of the Ilha do Bananal (type locality), two soldiers (holotype and paratype), collected by Peter Kaiser.

TYPE MATERIAL: The holotype is in the collection of the American Museum of Natural History, and the paratype is in the collection of the Departamento de Zoologia, São Paulo, Brazil.

This species is named after the Araguaia River, in the vicinity of which the original material was collected.

***Neocapritermes bodkini* (Silvestri)**

Capritermes bodkini SILVESTRI, 1923, pp. 312–315 (soldier, female nymph), pl. 13, figs. 1–5 (soldier, nymph).

Capritermes bodkini var. *modestior* SILVESTRI, 1923, pp. 315–318 (imago, soldier, worker), pl. 14 (female, soldier, worker).

Capritermes (*Neocapritermes*) *bodkini*: EMERSON, 1925, pp. 310 (key), 445–447 (imago, soldier), fig. 90 (imago, soldier).

Neocapritermes bodkini: WEBER, 1941, p. 326 (locality).

Neocapritermes bodkini: SNYDER, 1949, p. 200 (systematics).

IMAGO FEMALE (FIG. 8): Head, thorax, and abdominal terga and some pleural sutures testaceous; mouth parts (except black distal half of mandibles), antennae, legs, and sternal surfaces lighter; eyes black. Head with several long, erect bristles on top and a few on clypeus; pronotum with numerous erect and prostrate bristles of two sizes; mesono-

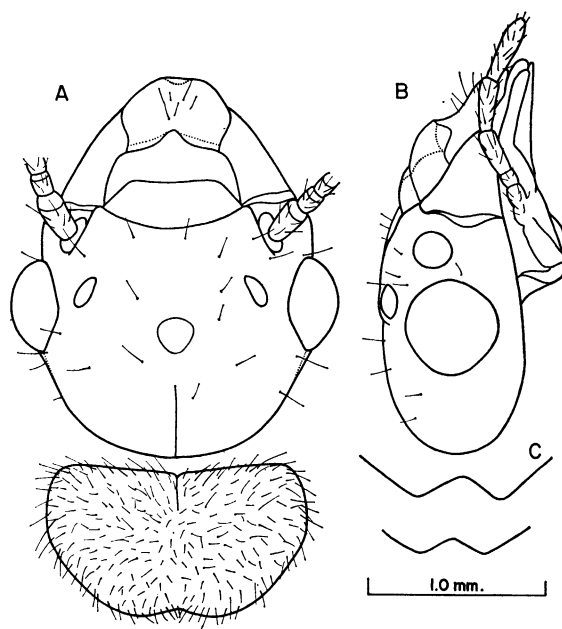


FIG. 8. Imago of *Neocapritermes bodkini* (Silvestri); Oko River (tributary of Cayuni River, 37th mile), Guyana. A. Head and pronotum from above. B. Head from side. C. Hind margins of mesonotum and metanotum from above.

tum and metanotum with a few small, recumbent hairs; wing scales with same pilosity as pronotum, but somewhat denser; wing membrane densely covered with minute hairs; legs with numerous long, stiff bristles; abdominal sclerites with short, recumbent pubescence and numerous long bristles interspersed; intersegmental membrane densely covered with minute, inclined bristles. Head in profile with a shallow depression on top in which elevated fontanelle plate is clearly visible, fontanelle plate pyriform, and frons sloping. Eyes bulging, almost circular. Ocelli ellipsoid. Antennae with 16 or 17 articles (in some cases third article subdivided), second and fourth shortest, subequal, fourth through eleventh increasing gradually in length, eleventh through fifteenth slightly decreasing, fifteenth oblong, shorter than preceding article. Pronotum of a width equal to 0.83 of head width, mostly flat, with transverse depression on front half, anterior margin nearly straight, slightly upturned, anterior corners rounded, and posterior margin with broad, shallow, median excision. Mesonotum and metanotum with hind margin indentations rather shallow, angles blunt. Wings with dark ridge along costal margin, membrane lighter, densely covered with spiculae. Tibial spurs 2:2:2.

COMPARISONS: The imago of *Neocapritermes bodkini* differs from the known imagoes of the other species of *Neocapritermes* in that

its tibial spurs number 2:2:2 (all others have 3:2:2). Other differences are as follows: In *N. angusticeps*, the pronotum is densely covered with a mat of long hairs, the head, pronotum, and fontanelle plate are smaller, and the wings are longer and narrower. In *N. opacus* the eyes and ocelli are smaller, the ocelli are farther from the eyes, and the forewings are longer and wider. The imagoes of *N. taracua* and *N. braziliensis* are smaller in all respects.

SOLDIER (FIG. 9): Head ochereous; front margin of head, margin of postmentum, epicranial suture brownish; antennae light brownish; thorax, legs, and abdomen stramineous. Head with numerous very short, stiff bristles on distal two-thirds and on postmentum, the latter with two long bristles on anterior margin; labrum with a group of about six long setae in a double row from apex to middle and many much shorter ones scattered on distal two-thirds; anterior face of pronotum up to anterior margin studded with minute, stiff bristles; upper pronotal surface with many bristles twice as long as those on anterior face and also with a few longer bristles; mesonotum and metanotum with many minute and a few long, stiff bristles; cervical sclerites with very few long bristles; legs with many bristles; abdominal segments with numerous minute bristles. Head oblong (1.3 times longer than wide, 1.1 times longer than left mandible), its sides

TABLE 5
MEASUREMENTS (IN MILLIMETERS) OF SEVEN IMAGOS OF
Neocapritermes bodkini (SILVESTRI)

	Queen	Range	Mean
Lateral length of head capsule	1.58	1.38- 1.58	1.52
Width of head with eyes	2.09	1.86- 2.09	1.99
Diameter of eye	0.61	0.56- 0.61	0.60
Eye from lower margin	0.10	0.09- 0.10	0.10
Longest diameter of ocellus	0.20	0.20- 0.23	0.21
Shortest diameter of ocellus	0.13	0.10- 0.14	0.13
Ocellus from eye	0.09	0.08- 0.10	0.09
Maximum diameter of fontanelle plate	0.27	0.20- 0.30	0.26
Maximum length of pronotum	1.02	0.87- 1.02	0.95
Median length of pronotum	0.87	0.77- 0.87	0.82
Maximum width of pronotum	1.73	1.53- 1.73	1.64
Length of hind tibia	2.70	2.58- 2.70	2.63
Length of forewing from suture	—	11.90-12.60	12.03
Width of forewing	—	3.60- 3.80	3.70

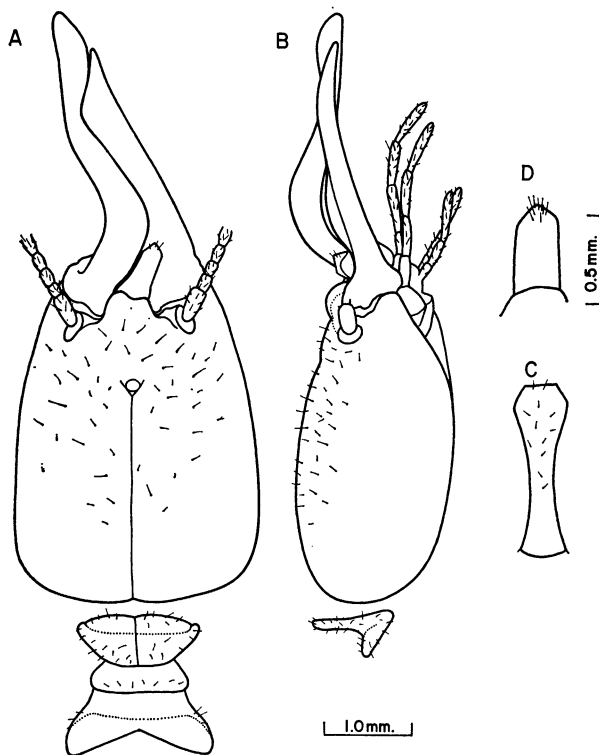


FIG. 9. Soldier of *Neocapritermes bodkini* (Silvestri); paralectotype from lectotype colony. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

very slightly curved, converging to narrowest point at anterolateral corners; in profile slightly arched at top where fontanelle is seen, with lower surface straight in middle, gradually upturned to front, more steeply to rear margin; with postmentum very little apparent, except at distal end, postclypeal area distorted, slightly elevated to left, fontanelle almost circular, in a slight depression, and posterior margin slightly indented in middle. Antennae with 16 articles, second through fourth subequal, fifth through ninth rather elongated, subequal, almost twice the length of second, twelfth through fifteenth gradually shorter, sixteenth oblong, equal to fifteenth. Labrum subrectangular, its sides converging and front margin evenly protruding, with rather indistinct median lobule. Mandibles slightly shorter than head, equal to 0.8 of head length. Left mandible strongly bent at proximal third, seen from top tapering gradually to enlarged apex. Right man-

dible straight, with inner margin sinuous, bladelike, upper surface excavated along inner blade to base, and apex evenly curved down in short, sharp point. Postmentum almost half as wide in middle as at expanded anterior end, with apical sides straight, converging to straight anterior margin, and posterior margin slightly concave. Pronotum of a width equal to 0.4 to 0.5 of head width, much narrower than head, with anterior lobe upright and twice as large as posterior, with which it forms a right angle; anterior margin circular, with a median indentation; hind margin of posterior lobe straight. Mesonotum quadrangular, transverse. Metanotum with front half in steep slope, hind part arched and very deeply and broadly excised in middle, with anterolateral corners expanded into small flaps. Tibial spurs 2:2:2.

COMPARISONS: The soldier of *Neocapritermes bodkini* differs from soldiers of all other species of *Neocapritermes* in having the

tibial spurs 2:2:2 in number (3:2:2 in all other species), the posterior margin of the head indented in the middle (evenly rounded in all other species), and the fontanelle larger. In *N. opacus* the sides of the head are parallel, the labrum is distinctly three-lobed, and the pronotum is broadly saddle-shaped, with the angles between the anterior and posterior lobe not sharp. *Neocapritermes villosus* and *N. utiariti* are densely covered with hairs and bristles, though they resemble *N. bodkini* in the general shape of the head.

LOCALITIES AND MATERIALS EXAMINED: GUYANA: Tumatumari (type locality), Potaro River, soldiers (lectotype and paralectotypes), collected by G. E. Bodkin, December, 1915; two vials containing two soldiers (paralectotypes) from lectotype colony. Kamakusa, dealates, soldiers, workers (young colony), collected by H. Land, November 7, 1922, field number 61. Kartabo, king, queen, soldier, workers (young colony), collected by A. E. Emerson, August 29, 1920, field number 288; one dealate, one soldier, workers (young colony), collected by A. E. Emerson; soldiers, workers, collected by A. E. Emerson, June 8, 1920, field number 16; two soldiers, one worker, collected by A. E. Emerson, August 8, 1920; one dealate, nymphs, collected by A. E. Emerson, 1919. Oko River (tributary of Cayuni River, 37th mile),

imagoes, collected by N. Weber, June 28, 1936, field number 539; dealates, collected by N. Weber, June 25, 1936, field number 518; one dealate, collected by N. Weber, June 29, 1936, field number 540.

TYPE MATERIAL: The lectotype and paralectotypes, selected by Kumar Krishna, are deposited in the collection of the Laboratorio di Entomologia Agraria "Filippo Silvestri," Portici, Naples, Italy; paralectotypes are in the collection of the American Museum of Natural History.

***Neocapritermes braziliensis* (Snyder)**

Capritermes (*Neocapritermes*) *braziliensis* SNYDER, 1926b, pp. 64-65 (soldier, worker), fig. 3c (soldier).

Neocapritermes braziliensis: SNYDER, 1949, p. 200 (systematics).

