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## REPORT ON SOME NEOTROPICAL ANT STUDIES

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### ABSTRACT

The description of several new species of ants (*Gnamptogenys soror*, type-locality, Iriboca, near Belém, Pará, Brazil; *G. bisulca*, type-locality, near Represa Calima, Departamento del Valle, Colombia; *G. turmalis*, type-locality, Barro Colorado Island, Canal Zone, Panama; *Proceratium goliath*, type-locality, Rio Toro Amarillo, near Guapiles, Limon Province, Costa Rica), as well as new synonymical notes and redescriptions of old species, are presented as a result of studies made on collections of ants collected mainly by the junior author in Panama, Costa Rica, Argentina, Brazil, Peru and Colombia.

These miscellaneous studies on neotropical ants are mainly a secondary result of collecting trips by Brown to Panama in 1960, to Costa Rica in 1966, and to Argentina, Brazil, Peru and Colombia in 1967; and by K. Lenko, P. F. Darlington and Brown to Amazonian Brazil in 1962. Abbreviations used for collections are as follows: CTB = Collection of Thomas Borgmeier, now incorporated with collection of W. W. Kempf = WWK. DZSP = Departamento de Zoologia, Secretaria da Agricultura, São Paulo. MCZ = Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA. USNM = U. S. National Museum, Washington, D. C., CU = Cornell University, Department of Entomology and Limnology Collection, Ithaca, New York. Abbreviations for measurements and indices are keyed in the description of *Gnamptogenys soror* (below).

### *Acanthoponera minor*

*Ectatomma (Acanthoponera) mucronatum* var. *minor* Forel, 1899: 9 (Worker. Type loc.: Teapa, Tabasco, Mexico. Type in British Museum (Natural History)).

*Acanthoponera minor*; Brown, 1958: 194.

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*Acanthoponera crassa* Brown, 1958: 255, fig. 10 (Worker. Type loc.: 6 miles west of Santo Domingo de los Colorados, Pichincha, Ecuador. Types in California Academy of Sciences and MCZ). *Syn. n.*

Large numbers of workers of this species were found by Brown at the Rio Toro Amarillo, near Guapiles, Limon Prov., Costa Rica. Most of the specimens were taken during mid-morning resting motionless, or moving very slowly, on the trunk and around the base of a single tall, mossy tree about 15 cm in diameter in rain forest. The nest could not be found, though the tree was felled and searched, and the ground was searched carefully several meters around. Other workers were swept from rain forest foliage on sunny mornings.

The new material bridges the supposed gap between *minor* and *crassa* in size, nodal form and other characters.

A few workers of this species were also swept from rain forest foliage by Brown and E. S. McCluskey on Barro Colorado Island, Panama Canal Zone, but they could be taken this way only at night.

#### *Gnamptogenys soror*, sp. n.

Holotype and a paratype worker (corresponding measures for *G. caelata*, Kempf, 1967: 121 ff., are given in parentheses): total length 2.3-2.4 (TL 2.9), head length 0.48-0.51 (HL 0.61), head width 0.43-0.45 (HW 0.50), cephalic index 89-90 (CI 83), greatest diameter of eye 0.08 mm (GDE 0.13), scape length 0.32-0.35, alitrunk length 0.67-0.72 (WL 0.83), pronotal width 0.32-0.35 (0.39), length of postpetiole 0.40-0.43 (0.56), width of postpetiole 0.45-0.51 (0.56) mm.

Very closely related to *G. caelata*, but differing from it in smaller size, relatively broader head and smaller eyes: *G. soror* has less than 20 facets (*G. caelata* more than 30) and in having postpetiole distinctly broader than long (see measurements above). Also, *G. soror* has the costae on front and postpetiole more regular, not vermiculate, and the petiole is longitudinally costate above.

Holotype (DZSP) and paratype worker (MCZ) taken at Pirelli Rubber Plantation, Iriboca, near Belém, Pará, Brazil, 23.VIII.1962. P. F. Darlington leg. (Brown Catalog n.º B-317).