IMAGO FEMALE (FIG. 10): Head capsule light reddish brown; antennae, mouth parts, mandibles (except apices) straw-colored; thorax lighter than head; legs straw-colored, wing scales darker; abdomen slightly darker than thorax; wings with a very slight brownish tinge, their veins light brownish. Head capsule with numerous erect, fine, almost colorless bristles of two sizes, scantier on sides; postclypeus with very few bristles; labrum with about six longish bristles; pronotum with longish and short bristles along margins and extremely short pubescence on disc;

TABLE 6
MEASUREMENTS (IN MILLIMETERS) OF EIGHT SOLDIERS OF
Neocapritermes bodkini (SILVESTRI)

	Lectotype	Range (Four Specimens)	Young Colonies Range (Three Specimens)
Lateral length of head capsule	4.20	3.88-4.20	1.99-2.70
Maximum width of head	3.06	3.01-3.06	1.06-1.09
Maximum height of head	1.96	1.84-1.96	1.22-1.33
Length of left mandible	3.50	3.36-3.50	2.04-2.55
Length of right mandible	3.33	3.11-3.33	1.95-2.40
Maximum width of postmentum	0.75	0.61-0.75	0.41-0.51
Minimum width of postmentum	0.35	0.31-0.35	0.20-0.28
Length of postmentum	2.24	2.19-2.24	1.28-1.58
Median length of pronotum	0.65	0.64-0.71	0.48-0.51
Maximum length of pronotum	0.70	0.66-0.77	0.48-0.52
Maximum width of pronotum	1.58	1.38-1.58	0.77-0.92
Length of hind tibia	2.94	2.65-2.94	1.56-1.94

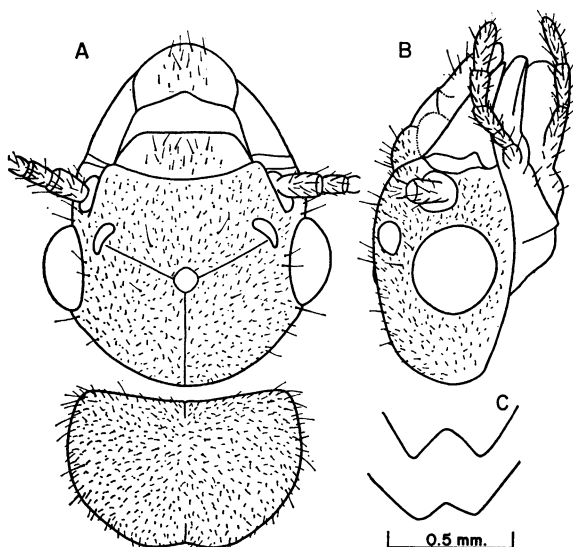


FIG. 10. Imago of *Neocapritermes braziliensis* (Snyder); morphotype colony from Taracua, Amazonas, Brazil. A. Head and pronotum from above. B. Head from side. C. Hind margins of mesonotum and metanotum from above.

mesonotum and metanotum with some pubescence and very short hairs along margins; legs moderately pilose, more densely so on tibiae; coxal ridges with scanty row of irregular bristles; wing scales with many longish hairs and dense, short pubescence; wing membrane with microscopic recumbent hairs,

slightly longer on margins; abdominal segments scantily pilose. Head in profile slightly depressed around fontanelle plate, sloping in front of ocelli. Eyes strongly prominent, convex. Ocelli oblong, with hind margin straight, remainder semicircular. Antennae with 16 articles, third and fourth very short, fifth through eighth gradually increasing, eighth through fourteenth subequal, fifteenth slightly shorter, sixteenth oblong, slightly shorter than preceding article. Pronotum of a width equal to 0.81 of head width, mostly flat, with front margin straight, slightly upturned medially, sides semicircular, and a slight, shallow excision on hind margin. Mesonotum hind margin with conspicuous, deep, right-angled median indentation, outstanding lateral points. Metanotum hind indentation less deeply marked.

COMPARISONS: The imagoes of *Neocapritermes angusticeps*, *N. opacus*, and *N. taracua* differ from the imago of *N. braziliensis* in being much larger in all measurements. Also, in *N. bodkini* the tibial spurs number 2:2:2 (3:2:2 in *braziliensis*).

SOLDIER (FIG. 11): Head light yellowish to brownish, with anterior margin and margins of pronotum darker; antennae and mouth parts straw-yellow to light brown; mandibles dark brown to shiny black; thorax with yellowish tinge; abdomen dirty white. Head with sparse, fine, dark bristles of two sizes;

TABLE 7
MEASUREMENTS (IN MILLIMETERS) OF THREE IMAGOS OF
Neocapritermes braziliensis (SNYDER)

	Range	Mean
Lateral length of head capsule	0.87-0.92	0.90
Width of head with eyes	1.22	1.22
Diameter of eye	0.38-0.41	0.40
Eye from lower margin	0.05-0.08	0.06
Long diameter of ocellus	0.12-0.14	0.12
Short diameter of ocellus	0.10	0.10
Ocellus from eye	0.05-0.06	0.05
Long diameter of fontanelle plate	0.10-0.12	0.11
Median length of pronotum	0.61	0.61
Maximum length of pronotum	0.62-0.66	0.64
Maximum width of pronotum	1.00	1.00
Length of hind tibia	1.48-1.58	1.53
Length of forewing from suture	9.70-9.80	9.75
Width of forewing	2.50-2.60	2.55

postmentum with numerous minute, erect bristles and one long bristle near each extreme anterior corner; labrum with a few bristles of three different sizes; pronotum with a few long, stronger hairs; legs sparsely hairy, with small row of irregular-sized bristles on longitudinal ridge of fore coxae; abdomen with moderate hairs. Head elongate, 1.7 times longer than wide, parallel-sided, its posterior corners rounded into very slightly curved posterior margin, with top straight in profile, rounding gently to posterior margin, sloping for short distance to frons, and fontanelle very minute, in a shallow depression. Antennae with 15 articles, third swollen and darker than others, fourth shortest, fifth through tenth increasing, eleventh through fourteenth slightly decreasing, fifteenth oblong, slightly longer than preceding article. Labrum distorted, with shallow constriction on each side; anterior margin slanting, with concavity on left half (in type specimen, left anterior margin concavity slightly shallower, but within range of intraspecific variation); and apex bluntly rounded and displaced on right side. Mandibles rather slender, only slightly shorter than head, equal to 0.9 of head length. Left mandible strongly bent near base, then slightly sinuous to enlarged apex, which ends in short, acute, upturned hook. Right mandible scantily shorter than left, with proximal upper surface shallowly excavated and apex

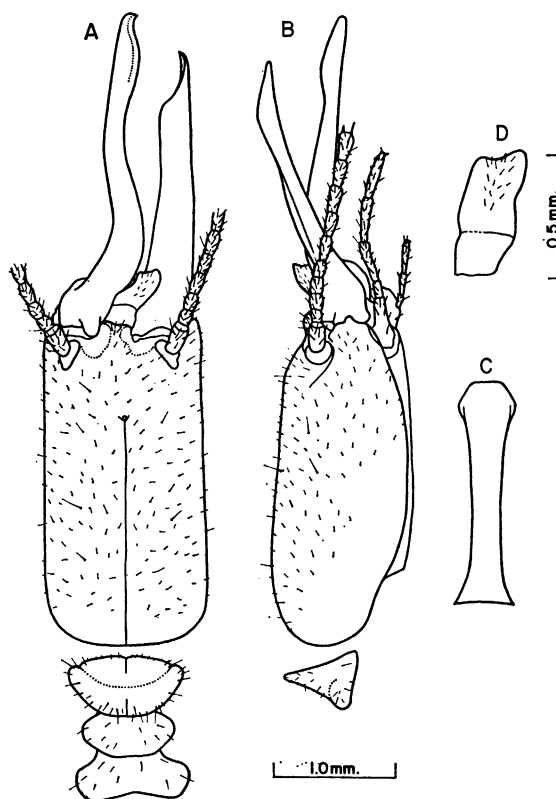


FIG. 11. Soldier of *Neocapritermes braziliensis* (Snyder); morphotype colony from Taracuá, Amazonas, Brazil. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

TABLE 8
MEASUREMENTS (IN MILLIMETERS) OF EIGHT SOLDIERS OF
Neocapritermes braziliensis (SNYDER)

	Holotype	Range	Mean
Lateral length of head capsule	2.96	2.55–2.75	2.65
Maximum width of head	1.48	1.33–1.40	1.35
Maximum height of head	1.13	1.03–1.12	1.07
Length of left mandible	2.75	2.42–2.60	2.52
Length of right mandible	2.50	2.19–2.40	2.28
Maximum width of postmentum	0.46	0.41–0.46	0.45
Minimum width of postmentum	0.26	0.26–0.28	0.26
Length of postmentum	1.89	1.63–1.79	1.70
Median length of pronotum	0.51	0.41–0.51	0.47
Maximum length of pronotum	0.51	0.41–0.51	0.53
Maximum width of pronotum	0.87	0.84–0.89	0.86
Length of hind tibia	1.38	1.22–1.33	1.28

ending in rather sharp, incurved point; in profile, very slightly and broadly curved; seen from top, with outer margin definitely straight, inner margin slightly sinuous; apically excavated behind apical point. Postmentum club-shaped, with sides strongly divergent very near base, hind margin faintly concave, middle region parallel-sided, and sides of apical region expanded and gently curved to straight front margin. Pronotum narrower than head, equal to 0.6 of head width, with lobes gently curved, not angled; anterior lobe longer, semicircular; anterior margin with short, shallow, median indentation; posterior lobe broadly semicircular; posterior margin briefly straight medially. Mesonotum sides slanting and curving into straight posterior margin. Metanotum about as wide as pronotum, with upper surface depressed medially and posterior margin with broad, shallow, median excision. Middle tibia without spines.

COMPARISONS: The soldier of *Neocapritermes braziliensis* is closest to that of *N. taracua*, new species, in having long mandibles, the left pointed and hooked at the apex. However, *N. taracua* is larger in all respects, the antennae are 16-jointed, and the anterior margin of the labrum has a small, pimple-like projection.

LOCALITIES AND MATERIAL EXAMINED: BRAZIL: Rio Mautania (type locality [not located on map]), one soldier (holotype), workers, collected by W. M. Mann, March 1922. Amazonas: Taracuá, imagoes (morphotypes), three soldiers, workers, collected by A. Roman, March 8, 1914 (Swedish Amazonian Expedition). Taracuá (Rio Uaupés), two soldiers, workers, nymphs, collected by A. Roman, March 8, 1914 (Swedish Amazonian Expedition). Manaus (Bosque Municipal), one soldier, collected by A. Roman, August 8, 1914. Sucuba (Manaus), one soldier, collected by A. Roman, December 13, 1914. Manaus (Parque 10 de Novembro), queen (morphotype), several soldiers, workers, nymphs, collected by C. R. Gonçalves, November 2, 1953 (Departamento de Zoologia, São Paulo, accession number 4671); soldiers, workers, collected by K. Lenko, November 14, 1962 (Departamento de Zoologia, São Paulo, accession number 0193).

TYPE MATERIAL: The holotype soldier

(U.S.N.M. No. 27643) is in the collection of the United States National Museum, Washington, D. C.; the morphotypes are in the collections of the American Museum of Natural History and of the Departamento de Zoologia, São Paulo, Brazil.

***Neocapritermes centralis* (Snyder)**

Capritermes (*Neocapritermes*) *centralis* SNYDER, 1932, pp. 99–100 (soldier), fig. 1 (soldier).

Capritermes (*Neocapritermes*) *centralis*: SNYDER, 1934, p. 97 (locality).

Neocapritermes centralis: SNYDER, 1949, p. 200 (systematics).

SOLDIER (FIG. 12): Head yellowish brown; anterior margin of head, dorsal midline, sides of frons, and margins of postmentum brown; labrum same color as dorsum of head; thorax straw-colored. Head with a few scattered, fine, almost colorless bristles on dorsum and sides, more numerous anteriorly; one bristle on each side of anterolateral corners of postmentum; a few longer, fine bristles on thorax; about six bristles pointing forward at median lobule of labrum; sparse hairs on legs and abdomen. Head quadran-

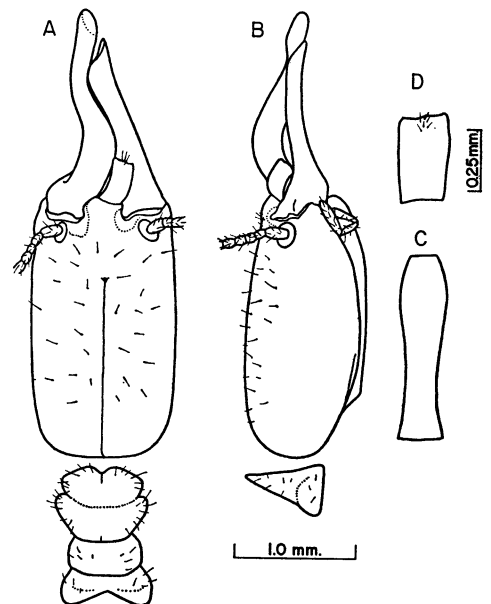


FIG. 12. Soldier of *Neocapritermes centralis* (Snyder); paralectotype from lectotype colony. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

gular, elongate, 1.7 times longer than wide, with sides parallel, slight swelling at anterolateral corners, hind corners rounded off into slightly curved hind margin, top straight in profile, sloping very gently toward postclypeus and more abruptly at hind margin, with under surface broadly concave and fontanelle barely perceptible, not in a depression. Antennae with 16 articles, fourth shortest, fifth through tenth increasing in length. Labrum proportionally small, with sides slightly converging, front margin faintly three-lobed, and median lobule very small. Left mandible with length equal to about 0.76 of head length; in profile strongly bent basally and then sinuously to apex; seen from top, tapering gradually, with inner margin almost straight, outer one broadly curved, and a longish clavate apex. Right mandible in profile slightly arched; from top slightly tapering, with straight outer margin, sinuous left side, and short, rather sharp apical point. Postmentum with distal half club-shaped, its sides converging anteriorly to straight front margin; middle third narrowed, its sides strongly divergent; and hind margin curved. Pronotum of a width equal to 0.64 of head width, with lobes in extremely wide angle; margins of anterior lobe rather angular, with a deep, right-angled median incision; and sides of posterior lobe straight, converging in straight hind margin. Mesonotum transverse, with sides

rather angular and hind margin straight. Metanotum of a width equal to posterior lobe of pronotum, with sides rounded and hind margin shallowly and broadly excised. Middle tibia with one spine, somewhat thicker than normal bristle.

COMPARISONS: The soldier of *Neocapritermes centralis* most closely resembles that of *N. longinotus* (Synder). However, *longinotus* has larger measurements throughout, a left mandible that is only slightly bent, a shallow, curved, median incision in the anterior lobe of the pronotum (angular in *centralis*), and a proportionally deeper hind margin excision.

LOCALITIES AND MATERIALS EXAMINED: COSTA RICA: *Cartago*: Hamburg Farm near San José and Cartago (type locality), three soldiers (lectotype and paralectotypes), collected by F. Neverman, May 9, 1930; one soldier (paralectotype) from lectotype colony workers.

PANAMA: *Canal Zone*: Barro Colorado Island, six vials containing soldiers, workers, collected by A. E. Emerson, April 8, 12, 22, July 23, and September 6, 1935.

TYPE MATERIAL: The lectotype and paralectotypes, selected by the present authors from cotype material (U.S.N.M. No. 44.100), are deposited in the United States National Museum, Washington, D. C. A paralectotype soldier is in the collection of the American Museum of Natural History.

TABLE 9
MEASUREMENTS (IN MILLIMETERS) OF FIVE SOLDIERS OF
Neocapritermes centralis (SNYDER)

	Lectotype	Range	Mean
Lateral length of head capsule	2.09	2.09–2.30	2.14
Maximum width of head	1.15	1.12–1.21	1.18
Maximum height of head	1.02	1.02–1.05	1.03
Length of left mandible	1.58	1.58–1.68	1.63
Length of right mandible	1.39	1.39–1.48	1.43
Maximum width of postmentum	0.42	0.39–0.41	0.40
Minimum width of postmentum	0.26	0.20–0.30	0.25
Length of postmentum	1.43	1.43–1.58	1.51
Median length of pronotum	0.46	0.41–0.51	0.45
Maximum length of pronotum	0.51	0.46–0.51	0.50
Maximum width of pronotum	0.77	0.71–0.76	0.75
Length of hind tibia	0.87	0.82–0.87	0.85

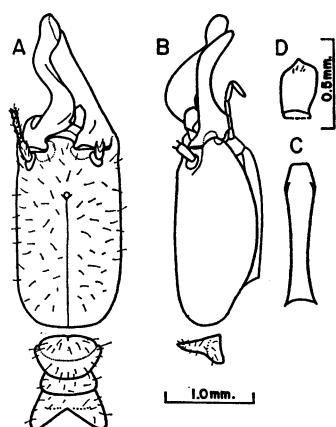


FIG. 13. Soldier of *Neocapritermes guyana*, new species; paratype from type colony. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

***Neocapritermes guyana*, new species**

SOLDIER (FIG. 13): Head light brown, lighter on under side, with anterior margin brown; mandibles shiny black; antennae and mouth parts brownish; legs yellowish; thorax yellowish, with dark patches on nota; abdomen dirty white. Head surface with fine, sparse, erect bristles of two sizes, denser on distal half and halfway toward under surface; postmentum with very few bristles; thorax with a few scattered, rougher, stiff bristles, longer than those on head; fore tibia with inner row of about 15 bristles of two

sizes. Head rectangular, 1.8 times longer than wide, parallel-sided, in some specimens very slightly enlarged toward front, with posterior fifth gently curving into almost semi-circular posterior margin; small bump below base of antenna directed toward antero-lateral corner; postclypeal area distorted, only slightly elevated on left side; upper margin straight in profile, sloping at antennal level; and lower margin slightly convex. Antennae with 15 articles, third through fifth short, subequal, sixth through eleventh increasing in length, twelfth through fourteenth shorter than preceding ones, subequal, fifteenth shorter than fourteenth. Labrum peduncular, with almost straight left side and distorted curving right side, its frontal margin drawn into pimple-like median point. Left mandible viewed from below with small, neat, toothlike projection on proximal inner edge and proximal half broad, almost uniformly wide, narrowing steeply to near knob-like apex. Right mandible with top steeply conforming into a concavity; viewed from below with outer margin only slightly irregular, inner margin broadly concave, tilting steeply to point; in profile with upper margin slightly sinuous, lower margin deeply concave. Postmentum widened toward apical portion, where sides converge to same width as narrowest portion proximally, with hind margin concave, front margin straight. Pronotum narrower than head, its width equal to 0.52 of head width; with anterior lobe

TABLE 10
MEASUREMENTS (IN MILLIMETERS) OF FIVE SOLDIERS OF
Neocapritermes guyana, NEW SPECIES

	Holotype	Range	Mean
Lateral length of head capsule	2.35	2.35–2.50	2.40
Maximum width of head	1.28	1.28–1.39	1.29
Maximum height of head	1.08	1.07–1.10	1.08
Length of left mandible	1.58	1.58–1.68	1.61
Length of right mandible	1.43	1.43–1.48	1.45
Maximum width of postmentum	0.41	0.40–0.41	0.41
Minimum width of postmentum	0.20	0.20–0.23	0.21
Length of postmentum	1.68	1.66–1.67	1.67
Median length of pronotum	0.43	0.41–0.46	0.44
Maximum length of pronotum	0.44	0.41–0.46	0.44
Maximum width of pronotum	0.76	0.76–0.78	0.77
Length of hind tibia	0.97	0.95–0.97	0.97

semicircular, with small but neat median notch, in some cases absent and replaced by a mere indication of a depression; posterior lobe broadly semicircular, with hind margin straight; and lobes in profile forming an extremely wide angle or possibly even straight. Mesonotum quadrangular, with hind margin straight or slightly convex. Metanotum as wide as hind lobe of pronotum, with sides slightly converging and hind margin very strongly and widely notched in middle, depth of notch reaching half of the length of metanotum, giving the impression of two lateral lobes (notch shallower in some specimens). Middle tibia with three or four spinelike bristles.

COMPARISONS: The broad, strongly curved left soldier mandible places this species in a group with *Neocapritermes talpa* and *N. talpoides*. The soldier of *N. talpa* is much larger in all respects, the anterior margin of the labrum is broadly concave, the left mandible is more robust and more strongly bent, the right mandible has a prominent toothlike projection anteriorly, the antennae are 16-jointed, and the posterior margin of the metanotum is not deeply incised. *Neocapritermes talpoides* has a thicker head, which slopes gradually in front, the mandibles are longer, the apical margin of the labrum is slanting and projecting slightly to the right side, and the posterior margin of the metanotum is not so deeply incised.

LOCALITIES AND MATERIAL EXAMINED: GUYANA: *Bartica District*: Makouria Creek (type locality), soldiers (holotype and paratypes), workers, collected by A. E. Emerson, March 31, 1924, field number 24.88.

TYPE MATERIAL: The holotype and paratypes are in the collection of the American Museum of Natural History. A paratype soldier is in the collection of the Departamento de Zoologia, São Paulo, Brazil.

***Neocapritermes longinotus* (Snyder)**

Capritermes (*Neocapritermes*) *longinotus* SNYDER, 1926a, p. 27 (soldier).

Neocapritermes longinotus: SNYDER, 1949, p. 200 (systematics).

SOLDIER (FIG. 14): Head light brownish; margin of postmentum and line from fontanelle to hind margin of head brown; mandibles shiny black; pronotum and legs yellowish

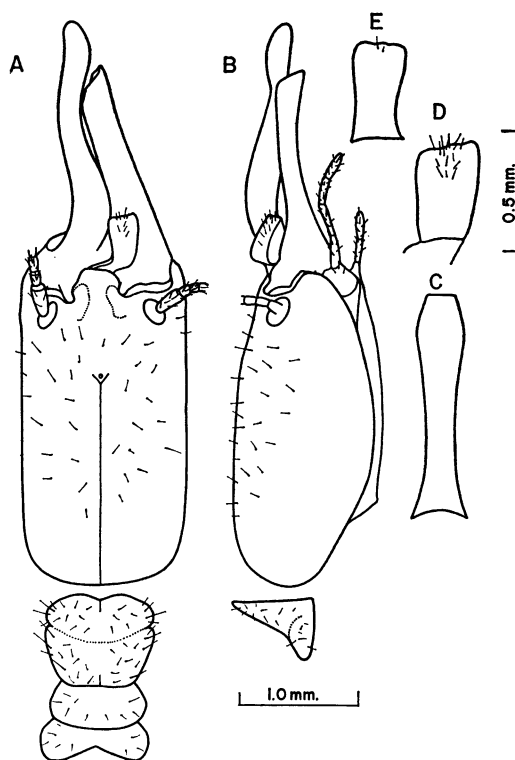


FIG. 14. Paratype soldier of *Neocapritermes longinotus* (Snyder). A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D, E. Labrum from above.

brown. Head with a few sparse, fine, light-colored, erect bristles of two sizes on top and sides, sparser on under surface, absent from postmentum; labrum with a few long bristles, one on middle line, three or four pointing forward at middle of top; pronotum with a few long, erect bristles, sparse on surface; mesonotum and metanotum with a very few long bristles; cervical sclerites naked; inner face of anterior coxae with five or six short, dark, stouter, erect bristles. Head proportionally rather long (1.7 times as long as wide, 1.2 times as long as left mandible), with sides parallel; posterior corners rounded off into very slightly curved posterior margin; elongated bump from under antennal sockets to anterior corners; top weakly elevated in profile just after middle, sloping very gently to frons, sloping rather steeply to hind margin; postclypeal area distorted, its left side with small, rounded elevation; and fontanelle

minute, not in a depression. Antennae with 16 articles, fourth shortest, fifth through ninth increasing in size, tenth and eleventh subequal, twelfth through fifteenth decreasing in length. Labrum elongated, narrow posteriorly, with sides almost straight or faintly concave, diverging anteriorly, and anterior margin slanting or straight, with very slight median bump or pimple-like projection. Mandibles proportionally stout. Left mandible in profile very broad, widely curved proximally, with distal fourth straight; from top gradually tapering to elongated, clublike apex. Right mandible in profile slightly curved; from top rather broad, with shallowly excavated upper surface and rather short, slanting tip, without any conspicuous point. Postmentum with distal half enlarged, its sides curved into a narrower distal area; anterior margin straight; median fifth parallel-sided, the sides gradually at first, then strongly, diverging; and hind margin concave. Pronotum very long, with lobes in very wide angle; anterior lobe about as long as posterior lobe, the latter very slightly wider; anterior margin deeply and widely indented; hind lobe roughly semi-circular; and hind margin straight. Mesonotum quadrangular, shallowly depressed at median front area. Metanotum slightly wider than pronotum, with posterior margin deeply and widely excised.

COMPARISONS: The soldier of *Neocapritermes longinotus* most closely resembles that of

N. centralis (Snyder). However, *N. centralis* is smaller in all measurements; the left mandible is more bent in the middle, and as a result the outer margin is more deeply concave; and the anterior lobe of the pronotum is smaller, with its margin more deeply indented in the middle.

LOCALITIES AND MATERIAL EXAMINED: COLOMBIA: Rio Frio (type locality) two soldiers (lectotypes and paralectotypes), workers, collected by W. M. Mann, February 1924 (U.S.N.M. No. 28661); two soldiers (paralectotypes), collected by W. M. Mann, March, 1924.

TYPE MATERIAL: The lectotype and paralectotypes, selected by the present authors, are deposited in the collection of the United States National Museum, Washington, D. C. A paralectotype soldier is in the collection of the American Museum of Natural History.

Neocapritermes opacus (Hagen)

Termes opacus HAGEN, 1958a, pp. 196-197 (imago only), pl. 3, fig. 27 (imago).

Termes cingulatus HAGEN, 1858a, pp. 187, 189-191, pl. 1, fig. 13 (soldier only: imago = *Anoplotermes*).

Termes opacus: HAGEN, 1858b, p. 27 (imago).

Termes cingulatus: MÜLLER, 1870, p. 206 (biology).

Termes saliens MÜLLER, 1873, p. 357 (soldier).

Termes saliens: BERG, 1880, p. 15, fig. 5 (soldier).

Termes oreensis SÖRENSEN, 1884, pp. 22-23 (soldier), pl. 1, figs. 13-16 (soldier).

TABLE 11
MEASUREMENTS (IN MILLIMETERS) OF FOUR SOLDIERS OF
Neocapritermes longinotus (SNYDER)

	Lectotype	Range	Mean
Lateral length of head capsule	2.55	2.55-2.81	2.65
Maximum width of head	1.28	1.28-1.48	1.40
Maximum height of head	1.12	1.12-1.28	1.22
Length of left mandible	2.09	2.09-2.24	2.19
Length of right mandible	1.68	1.68-1.84	1.79
Maximum width of postmentum	0.41	0.41-0.46	0.45
Minimum width of postmentum	0.20	0.20-0.26	0.24
Length of postmentum	1.73	1.73-1.85	1.76
Median length of pronotum	0.56	0.56-0.69	0.64
Maximum length of pronotum	0.62	0.62-0.77	0.70
Maximum width of pronotum	0.87	0.87-0.97	0.94
Length of hind tibia	—	1.22	1.22

Termes lacus sancti SÖRENSEN, 1884, pp. 23–24 (soldier, worker).

Termes (Capritermes) cingulatus: WASMANN, 1897, p. 151 (synonymy).

Termes (Capritermes) paradoxus WASMANN, 1897, p. 151–152 (soldier, synonymy).

Capritermes opacus: SILVESTRI, 1901, p. 5 (soldier).

Capritermes opacus: SILVESTRI, 1902, p. 11 (bionomics).

Capritermes cingulatus: WASMANN, 1902, p. 261 (synonymy).

Capritermes opacus: WASMANN, 1902, p. 126 (synonymy).