Although the differences from *caelata* are not very striking, the separation between localities increases the probability that they are distinct.

The closely related species *G. striolata*, *G. caelata* and *G. soror* all have a deep cleft that separates the anteroventral process of the gaster into 2 distinct lobes.

#### *Gnamptogenys strigata*

*Polyrhachis strigata* Norton, 1868: 4 (Worker).

*Ectatomma (Holcoponera) simplex* Emery, 1896: 46, fig. 7 (Worker, female. Type loc.: Alajuela, Costa Rica). *Syn. n.*

*Holcoponera strigata* + *H. simplex* and subspecies; Santschi, 1929: 458-462 (Descriptions of all castes, discussion and synonymies).

*Holcaponera simplex*; Brown, 1956: 489, 490 (Discussion, subspecies synonymized).

*Gnamptogenys strigata* + *G. simplex*; Brown, 1958: 229, 232 (In species list and key).

These two species have always been separated on the basis of the sternal postpetiolar costulation, which is partly or completely transverse in *simplex*, and which has been thought to be longitudinal (or "oblique") in *strigata*. In fact, it appears that no one has looked carefully at the sterna of *strigata* to check this character, because every specimen we have been able to examine from among series in the MCZ, previously determined as *strigata* by Wheeler, Brown and others, turns out to have the costulation partly to wholly transverse in the same region as *simplex* has it, although our Mexican series tend to have the transverse elements more restricted to an anterior band. Our attempts to distinguish Costa Rican *strigata* and *simplex* led to this discovery. Workers from Mexican samples average smaller than those of some Costa Rican samples, but now that longer series are at hand, body size is seen to vary considerably between, and to a lesser extent within, series from Costa Rica and elsewhere in Central America. Workers from lowland Costa Rica often have the alitrunk over 1.3 mm long, while in Mexico and upland Panama, as well as some other Central American localities, corresponding lengths of 1.1 to 1.2 mm are usual.

Other characters that vary somewhat from nest to nest are sculptural gauge, and the form, especially anteroposterior thickness, of the petiolar node. The posterodorsal angle of the node always seems to overhang the posterior face a bit, giving the node a slightly back-tilted appearance. In spite of this variation, we seem to be dealing with a single species that ranges from Colombia to Veracruz, Mexico, so far as known. In the mountains of Colombia, at least in the southwest near Cali, *G. strigata* is replaced by *G. bisulca*, a closely related species described below.

The localities next cited are from material in the MCZ, much of it duplicated in WWK.

MEXICO. *Veracruz*: Jalapa (F. Silvestri leg.). Las Hamacas, 17 km. N Santiago Tuxtla, and La Perla, about 8 km N Orizaba, 1800 m both localities VIII.1953 (E. O. Wilson leg.). Park of power plant of Cervceria Moctezuma in canyon near Orizaba (off Highway 150 about 3 km W Fortin de las Flores, and 3 km S Huatusco off Fortin road, both in VIII.1965 (Cornell University Mexico Field Party leg.). *Chiapas*: Union Juarez, pine grove at 1500 m, 11.VIII.1950 (C. and M. Goodnight leg.).

HONDURAS. Lombardia (W. M. Mann leg.).

COSTA RICA. *Limon*: Hamburg Farm (F. Nevermann leg.). La Carpentera, IV.1924 (W. M. Mann leg.). Rio Toro Amarillo, near Guapiles (W. L. Brown, Jr. leg.).

PANAMA. Cerro Campana, 800-950 m, I.1960 (G. B. Fairchild & W. L. Brown, Jr. leg.), and IX.1962 (Brown leg.).

COLOMBIA. *Valle*: above the dam at Represa Calima, a single worker from wet mountain leaf litter, 21.III.1967 (R. B. Root & W. L. Brown, Jr. leg.); this last record shows that *G. strigata* is not completely replaced by *G. bisulca* in southwestern Colombia,

for this locality is only a few kilometers from the *G. bisulca* type locality, and no doubt the two species are sympatric in this region.