Capritermes opacus: SILVESTRI, 1903, pp. 62, 64 (imago, soldier, worker), p. 105, fig. 14 (wings), pl. 3, figs. 108, 109, 114 (imago), fig. 114 (soldier).

Termes (Eutermes) opacus: DESNEUX, 1904, p. 44 (synonymy).

Capritermes opacus: HOLMGREN, 1906, pp. 557–558 (soldier), fig. Qa (soldier).

Capritermes opacus: HOLMGREN, 1909, pp. 81–82 (anatomy: imago, worker), figs. 17 (imago), 18 (worker).

Capritermes (Neocapritermes) opacus: HOLMGREN, 1912, p. 116 (locality).

Capritermes alienus VON ROSEN, 1912, pp. 229–230 (soldier), fig. 7 (soldier).

Capritermes (Neocapritermes) alienus: HOLMGREN, 1912, p. 116 (locality).

Capritermes alienus: HEGH, 1922, p. 502 (locality).

Capritermes (Neocapritermes) alienus: HEGH, 1922, p. 701 (locality).

Capritermes (Neocapritermes) opacus: EMERSON, 1925, p. 449 (soldier, synonymy).

Neocapritermes alienus: SJÖSTEDT, 1926, p. 287 (soldier, synonymy, locality), fig. 66 (soldier), pl. 11f, g (soldier).

Capritermes (Neocapritermes) parallelus SNYDER, 1926b, pp. 67–69 (imago, soldier).

Capritermes parallelus: SILVESTRI, 1934, fig. 19 (soldier).

Capritermes (Neocapritermes) opacus: JUCCI, 1936, p. 5 (remarks).

Neocapritermes alienus: GHIDINI, 1938, p. 232 (remarks).

Neocapritermes opacus: SNYDER, 1949, p. 201 (systematics).

Neocapritermes opacus: AHMAD, 1950, pp. 68, 69, 83 (imago-worker mandible).

Neocapritermes opacus: SEEVERS, 1957, pp. 275, 310 (termitophile).

Neocapritermes opacus: ARAUJO, 1958a, p. 212 (locality).

Neocapritermes opacus: ARAUJO, 1958b, p. 232 (locality).

Neocapritermes opacus: GONÇALVES AND SILVA, 1962, p. 205 (biology).

Hagen (1858a) described *Termes opacus* based on the imago, having included in his description an account of a "larve" and an "Arbeiter, Nasutus," which, according to his figure (pl. 1, fig. 19), is actually *Constrictotermes cyphergaster* (Silvestri).

Burmeister (1893) described *Termes cingulatus* based on the imago.

Hagen (1858a) redescribed *Termes cingulatus* Burmeister, based on the imago (pl. 3, fig. 24), stating that he had "twice received larvae and soldiers together with the imago." He then added a description of the soldier, which, according to the figure (pl. 1, fig. 13), is actually an individual of *Neocapritermes*.

Fritz Müller (1873) stated that Hagen's description of the soldier under *Termes cingulatus* (1858) was a wrong association, and he established the species *Termes saliens* for this soldier by referring to Hagen's figure.

Wasmann (1897) transferred the soldier described by Hagen (1858) under *Termes cingulatus* Burmeister to the subgenus *Capritermes* of the genus *Termes*. Wasmann also placed *Termes saliens* Müller (1873) in synonymy with the said soldier of *T. cingulatus*, described by Hagen without a proper understanding of the rules of nomenclature. Wasmann also included in the subgenus *Capritermes* the species *Capritermes paradoxus* (Wasmann) (1897), *Termes orensis* Sörensen (1884), and *Termes lacus sancti* Sörensen (1884), all of which were later shown to be synonyms of *Neocapritermes opacus*.

Silvestri (1901, 1903) transferred the imago described by Burmeister as *Termes cingulatus* (1839) to the genus *Anoplotermes*. He also placed the soldier described by Hagen as *cingulatus* in synonymy with *opacus*.

FEMALE IMAGO (FIG. 15): Head capsule brownish, with a reddish tinge and narrow lighter area around fontanelle plate; postclypeus lighter than rest of head; mandibles yellowish, with black tips; mouth parts, legs, and antennae straw-colored; pronotum a little darker than mesonotum and metanotum; wing scales light brown; abdominal segments same color as pronotum (striking variation in color, some specimens being dark brown, with yellowish trochanters and femora and light brown tibiae and tarsi; some males also quite dark, with pure yellow trochanters and femora). Head with a few rela-

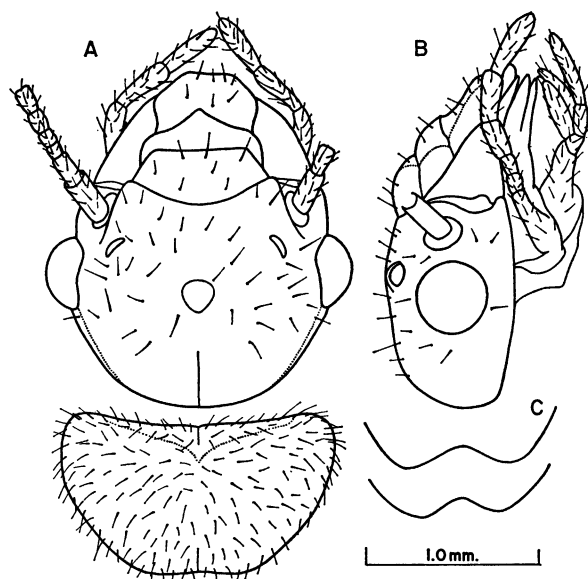


FIG. 15. Imago of *Neocapritermes opacus* (Hagen); plesiotype; Tucurupucú, Paraguay, determined by F. Silvestri. A. Head and pronotum from above. B. Head from side. C. Hind margins of mesonotum and metanotum from above.

tively long, fine, erect bristles, a few shorter ones on postclypeus; pronotum and legs with numerous long and medium-sized, fine, inclined bristles; mesonotum and metanotum much less hairy; wing scales with numerous long, fine bristles; abdominal terga and sterna

rather densely clothed with inclined bristles of different sizes. Head in profile with upper margin sinuous, slanting slightly from fontanelle plate to front margin, disc a little elevated, and fontanelle plate pyriform, flattened, in a shallow, circular depression. Eyes

TABLE 12
MEASUREMENTS (IN MILLIMETERS) OF SIX IMAGOS OF
Neocapritermes opacus (Hagen)

	Lectotype	Plesiotype Paraguay	São Paulo Range
Lateral length of head capsule	1.38	1.43	1.22- 1.33
Width of head with eyes	1.89	1.89	1.79- 1.94
Diameter of eye	0.49	0.49	0.46- 0.49
Eye from lower margin	0.10	0.10	0.10
Longest diameter of ocellus	0.15	0.15	0.14- 0.15
Shortest diameter of ocellus	0.10	0.10	0.10
Ocellus from eye	0.13	0.14	0.13- 0.14
Length of fontanelle plate	0.23	0.20	0.20
Maximum length of pronotum	1.05	1.00	0.92- 1.02
Median length of pronotum	1.00	0.92	0.89- 0.97
Maximum width of pronotum	1.68	1.68	1.53- 1.58
Length of hind tibia	2.14	2.14	2.14- 2.19
Length of forewing from suture	14.90	14.10	14.40-14.80
Width of forewing	4.10	4.10	4.10- 4.30

bulging, almost circular, with upper margin a little angular. Ocelli with upper margin semicircular, lower margin straighter. Antennae with 17 articles, fourth shortest, a little shorter than third, fifth double the size of fourth and a little shorter than sixth, seventh and eighth subequal, ninth and tenth subequal, a little longer than eighth, eleventh through sixteenth slightly diminishing in length, seventeenth oblong, equal to penultimate in length. Pronotum mostly flat, with slight depression near anterolateral corners, anterior margin very slightly concave, lateral margin slightly curved, and posterior margin with very shallow and broad median excision. Mesonotum and metanotum with posterior margins having deep and rounded excisions and posterior angles projecting slightly and not sharply.

COMPARISONS: Differences between the imago of *Neocapritermes opacus* and known imagoes of other species are as follows: In *N. angusticeps* the head, pronotum, and fontanelle plate are smaller, the pronotum is densely covered with long hairs, the eyes and ocelli are larger, with the ocelli closer to the eyes, and the forewings are shorter. *Neocapritermes bodkini* has larger eyes and ocelli, the ocelli are closer to the eyes, the forewings are shorter and narrower, and the tibial spurs are 2:2:2 in number. *Neocapritermes taracua* has a narrower head and larger ocelli, which are closer to the eyes, and its pronotum is narrower. The imago of *N. braziliensis* is much smaller.

SOLDIER (FIG. 16): Head straw-colored; with anterior margin of head, mouth parts, antennae, postmentum sutures, and epicranial line brownish; mandibles, except brown bases, shiny black; pronotum and legs yellowish; abdomen creamy. Head dorsally with many sparse, fine, erect bristles, absent from under side; postmentum with two stiff marginal bristles at each anterolateral corner; labrum with a few erect bristles on disc and group of about four longer and finer ones at tip of median lobule; pronotum with anterior surface covered with very short, sparse bristles, rim of anterior lobe with a row of minute hairs, and hind surface with many sparse, long, stiff bristles, very thin on hind lobe; legs barely hairy, with an irregular row of different-sized hairs on longitudinal ridge

and a few others on surface of fore coxae; cervical sclerites bare. Head elongate, quadrangular (1.70 to 1.78 times longer than wide, 1.20 to 1.30 times longer than left mandible) and parallel-sided with very slight constriction at level of antennae; top straight in profile, with slight depression at fontanelle level and another, a little larger, immediately behind frons; under side slightly sinuous, in a slight depression. Antennae with 16 articles, third and fourth subequal and shortest, fifth through eleventh increasing gradually in length, twelfth through fifteenth decreasing more abruptly in length, sixteenth oblong, longer than preceding one. Labrum well developed, with left side almost straight, right side broadly curving, front margin with three small, neat lobules. Mandibles slightly shorter than head. Left mandible with broad curve at basal third, followed by straight section and then sinuated to enlarged apex. Right mandible in profile almost straight, with only apical fourth bent down, upper surface depressed into shallow excavation along inner margin, apex ending in short, rather sharp point. Postmentum long (equal to 0.6 of head length), relatively little expanded at extremities (contraction index 0.5), with sides very gently and broadly concave, anterior margin straight, and posterior margin broadly concave. Pronotum equal to 0.64 of head width, with lobes forming an angle slightly greater than a right angle, anterior lobe semicircular, with a neat median excision, posterior lobe with sides very slightly curving, and hind margin shallowly excised in middle. Mesonotum narrow, transverse, with broad depression on disc. Metanotum with anterior margin in strong declivity fit to accommodate border of mesonotum, and hind margin very broadly and deeply excised, resulting in the impression that the metanotum is composed of two arched lateral lobes connected by a narrow, waistlike constriction. Middle tibia with one or two spines, somewhat thicker than normal bristle.

VARIATION WITHIN SPECIES: The soldier of this species exhibits a wide range of variation, especially in the measurements and in the shape of the postmentum and anterior margin of the labrum, even among colonies from the same locality. Specimens from

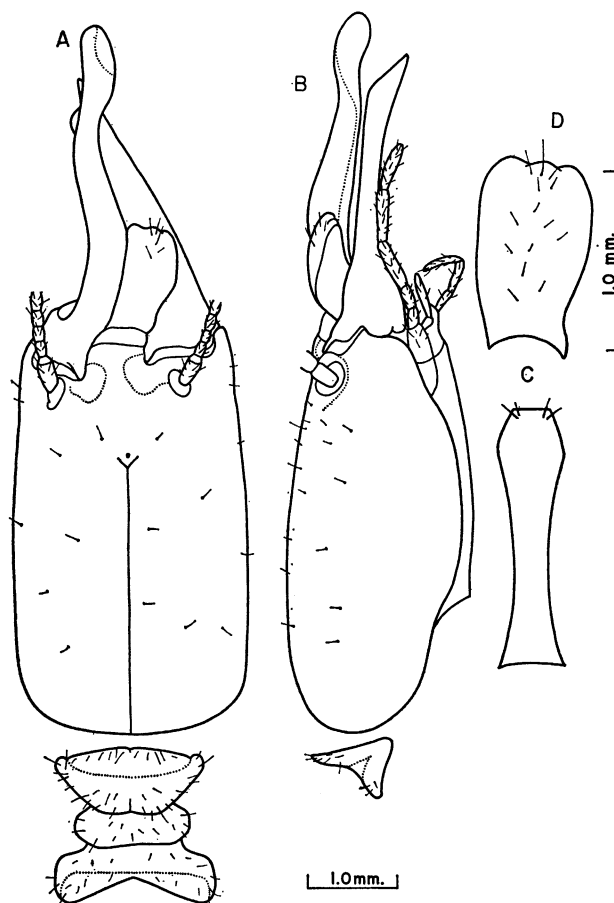


FIG. 16. Soldier of *Neocapritermes opacus* (Hagen); plesiotype; Tukurupucú, Paraguay, determined by F. Silvestri. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

Recife and Santa Catarina, Brazil, Paraguay, and Bolivia are generally smaller. Intermediates are found connecting colonies from different localities, and it is impossible to correlate these variations with geographical distribution. (There is no great variation in the few imagoes that were available for examination.) Therefore, the evidence at our disposal at present does not warrant the division of this complex into species or subspecies, as definite limits cannot be established for these different series.

COMPARISONS: The soldier of *Neocapritermes opacus* most closely resembles soldiers of *N. longinotus* and *N. centralis* in the degree

of asymmetry of its mandibles. However, *N. opacus* is generally larger, even though there is much variation in soldier size. Further, in *N. opacus* the anterior margin of the labrum is distinctly three-lobed (weakly three-lobed in *longinotus* and *centralis*), and the pronotum is twice as wide as long. In *N. braziliensis* and *N. taracua* the left mandible is more bent in the middle, with its tip distinctly hooked, and the anterior margin of the labrum is with or without a pimple-like median lobule.

LOCALITIES AND MATERIAL EXAMINED: BRAZIL: *Minas Gerais*: Congonhas (type locality), one imago (lectotype), collected by H. Burmeister. Belo Horizonte, soldiers,

TABLE 13
MEASUREMENTS (IN MILLIMETERS) OF SOLDIERS OF *Neocapritermes opacus* (HAGEN)

	Head			Mandible		Length	Postmentum		Pronotum		Hind Tibia Length	
	Lateral Length	Maximum Width	Maximum Height	Left Length	Right Length		Minimum Width	Maximum Width	Median Length	Maximum Length		
Brazil												
Pernambuco												
Recife (2) ^a	3.00-3.10	1.90-1.98	1.50-1.53	2.60-2.63	2.30	2.00-2.15	0.40	0.50	0.60-0.63	0.63-0.65	1.20-1.30	1.70
Minas Gerais												
All localities (3)	3.40-4.70	2.00-2.70	1.50-2.10	2.80-3.90	2.30-3.40	2.20-2.90	0.30-0.40	0.50-0.70	0.60-0.78	0.60-0.80	1.13-1.60	1.50-2.20
Belo Horizonte (4)	2.80-3.00	1.68-1.80	1.30-1.33	2.30-2.40	2.10	1.80-2.00	0.30-0.40	0.45	0.55-0.60	0.55-0.60	1.00-1.10	1.50
São Paulo	3.70-5.00	2.10-3.00	1.60-2.20	2.75-3.80	2.30-3.30	2.05-3.10	0.38-0.45	0.55-0.65	0.70-0.80	0.70-0.80	1.40-1.80	1.58-2.30
Paraná	4.50-4.80	2.60-2.80	2.10-2.15	3.60-3.80	3.20-3.30	2.80-3.05	0.38-0.40	0.70	0.70-0.73	0.70-0.75	1.65-1.70	1.95-2.20
Santa Catarina (2)	3.00-3.80	1.80-2.20	1.40-1.80	2.60-3.10	2.07	2.00-2.60	0.38	0.50-0.55	0.58-0.65	0.60-0.70	1.10-1.30	1.40-1.90
Argentina (2)	4.60-4.70	2.70	2.10	3.70	3.30	2.90-3.00	0.40	0.70	0.70	0.70	1.68-1.70	2.10-2.20
Bolivia (3)	3.10-3.20	1.80-1.90	1.48-1.50	2.50-2.60	2.05-2.10	2.20	0.35	0.50	0.60	0.63	1.20	1.50
Ecuador (1)	4.10	2.60	1.88	3.20	2.80	2.50	0.40	0.70	0.63	0.63	1.30	2.20
Paraguay (2)	3.10-4.60	1.80-2.80	1.38-2.20	2.40-3.80	2.10-3.30	2.10-3.00	0.35-0.40	0.50-0.70	0.55-0.78	0.55-0.80	1.10-1.70	1.40
General range (21)	2.80-5.00	1.68-3.00	1.30-2.20	2.30-3.90	2.05-3.40	1.80-3.10	0.30-0.45	0.45-0.70	0.55-0.80	0.55-0.80	1.00-1.80	1.40-2.30

^a Numbers in parentheses are the number of specimens measured.

workers, collected by R. L. Araujo, July 25, 1947, No. 3033¹; soldiers, workers, collected by R. L. Araujo, December 31, 1951, No. 3424. Caraça, soldiers, collected by R. L. Araujo, November 23, 1960, No. 0311; one soldier, workers, collected by R. L. Araujo, November 23, 1960, No. 0312. Diamantina, one soldier, workers, collected by J. C. Bradley, November 16, 1920. São Sebastião do Paraíso, soldiers, collected by R. L. Araujo, "under log," January 22, 1945, No. 2822. Serra do Cipó (Alto do Palácio), altitude ca. 1100 meters, queen, several soldiers, workers, collected by R. L. Araujo, January 2, 1954, No. 4037; queen, soldiers, workers, collected by R. L. Araujo, January 2, 1954, No. 4038; soldiers workers, nymphs, collected by R. L. Araujo, January 2, 1954, No. 4039; soldiers, collected by R. L. Araujo, January 2, 1954, No. 4041. *Gioás*: Anápolis, soldiers, workers, collected by Father W. Kempf, February 12, 1958, No. 0310. *Paraná*: Castrolândia, soldiers, collected by C. R. Gonçalves, October 11, 1954, No. 4668. Rio Negro, one soldier, collected by A. Reichensperger, October 29, 1923, Reichensperger field number 27. *Pernambuco*: Recife, soldiers workers, nymphs, collected by R. L. Wenzel, July 8, 1944, Wenzel field number 11. *Rio de Janeiro*: Kilometer 28 on Terezópolis-Friburgo Road, soldiers, collected by L. Portella, November 28, 1946, from "nest in chambers under log," No. 4667. *Santa Catarina*: Blumenau, one soldier, collected and determined as "*Termes saliens*" by Fritz Müller, Fritz Müller field number 5412. Humboldt District, soldiers, workers, No. 2758. *São Paulo*: Agudos, one soldier, workers, collected by Father W. Kempf, May 23, 1952, "under a board, soil nest," No. 0308; soldiers, workers, collected by Father W. Kempf, October 12, 1962, from "rotting log," No. 0309. Araçatuba, soldiers, workers, collected by K. P. Schmidt, July 20, 1926. Bauru, one soldier, collected by K. P. Schmidt, July 17, 1926. Boraceia (Estação Biológica), one soldier, collected by K. Lenko, April 18, 1962, No. 0135. Iepê, soldiers, workers, collected by R. L. Araujo, September 4, 1946, No. 2984. Mogi das Cruzes, soldiers, col-

lected by R. L. Araujo, April 19, 1953, No. 3828. Piracaia, soldiers, workers, collected by D. Braz, No. 2516. Santa Branca, soldiers, collected by P. Kaiser, March 14, 1953. Santo Amaro, imagoes, soldiers, workers, collected by R. L. Araujo, October 8, 1950, No. 3243. São Manoel, imago, soldier, workers, collected by J. Prado, January 11, 1945, "under coffee seedlings." São Paulo, imagoes, workers, collected by R. L. Araujo, August 30, 1944, No. 2376; imagoes, workers, collected by R. L. Araujo, August 30, 1944, No. 2377; soldiers, collected by R. L. Araujo, August 8, 1944, No. 2445 (on nest of termite No. 2376); one soldier collected by R. L. Araujo, March 14, 1945, No. 2845 (on nest of *Armitermes*); soldiers, workers, collected by R. L. Araujo, October 8, 1947, No. 3070; soldiers, imagoes, collected by R. L. Araujo, September 19, 1948, No. 3126; soldiers, workers, collected by J. Prado, May 16, 1950, No. 3216; soldiers, collected by R. L. Araujo (suburb of Água Funda), March 6, 1956, No. 0028; soldiers, workers, collected by M. C. Leite (suburb of Indianópolis), April 7, 1953, No. 3853.

PARAGUAY: *Alto Paraná*: Tucurupucú, one imago, plesiotype and homotype, compared with type in the Museum of Comparative Zoology, Harvard University, by A. E. Emerson, one soldier, one worker, collected and determined by F. Silvestri, July 2, 1900. *Presidente Hayes*: Monte Sociedad, one soldier, workers, nymphs, collected by Ternetz, 1895, "with *Syntermes* sp." *San Pedro*: Itacurubi, one imago.

ARGENTINA: *Misiones*: Puerto Bemberg, one soldier, workers, collected by Hayward, Willink, and Golbach, January 12-19, 1945; one soldier, collected by Hayward, Willink, and Golbach, January 30 to March 13, 1945. *Chaco*: Colonia Benitez, one soldier, collected by H. Golbach, December 12, 1958.

BOLIVIA: *La Paz*: Charupampa, one soldier, worker, nymph, collected by N. Holmgren. *Pando*: Rosario, soldiers, workers, collected by W. M. Mann, October, 1921, "cotype from type colony of *Capritermes* (*Neocapritermes*) *parallelus* Snyder"; soldiers, workers, collected by W. M. Mann, November, 1921, determined by T. E. Snyder as *Capritermes* (*Neocapritermes*) *parallelus* Snyder.

¹ Numbers, unless otherwise stated, refer to the accessions catalog of the Departamento de Zoologia, São Paulo, Brazil.

ECUADOR: Gualaquiza, one soldier, workers, collected by W. von Hagen, March 3, 1934, Hagen field number 36 (900 meters in altitude).

ADDITIONAL RECORDS: The following locality records from the literature probably belong to this species, although the present authors have not examined the specimens. *Argentina*: Posadas, Santa Ana, and San Pedro in Misiones; Riacho de Oro in Formosa. *Bolivia*: Cavinás and Ivón in Beni; Mojos in La Paz; and Yanalomas (not located). *Brazil*: Lagoa Santa in Minas Gerais; Cassapava (Caçapava) in Rio Grande do Sul; Coxipó in Mato Grosso; Iguassu and Bela Vista in Paraná; Utahá in Santa Catarina; and São Leopoldo in Rio Grande do Sul. *Paraguay*: Villarrica in Guairá; Villa Encarnación (Encarnación) in Itapúa.

TYPE MATERIAL: Hagen (1858a) did not select a type specimen. Therefore, the present authors have selected the imago from Congonhas, Brazil, in the Museum of Comparative Zoology, Cambridge, Massachusetts, labeled "*T. opacus*. Congonhas, Braz Burm. Hag. Lin. XII. 196. Pl. 3, f. 29* TYPE 209" as the lectotype. There is also an imago in the Zoologisches Museum, East Berlin, labeled "TYPE, *opacus* Hagen. Cassapava, Sello. no. 2777," which should be designated as the paralectotype.

***Neocapritermes parvus* (Silvestri)**

Capritermes opacus subsp. *parvus* SILVESTRI, 1901, p. 5 (soldier, worker).

Capritermes opacus parvus: SILVESTRI, 1902, p. 11 (biology).

Capritermes opacus subsp. *parvus*: SILVESTRI, 1903, pp. 64–65, 105 (soldier, worker, nymph), pl. 3, fig. 113 (soldier).

Termes (Eutermes) opacus subsp. *parvus*: DESNEUX, 1904, p. 44 (synonymy).

Capritermes (Neocapritermes) parvus: HOLMGREN, 1912, p. 116 (locality).

Neocapritermes parvus: SNYDER, 1949, p. 201 (systematics).

SOLDIER (FIG. 17): Head yellowish, anterior margins of head and base of mandibles brown; lateral margins of postmentum and antennal segments light brown; mandibles shiny black; labrum light yellow; remainder of body dirty white. Head with very few longish, fine, very light-colored, erect bristles on upper surface; postmentum apex with one

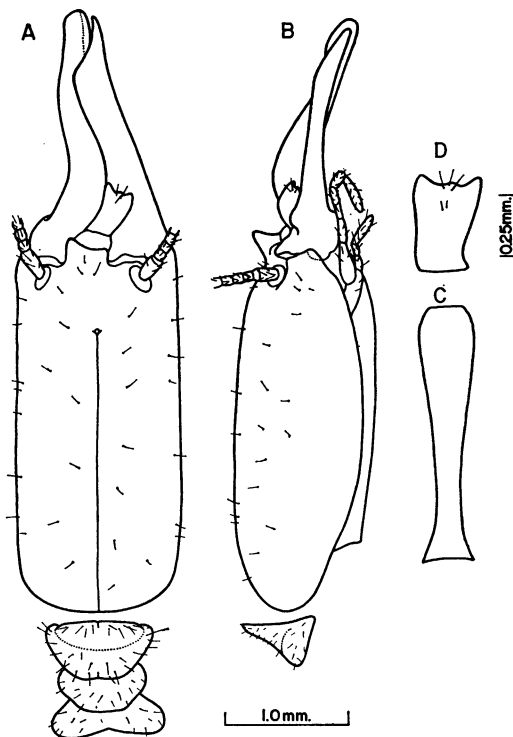


FIG. 17. Soldier of *Neocapritermes parvus* (Silvestri); paralectotype from lectotype colony. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

bristle on each side near rim; tip of labrum with two long bristles pointing forward and two shorter ones near middle; thoracic nota with a few long, fine, erect bristles, more numerous on pronotum; legs sparsely hairy, with a few fine bristles of two sizes; longitudinal ridge of fore coxae with irregular row of a few short, stronger, darker bristles; cervical sclerites naked; abdominal segments with a few transverse, irregular rows of bristles of two sizes, the longer more abundant on distal segments. Head proportionally long (on the average 2.1 times longer than wide and 1.4 times longer than left mandible), with sides parallel; posterior corners rounded off into broadly semicircular hind margin; very slight bump below base of antenna at anterolateral corner; top straight in profile, sloping briefly at frons and over longer distance to hind margin, with under side broadly concave; postclypeal area distorted, with

left side drawn into small but conspicuous, spinelike, erect projection; and fontanelle small, circular, and barely perceptible. Antennae with 16 articles, fourth shortest, fourth through seventh increasing in size, eighth through eleventh slightly longer than twelfth, twelfth through fifteenth decreasing slightly, sixteenth oblong, a little longer than preceding. Labrum elongated, slightly distorted, with sides diverging, left side broadly and shallowly concave, right side slightly convex, apex with two neat lateral lobules and suggestion of a broad median lobule. Mandibles slender, proportionally shorter than head. Left mandible viewed from below with broad proximal curve, tapering gradually to parallel-sided apical third, from side apex enlarged upward. Right mandible viewed from top straight, with inner margin very broad and shallowly concave, upper surface broadly depressed on proximal half, and tip slightly broadened and tapering into sharp point, from side very slightly arched. Postmentum long, with distal half slightly and evenly enlarged, its sides curving and apical margin convex; sides of proximal half almost straight, diverging near base; and posterior margin almost straight. Pronotum relatively wide, its lobes not forming angles, anterior margin semicircular, and posterior margin shallowly excised, with sides straight to lateral rounded corners. Mesonotum with posterior margin straight in middle and converging to rounded sides. Metanotum as wide

as pronotum, with hind margin broadly but shallowly excised and sides semicircular and projecting. Middle tibia with one small spine on outer edge of apical third.

COMPARISONS: The soldier of *Neocapritermes parvus* closely resembles soldiers of *N. araguaia*, new species, and *N. angusticeps* (Emerson). In *N. araguaia* the measurements are smaller in all respects, the labrum has a more prominent median lobe, the spinelike projection is more prominent, and the mandibles are only slightly shorter than the head capsule. In *N. angusticeps* the measurements are larger in all respects, the mandibles are almost equal in size to the head capsule, and the outer margin of the left mandible is not so strongly bent in the middle.

LOCALITIES AND MATERIAL EXAMINED: BRAZIL: *Mato Grosso*: Coxipó (suburb of Cuiabá) (type locality) soldiers (lectotype, paralectotypes), collected by F. Silvestri, September 4, 1900; two vials containing two soldiers (paralectotypes), from lectotype colony, workers.

ADDITIONAL RECORD: The following locality record from the literature probably belongs to this species, although the present authors have not examined the specimens: Villa Rica in Paraguay.

TYPE MATERIAL: The lectotype and paralectotypes, selected by Kumar Krishna, are deposited in the collection of the Laboratorio di Entomologia Agraria "Filippo Silvestri," Portici, Naples, Italy. Paralectotypes are in

TABLE 14
MEASUREMENTS (IN MILLIMETERS) OF FOUR SOLDIERS OF
Neocapritermes parvus (SILVESTRI)

	Lectotype	Range	Mean
Lateral length of head capsule	3.05	3.01-3.11	3.04
Maximum width of head	1.40	1.40-1.48	1.43
Maximum height of head	1.12	1.20-1.22	1.17
Length of left mandible	2.10	2.09-2.24	2.13
Length of right mandible	2.03	1.99-2.09	2.02
Maximum width of postmentum	0.42	0.42-0.47	0.45
Minimum width of postmentum	0.25	0.25-0.31	0.27
Length of postmentum	2.73	2.04-2.73	2.25
Median length of pronotum	0.56	0.52-0.56	0.54
Maximum length of pronotum	0.56	0.52-0.56	0.54
Maximum width of pronotum	0.95	0.92-0.97	0.94
Length of hind tibia	1.05	1.05-1.10	1.07

the collections of the American Museum of Natural History and of the Departamento de Zoologia, São Paulo, Brazil.

***Neocapritermes talpa* (Holmgren)**

Capritermes talpa HOLMGREN, 1906, pp. 560–562 (soldier, worker), fig. R (soldier), fig. S (worker).

Capritermes (Neocapritermes) talpa: HOLMGREN, 1912, p. 116 (locality).

Capritermes (Neocapritermes) talpa: EMERSON, 1925, p. 449 (soldier).

Neocapritermes hopkinsi SNYDER, 1924, pl. 3, fig. 6 (soldier).

Capritermes (Neocapritermes) hopkinsi: SNYDER, 1926b, p. 66 (soldier), figs. 3A, 3B (soldier).

Neocapritermes talpa: SNYDER, 1949, pp. 201–202 (systematics).

SOLDIER (FIG. 18): Head yellowish; anterior margin of head, antennae, and margin of postmentum brownish; labrum light yellow; thoracic nota and legs yellowish; abdomen dirty white; mandibles shiny black. Head with sparse, rather long, almost colorless, erect bristles on top and sides, very rare on under side; postmentum with very few bristles on distal half; thoracic nota with sparse, erect bristles; legs barely hairy, except distal two-thirds of tibiae with a few long, slender bristles, middle tibiae with many short, stout bristles, and fore coxae with row of bristles on longitudinal ridge and a few on inner surface; abdomen with many bristles of two sizes. Head elongate, twice as long as wide, 1.6 times longer than left mandible,

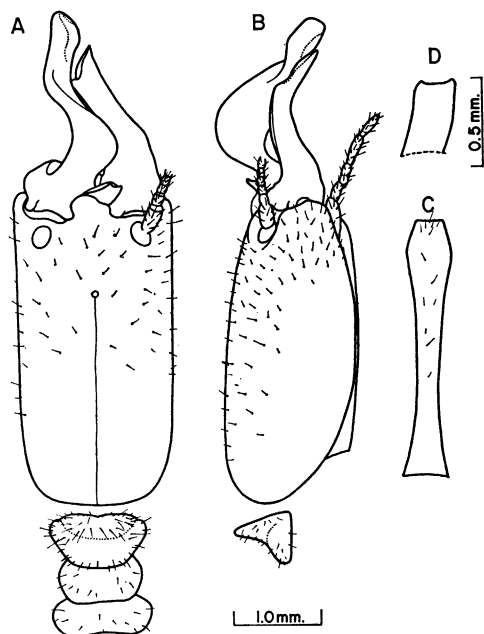


FIG. 18. Cotype soldier of *Neocapritermes talpa* (Holmgren). A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

parallel-sided, with anterolateral corners below antennal sockets slightly swollen; hind fourth gently rounded off into straight hind margin; top straight in profile, its distal third sloping gently to frons, hind margin rounded, under side broadly concave; postclypeal area very little distorted, with anterior margin

TABLE 15
MEASUREMENTS (IN MILLIMETERS) OF SEVEN SOLDIERS OF
Neocapritermes talpa (HOLMGREN)

	Cotype	Range	Mean
Lateral length of head capsule	3.72	3.06–3.72	3.29
Maximum width of head	1.89	1.63–1.89	1.76
Maximum height of head	1.61	1.43–1.66	1.54
Length of left mandible	2.35	2.04–2.35	2.21
Length of right mandible	2.04	1.79–2.04	1.92
Maximum width of postmentum	0.61	0.51–0.61	0.56
Minimum width of postmentum	0.27	0.24–0.31	0.28
Length of postmentum	3.06	2.30–3.06	2.51
Median length of pronotum	0.59	0.51–0.61	0.56
Maximum length of pronotum	0.66	0.56–0.66	0.62
Maximum width of pronotum	1.17	1.02–1.17	1.09
Length of hind tibia	1.48	1.25–1.48	1.33

concave, left side very slightly elevated; and fontanelle minute, in a very small depression. Antennae with 16 articles, fourth article shortest, very slightly shorter than third, fifth through tenth increasing in length, eleventh and twelfth equal to tenth, thirteenth through fifteenth identical, sixteenth oblong, very slightly longer than fifteenth. Labrum relatively small, very little distorted, with left side slightly concave, right side straight or slightly convex, and anterior margin very faintly concave, with small lateral lobules. Mandibles very stout, left very slightly longer than right. Left mandible in profile bent into right angle at proximal third, tapering to clubbed apex; viewed from top, broader at bend than postclypeus, very gradually tapering to apex. Right mandible in profile rather strongly curved, viewed from top, shallowly grooved along dorsum, with inner margin having toothlike projection, the apex ending in rather long, sharp point. Postmentum nearly parallel-sided over most of its extension, with distal sixth broadened, its sides straight, converging to straight anterior margin; sides of base diverging proximally; and hind margin almost straight. Pronotum of a width equal to 0.6 of head width, with anterior lobe forming a 45-degree angle with posterior lobe; anterior lobe one-third shorter than posterior lobe; anterior margin very broadly curved, with a shallow median incision; anterior corners of posterior lobe rounded, sides almost straight, converging to straight hind margin. Mesonotum transverse, 0.6 times longer than wide, with hind margin straight, sides rounded. Metanotum slightly wider than pronotum, with median distal depression transverse, sides and proximal half arched, and hind margin broadly, shallowly, and evenly excised. Middle tibia with many (five or six) short, spinelike bristles.

COMPARISONS: The very broad and strongly twisted left mandible of the soldier places *Neocapritermes talpa* in a group with *N. talpoides* and *N. guyana*. In *N. talpoides* the measurements are smaller in all respects, the left mandible is not so strongly bent in the middle, the postmentum is more salient in profile, the anterior margin of the labrum tapers asymmetrically, the front coxae have a very few small, stiff bristles, the anterior

lobe of the pronotum is as long as the posterior lobe, in the front margin the median incision is narrower and deeper, and the sides of the posterior lobe are evenly and gently rounded. *Neocapritermes guyana* is much smaller in all measurements, the labrum has one apical lobule and convex sides, the length of the anterior lobe of the pronotum is about equal to that of the posterior lobe, the anterior margin of the pronotum has a deeper median incision, and the metanotum is very broad and deeply incised.

LOCALITIES AND MATERIAL EXAMINED:

PERU: *Carabaya*: Chaquimayo (type locality), one soldier (cotype), workers, collected by N. Holmgren; one soldier, workers.

COLOMBIA: *Meta*: El Mico (probably Los Micos), soldiers, workers, collected by J. R. Hendrickson, November 28, 1950, "under cowpie." Finca of Captain Series, bank of the Rio Guaviare, 1000 meters, collected by S. Weinstein, December, 1957.

BOLIVIA: Ivon, one soldier (cotype, from type colony of *Capritermes* (*Neocapritermes*) *hopkinsi* (Snyder), collected by W. M. Mann, February, 1922.

TYPE MATERIAL: A cotype soldier is in the collection of the American Museum of Natural History.

Neocapritermes talpoides, new species

SOLDIER (FIG. 19): Head light brown, lighter on sides and under side; front edges of head and postmentum darker; mandibles shiny black; mouth parts and antennal segments light brown; legs very light straw color; anterior lobe of pronotum light yellow; posterior lobe of pronotum, mesonotum, metanotum, and abdominal segments dirty white. Head with sparse, fine, erect bristles of two sizes, very few on sides and none on under side, a group of five long ones near anterolateral corners; labrum with no bristles visible; postmentum with one long, somewhat stout bristle on each anterolateral corner; thorax with a few scattered, erect bristles of two sizes, longer and more numerous on pronotum; legs sparsely hairy, bristles more numerous on front tibiae, less so on middle and hind tibiae; posterior abdominal segments with numerous irregularly placed, denser bristles. Head rectangular, 1.7 times

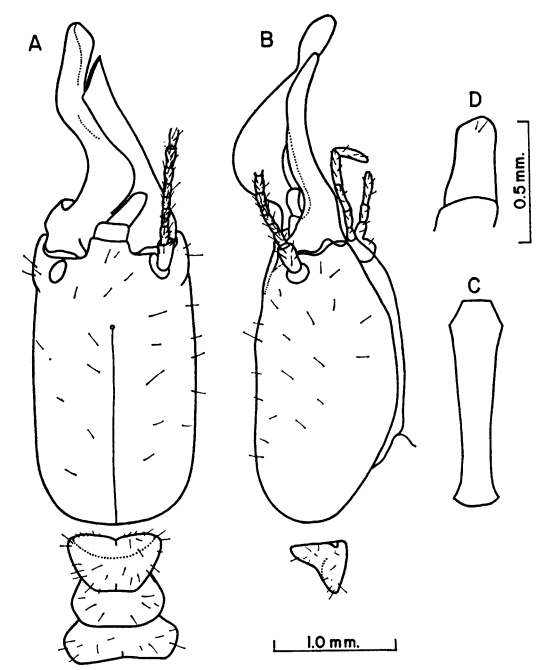


FIG. 19. Soldier of *Neocapritermes talpoides*, new species; paratype from type colony. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

longer than wide, parallel-sided, with slight bump near base of mandibles, narrowing gently at posterior corners into straight posterior margin, with upper margin straight in profile, with slight depression around fonta-

nelle and shallow concavity at base of frons; fontanelle minute, surrounded by heavier, darker integument; left side of distorted postclypeal area very slightly elevated; under side in profile broadly convex. Antennae with 15 or 16 articles, third shortest, fourth shorter than fifth, fifth and sixth subequal, seventh slightly longer than sixth, eighth through twelfth subequal and longest. Labrum with left margin broadly concave, right margin virtually straight, and apical margin slanting, slightly projecting on right side, without a lobe. Left mandible seen from below broad and strongly bent at basal third, then narrowing to knoblike apex. Right mandible in profile broadly convex, with apical inner margin grooved. Postmentum only slightly narrowed at basal fourth, whence sides diverge toward base. Pronotum of a width equal to 0.57 of head width, with anterior lobe wide-angled with posterior lobe, roughly semicircular, and median posterior edge straight. Mesonotum as long and virtually as wide as anterior lobe of pronotum, with front margin concave, hind margin broadly semicircular, sides converging forward. Metanotum about one-fourth shorter but wider than mesonotum, with sides diverging and then strongly convergent forward, hind margin broadly and shallowly concave. Middle tibia with one spine on distal third, somewhat thicker than normal bristle.

COMPARISONS: The broad, strongly curved soldier mandibles place this species with

TABLE 16
MEASUREMENTS (IN MILLIMETERS) OF FIVE SOLDIERS OF
Neocapritermes talpoides, NEW SPECIES

	Holotype	Range	Mean
Lateral length of head capsule	2.40	2.35-2.50	2.42
Maximum width of head	1.43	1.38-1.43	1.41
Maximum height of head	1.28	1.28	1.28
Length of left mandible	1.79	1.79-1.89	1.83
Length of right mandible	1.61	1.63-1.68	1.66
Maximum width of postmentum	0.41	0.41-0.46	0.42
Minimum width of postmentum	0.26	0.26-0.27	0.26
Length of postmentum	1.63	1.63-1.68	1.66
Median length of pronotum	0.46	0.41-0.46	0.44
Maximum length of pronotum	0.51	0.46-0.51	0.49
Maximum width of pronotum	0.82	0.78-0.82	0.80
Length of hind tibia	1.02	0.97-1.07	1.02

Neocapritermes talpa (Holmgren) and *N. guyana*, new species. *Neocapritermes talpa* is larger in all measurements, the left mandible is more bent, the right mandible is deeply curved, and the anterior margin is concave, with two small lateral lobules. *Neocapritermes guyana* has a narrower and less swollen head than *N. talpoides*; the anterior margin of the labrum is pointed, with a median lobule; the antenna is 15-jointed; the mandibles are shorter, the left being more deeply curved; the frons is steep; and the posterior margin of the metanotum is deeply incised.

LOCALITIES AND MATERIAL EXAMINED: ECUADOR: "East of Rio Zamora" (type locality), soldiers (holotype and paratypes), collected by W. von Hagen, December 14, 1934, field number 66.

TYPE MATERIAL: The holotypes and paratypes are in the collection of the American Museum of Natural History; some paratypes are also in the collection of the Departamento de Zoologia, São Paulo, Brazil.

***Neocapritermes taracua*, new species**

QUEEN (FIG. 20): Head capsule, mandibles, thoracic nota, margins of coxae, and abdominal segments reddish brown; antennae and mouth parts lighter; clypeus yellow; labrum

yellowish. Head bare, except for a few (four or five) long, fine, erect bristles near eyes and ocelli; antennae moderately pilose, shorter bristles more numerous than long ones; pronotum with numerous bristles of two sizes, longer ones especially along margins; mesonotum with minute, delicate hairs on hind portion, slightly longer hairs along margins; wing scales with numerous long bristles especially concentrated along outer margin; longitudinal ridge of fore coxae with row of rather long, fine, erect hairs; abdominal membrane on dorsum studded with spiculae; sterna with sparse, small hairs on disc and a row at hind margin. Head in profile slightly depressed medially around fontanelle plate, slightly elevated above and in front of ocelli, with fontanelle plate rather large, round, smaller than ocellus. Ocelli oblong, removed from eyes by slightly less than one-half of their length. Second through fourth antennal articles decreasing in length; fifth through twelfth slightly and gradually increasing in size; rest broken. Pronotum mostly flat, depressed near anterolateral angles and slightly sloping behind, with front margin narrowly upturned, hind margin with broad, shallow emargination. Mesonotum hind margin with deep, right-angled incision. Metanotum hind margin about half as deep as mesonotum hind margin.

COMPARISONS: Differences between known imagoes of other species and the imago of *Neocapritermes taracua* are as follows: In *N.*

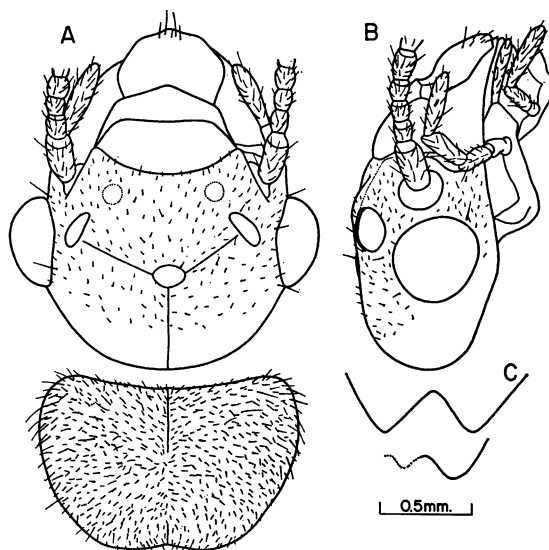


FIG. 20. Morphotype queen of *Neocapritermes taracua*, new species. A. Head and pronotum from above. B. Head from side. C. Hind margins of mesonotum and metanotum from above.

TABLE 17
MEASUREMENTS (IN MILLIMETERS) OF
QUEEN OF *Neocapritermes taracua*,
NEW SPECIES

Lateral length of head capsule	1.22
Width of head with eyes	1.73
Maximum diameter of eye	0.51
Eye from lower margin	0.10
Long diameter of ocellus	0.23
Short diameter of ocellus	0.18
Ocellus from eye	0.08
Long diameter of fontanelle plate	0.17
Maximum length of pronotum	0.97
Median length of pronotum	0.89
Maximum width of pronotum	1.48
Length of forewing scale	1.02
Width of forewing scale	0.87

angusticeps the pronotum is densely covered with long hairs; the head is narrower, with larger eyes; the ocelli are closer to the eyes; the fontanelle plate is smaller and not convex in profile; and the third antennal segment is shorter. *Neocapritermes bodkini* is larger, and *N. braziliensis* smaller, in all measurements. *Neocapritermes opacus* has a wider head and pronotum, and the ocelli are smaller and farther from the eyes.

SOLDIER (FIG. 21): Head very light yellowish brown; anterior margin of head, antennal segments, base of mandibles, and postmentum darker; labrum yellowish; mandibles shiny black; pronotum and legs light straw-colored; mesonotum, metanotum, and abdomen dirty whitish. Head with rather numerous short, fine, erect bristles of uniform size, interspersed with a few longer ones, especially on distal region; labrum with median row of rather long bristles; postmentum with same type of bristles, two longer ones in front; thoracic nota with very few bristles of two sizes, more numerous at outer angles; legs moderately hairy; cervical sclerites without hairs; anterior coxae with regular row of bristles of two sizes along front carina; abdomen barely pilose. Head rectangular, elongated, 1.7 times longer than wide, with sides straight, slightly converging in front, with a barely perceptible bump near anterolateral corners; posterolateral corners rounded into straight posterior margin; in profile upper margin straight, with distal third weakly sloping to front, and posterior margin rounded; under side of head capsule broadly curved, straight at level of postmentum; postclypeal area slightly distorted, with left side a little higher; fontanelle minute, in a very slight depression. Antennae same length as mandible, with 16 articles, third shortest, fourth through tenth increasing in length, eleventh through fifteenth decreasing, sixteenth oblong, same length as preceding article. Labrum long, constricted medially, its left margin more deeply concave and anterolateral corners rounded, with a pimple-like median projection. Mandibles long, slender, a trifle shorter than head. Left mandible basally broad, moderately curved, tapering gradually to enlarged apex, ending in an upturned hook. Right mandible almost straight, tapering very gradually to sharp

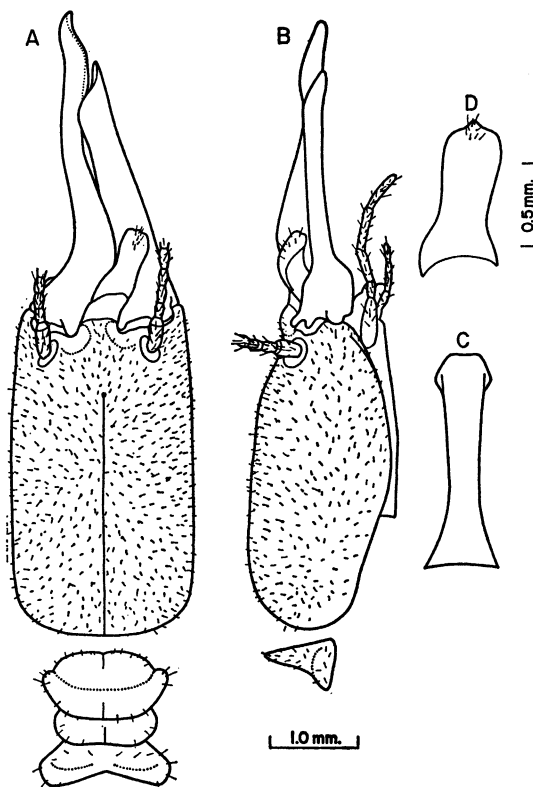


FIG. 21. Soldier of *Neocapritermes taracua*, new species; paratype from type colony. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

point, with under surface broadly grooved basally. Postmentum with sides converging very gradually to rear and then diverging near base, narrow lateral expansions at extreme apex, and front and hind margins straight. Pronotum of a width equal to 0.66 of head width, in profile gently concave, its posterior lobe broadly semicircular and hind margin straight. Mesonotum flat, with rounded sides. Metanotum slightly wider than posterior lobe of pronotum, its hind margin broadly excised. Middle tibia without spines.

COMPARISONS: The soldier of *Neocapritermes taracua* is closest to that of *N. braziliensis* (Snyder) in having long mandibles, the left mandible being hooked at the apex. *Neocapritermes braziliensis* is smaller in all measurements, the antennae are 15-jointed, the third antennal joint is swollen and darker,

and the left anterior margin of the labrum is slanting and concave (fig. 11D).

LOCALITIES AND MATERIAL EXAMINED: BRAZIL: *Amazonas*: Taracua (type locality), Rio Uaupés, queen (morphotype), one soldier (holotype), one worker, collected by Padre J. Marchesi, early April, 1924, "from nest on the ground, queen in special chamber near the bottom," Swedish Amazonian Expedition, given to A. Roman. São Gabriel, Rio Negro, one soldier (paratype), collected by A. Roman, "with *Labiatermes labralis*," January 3, 1924. Manaus (Fazenda Quietude), three soldiers (paratypes), collected by C. R. Gonçalves, November 10, 1953, Departamento de Zoologia, São Paulo, accession number 4670. *Rio Branco*: Caracará, two soldiers (paratypes), workers, collected by A. Roman, May 28, 1915. Rio Branco, two soldiers (paratypes), collected by A. Roman. *Rondonia* (previously Guaporé): Santo Antonio de Guaporé, one soldier (paratype), collected by J. D. Haseman, July 26, 1909, Carnegie Museum accession number 4043.

TYPE MATERIAL: The holotype, morphotype, and paratypes are in the collection of the American Museum of Natural History; paratypes and paramorphotypes are in the collection of the Departamento do Zoologia, São Paulo, Brazil.

This species is named after the city of Taracua, which is on the Rio Uaupés in the Amazon region.

***Neocapritermes utiariti*, new species**

Capritermes (*Neocapritermes*) *villosus*: SNYDER, 1926b, pp. 69-70 (soldier).

SOLDIER (FIG. 22): Head very light brown, darker at anterolateral corners and frons, lighter toward rear; sides of frons blackish; mandibles shiny black; postmentum same color as top of head, its sutures darker; mouth parts and antennae light brown, darker than labrum; thorax, legs and abdomen very light brownish; margins of thoracic nota darker. Head rather densely and conspicuously studded with minute, stiff bristles, denser in anterior region than in posterior; postmentum with sparser bristles; labrum with about 20 stiff, almost upright bristles of two sizes and two pointing forward at median lobe; thoracic nota with sparser pilosity; anterior lobe of pronotum with more numerous bristles of two sizes, its anterolateral corners with a more conspicuous group and posterior margin with longer bristles; legs rather strongly pilose, with bristles of two sizes, the smaller more prevalent; abdominal terga and sterna with many erect, long bristles and more numerous shorter, recumbent ones. Head quadrangular, with sides curved inward at distal half, otherwise subparallel, with posterior corners rounded off, hind margin broadly curved, top in profile gently sinuous, postclypeus distorted, its left side with a little bump, and fontanelle minute, in a broad depression. Antennae arising mid-

TABLE 18
MEASUREMENTS (IN MILLIMETERS) OF SIX SOLDIERS OF
Neocapritermes taracua, NEW SPECIES

	Holotype	Range	Mean
Lateral length of head capsule	3.90	3.90-4.25	4.04
Maximum width of head	2.20	2.20-2.40	2.29
Maximum height of head	1.80	1.80-1.90	1.83
Length of left mandible	3.60	3.50-3.80	3.65
Length of right mandible	3.10	2.90-3.30	3.10
Maximum width of postmentum	0.65	0.60-0.65	0.63
Minimum width of postmentum	0.40	0.33-0.40	0.36
Length of postmentum	2.50	2.30-2.50	2.43
Median length of pronotum	0.75	0.75-0.85	0.77
Maximum length of pronotum	0.80	0.80-0.90	0.82
Maximum width of pronotum	1.50	1.40-1.60	1.52
Length of hind tibia	1.98	1.98-2.00	1.99

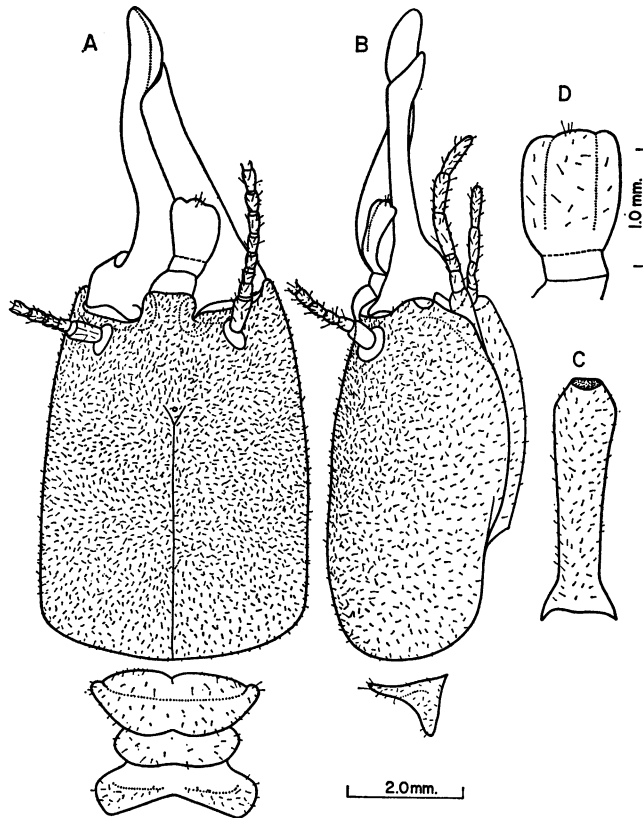


FIG. 22. Soldier of *Neocapritermes utiariti*, new species; paratype from type colony. A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

way on each side of head, with 16 articles, first equal to third plus fourth, second shortest, fifth through ninth gradually increasing in length, tenth through fifteenth slightly decreasing, sixteenth oblong, same length as preceding article. Labrum peduncular, with basal portion squarish and parallel-sided, about half of the width of anterior portion; anterior portion very conspicuous, rectangular, slightly longer than wide, with left margin slightly concave, right margin slightly convex, posterior margin straight, anterior margin three-lobed, the lobes not projecting but neat, middle one slightly broader, left one less distinct; upper surface with shallow groove running some distance from lateral and hind margins. Left mandible about 1.3 times longer than right mandible, tortuous, seen from below basally very broad and gradually tapering to a narrow zone preced-

ing clublike, elongated tip, with outer basal curve strong, but not so sharply so as in *talpa*, its point blunt and upper surface of tip flattened. Right mandible virtually straight, bending down only at tip, which ends in very sharp point. Postmentum very slightly club-shaped, with sides straight, converging to rear, where they diverge rather strongly; sides of tip converging to concave anterior margin; and hind margin almost straight. Pronotum narrower than head, its width equal to 0.55 of head width; in profile broadly saddle-shaped, its anterior lobe semicircular, with conspicuous median notch (shallower in paratype from Belém, Brazil); anterolateral corners of posterior lobe conspicuous; and posterior margin broadly semicircular, with wide-angled median notch and narrow depression near margin. Metanotum about as wide as pronotum, its posterior margin

broadly concave, with small median notch.

COMPARISONS: The soldier of *Neocapritermes utiariti* is closest to that of *N. villosus*, from Peru and Ecuador. However, *N. villosus* is smaller in all measurements; the bristles and hairs are fine, very light-colored, and not conspicuous; the labrum is elongated (1.6 times longer than wide), with an indistinctly three-lobed, asymmetrical frontal margin; the fifth through eighth antennal segments are almost cylindrical; the postmentum has a dilated, angular apical portion; the anterior coxae have a double row of bristles lateral to the anterior carina and a few others of variable sizes irregularly scattered over the inner surface; the cervical sclerites are without hairs on the inner surface; and the anterior lobe of the pronotum forms a right angle with the posterior lobe.

LOCALITIES AND MATERIAL EXAMINED: BRAZIL: *Mato Grosso*: Utiariti (on Rio Papagaio) (type locality), soldiers (holotype, paratypes), workers, collected by K. Lenko and F. S. Pereira, November 10, 1966. *Amazonas*: União (on the lower Rio Madeira), one soldier (paratype), collected by W. M. Mann, March, 1922; Kilometer 47 on the Manaus-Itacoatiara Road, one soldier (paratype), collected by K. Lenko, August 24, 1962, field number 2597, "in a forest."

TYPE MATERIAL: The holotypes and paratypes are in the collection of the Departamento de Zoologia, São Paulo, Brazil; some

paratypes are also in the collection of the American Museum of Natural History.

This species is named after the famous waterfall on the Rio Papagaio, Mato Grosso, Brazil.

Neocapritermes villosus (Holmgren)

Capritermes opacus subsp. *villosus* HOLMGREN, 1906, pp. 558-560 (soldier, worker), figs. Qb, Qc (soldiers).

Capritermes opacus villosus: HOLMGREN, 1909, pp. 82-83 (anatomy: soldier).

Capritermes (*Neocapritermes*) *villosus*: HOLMGREN, 1912, p. 116 (locality).

Capritermes (*Neocapritermes*) *villosus*: EMERSON, 1925, p. 449 (soldier).

Neocapritermes villosus: SNYDER, 1949, p. 202 (systematics).

SOLDIER (FIG. 23): Head light yellowish brown, its anterior margin light brown; mouth parts, antennae, lateral margins of postmentum, and base of mandibles light brown; labrum yellow, darker in center; pronotum yellowish, with dark patches on middle and very fine brown rims; legs yellowish. Head with rather dense mat of very short, fine, silky hairs, especially concentrated on sides and on anterolateral regions, almost absent from hind slope, less dense on under side and postmentum (a paralectotype and other specimens from Peru with more uniformly distributed mat on head, as shown in drawing), a few medium and long bristles

TABLE 19
MEASUREMENTS (IN MILLIMETERS) OF SIX SOLDIERS OF
Neocapritermes utiariti, NEW SPECIES

	Holotype	Range	Mean
Lateral length of head capsule	6.25	6.00-6.30	6.18
Maximum width of head	4.70	4.50-4.70	4.62
Maximum height of head	3.20	2.10-3.30	3.18
Length of left mandible	5.10	4.90-5.10	5.00
Length of right mandible	4.40	4.20-4.40	4.30
Maximum width of postmentum	1.05	1.00-1.10	1.05
Minimum width of postmentum	0.75	0.70-0.90	0.77
Length of postmentum	3.90	3.70-3.95	3.84
Median length of pronotum	1.10	1.10	1.12
Maximum length of pronotum	1.30	1.20-1.35	1.29
Maximum width of pronotum	2.60	2.60-2.80	2.70
Length of hind tibia	3.60	3.45-3.60	3.51

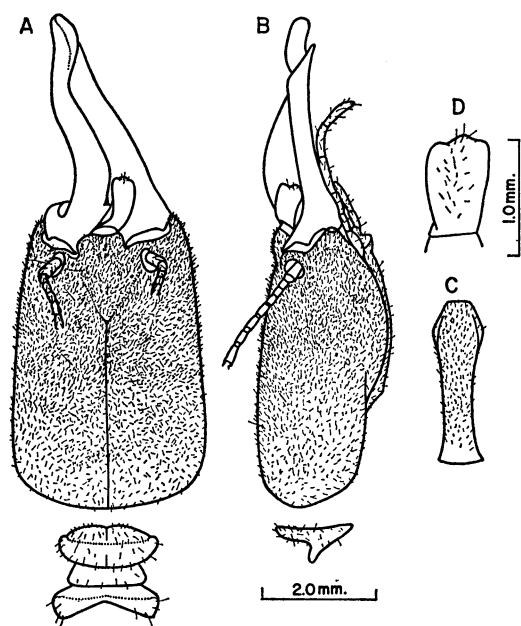


FIG. 23. Lectotype soldier of *Neocapritermes villosus* (Holmgren). A. Head and thorax from above. B. Head and pronotum from side. C. Postmentum from below. D. Labrum from above.

scattered over denser parts of mat of hairs; postmentum with two long, more robust bristles at tip; labrum with a few long bristles, in addition to some scattered smaller ones, and two medium-sized bristles at tip; antennae conspicuously hairy, with numerous long

and medium, stiff bristles; thoracic nota with a few long, scattered bristles; legs with numerous irregularly placed long bristles. Head quadrangular, 1.2 times longer than wide, with sides slightly convergent anteriorly; very slight constriction just behind anterolateral corners; posterior corners slightly bulging and rounded into faintly arched hind margin; in profile upper margin straight, depressed at frons, elevated at postclypeus, posterior margin rounded, and under side broadly concave; postclypeus distorted, with conspicuous rounded elevation to left; fontanelle minute, in a broad, shallow depression. Antennae with 16 articles, second and third shortest and subequal, fourth through tenth increasing in length, eleventh through fifteenth decreasing, sixteenth oblong, slightly longer than preceding one. Labrum elongated, 1.6 times longer than wide, with slightly concave left side, almost straight right side, and indistinctly three-lobed, asymmetrical frontal margin. Left mandible strongly bent near base and tapering gradually to clublike apex. Right mandible from below with outer edge slightly concave, ending in long, sharp point, and inner edge truncated. Postmentum expanded at anterior third, its sides converging toward anterior margin and diverging at posterior margin. Pronotum of a width equal to 0.52 to 0.65 of head width, with anterior lobe semicircular, erect, almost at right angle with posterior

TABLE 20
MEASUREMENTS (IN MILLIMETERS) OF FIVE SOLDIERS OF
Neocapritermes villosus (HOLMGREN)

	Lec- totype	Paralec- totype	Chaquimayo, Peru	Ecuador Range
Lateral length of head capsule	4.80	5.30	4.90	5.50-5.70
Maximum width of head	3.30	3.50	3.18	3.80
Maximum height of head	2.20	2.58	2.10	2.60
Length of left mandible	3.80	4.60	3.85	4.50-4.60
Length of right mandible	3.50	4.40	3.50	4.10
Maximum width of postmentum	0.80	0.90	0.80	0.98-1.00
Minimum width of postmentum	0.50	0.70	0.45	0.55-0.58
Length of postmentum	3.30	3.20	2.70	3.40-3.50
Median length of pronotum	0.75	1.10	0.83	1.10
Maximum length of pronotum	0.83	1.20	0.85	1.10
Maximum width of pronotum	1.70	2.30	1.60	2.00
Length of hind tibia	2.96	2.95	2.90	3.00

lobe; anterior margin with faint median notch; posterior margin rounded. Metanotum about as wide as pronotum, with posterior margin deeply and widely emarginate.

COMPARISONS: The soldier of *Neocapritermes villosus* is closest to that of *N. utiariti*, new species, from middle and northern Brazil. However, *N. utiariti* is larger in all measurements; the bristles on the head are smaller, stout, brown, and very conspicuous; the labrum is quadrangular, a trifle longer than wide, neatly three-lobed; the third through fifteenth antennal segments are apically dilated; the apical portion of the postmentum is not angled, and there are two bristles on each apical lobule; the anterior coxae have more sclerotized carina, a dense row of stout, stiff bristles along the front, and many other such bristles regularly scattered over the inner surface; the anterior lobe of the pronotum does not form a broad angle with the posterior lobe; and the cervical sclerite has numerous small, stiff bristles scattered over the inner surface.

LOCALITIES AND MATERIAL EXAMINED: PERU: *Carabaya*: Chaquimayo (type locality), valley of the San Gaban River, one soldier (lectotype), collected by Camoy, January 13, 1905; one soldier (paralectotype); one soldier, determined by N. Holmgren.

ECUADOR: Rio Zamora, approximately 675 meters, two soldiers, workers, collected by W. von Hagen, December 12, 1934, field number 65.

ADDITIONAL RECORD: The following locality record from the literature probably belongs to this species, although the present authors have not examined the specimens: Llinquipata in Peru.

TYPE MATERIAL: A lectotype, selected by the present authors, is deposited in the Naturhistoriska Riksmuseum, Stockholm, Sweden. A paralectotype soldier is in the collection of the American Museum of Natural History.

SUMMARY

The Neotropical termite genus *Neocapritermes* is redescribed, and its evolutionary relationships are discussed. Five new species, *Neocapritermes araguaia*, *N. guyana*, *N. talpoides*, *N. taracua*, and *N. utiariti*, are described and illustrated. The imago of *N.*

braziliensis is described for the first time. The previously known species, *N. angusticeps*, *N. bodkini*, *N. braziliensis*, *N. centralis*, *N. longinotus*, *N. opacus*, *N. parvus*, *N. talpa*, and *N. villosus*, are redescribed and illustrated.

A map showing the distribution of each species and a key to the species, including all known imagoes and soldiers, are also included.

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