***Gnamptogenys bisulca*, sp. n.**

Holotype worker: TL 3.8, HL 0.83, HW (without eyes) 0.75 (CI 90), WL 1.22, scape L 0.74 (SI 99), greatest diameter of eye 0.16 mm.

Diagnosis: with the characters of *G. strigata*, but having metanotal groove present as a distinct, gently curved, impressed suture, though not strongly interrupting the costulate sculpture. Mesonotum thus distinctly outlined, semilunar, about 4x as broad as long. Color black, appendages dark brown, the legs more yellowish distally.

Paratype workers: 38 specimens from the type nest series and two additional series, all from Valle Department, Colombia. The type nest series (Loboguerrero to Represa Calima) and the Pichindé series are smaller in body size, have shorter scapes (surpassing occipital posterior by about 1 1/2 times their apical thickness), larger eyes (about 1 1/2 times as long as the penultimate antennal segment), and somewhat finer sculpture (15-16 costulae on the mesopleuron). The sculpture is also peculiar in having the costulae in large part finely pitted and therefore only weakly shining over much of the body. On the postpetiolar disc, the costulae are thin, straight and converge anteriorly to form a sharp, distinct, inverted V. The smallest specimen from the type nest series measured: TL 3.7 HL 0.80, HW 0.70 (CI 88), scape L 0.70 (SI 100), GDE 0.16 mm.

Except for body size, these auxiliary characters will serve to distinguish *G. bisulca* from most samples of *G. strigata*; the latter tends to have longer scapes, smaller eyes, and coarse, smooth, shining costulation. The postpetiolar disc of *strigata* has thicker, often curved costulae which, though they may sometimes converge anteriorly, usually do not form a distinct V. *G. strigata* is usually reddish-brown under magnification, though Mexican samples are often darker and may be piceous when fully colored out.

The remaining paratype series of *G. bisulca* (from Salidito) is somewhat intergradient toward *G. strigata* in the minor characters, but has the metanotal groove distinct. The largest worker measures: TL 4.5, HL 0.95, HW 0.84 (CI 88), WL 1.42, SL 0.85 (SI 101), GDE 0.17. Costulae thicker than in type nest series, and more shining, but still minutely pitted; those of postpetiolar disc not forming a very sharp V. Scapes overreaching posterior border of head by about twice their apical thickness (largest SI seen was 105).

The petiole as seen from the side is fairly strongly "backtilted", with a rather narrowly rounded, noticeably overhanging posterodorsal angle; however, the nodal form is very variable in *G. strigata*, and sometimes approaches the *G. bisulca* form in the workers. In the queens available, this character is much more marked, but the sample is very small.

Queen (one dealate and one winged specimens from type nest series) a little larger than her own workers (HL 0.86-0.91 mm). The metanotal groove character is of course not available in this caste, but the secondary characters of color, sculpture and especially

nodal form (see above) differentiate this sample from the available queens of *G. strigata*.

All three collections from wet montane forest in Departamento del Valle in southwestern Colombia during III.1967, by R. B. Root & W. L. Brown, Jr. Type nest series from near Represa Calima on the road to Loboguerrero, about 1600 m above sea level, 14.III.1967 (Brown n.º H-281), probably from leaf litter. Paratype series from road to television tower on mountain above Salidito, near Cali, about 1900 m, 23.III.1967 (n.º H-164), from bromeliad growing on small tree; also Pichindé Valley, SW of Cali, 1570 m, 22.III.1967 (n.º H-161), this series from rotten wood included a few adult males, whose description is postponed because their characters are unremarkable and because material of related species is not sufficient for a useful comparison.

Holotype and paratypes deposited in MCZ; paratypes, WWK. DZSP, CU.

This species is a rather typical member of the group formerly called *Holcoponera*, and it will run to *G. simplex* in Brown's key (1958: 232, couplet 11). As we have just seen, *G. simplex* and *G. strigata* are synonyms, and *strigata* lacks the second alitruncal suture of *G. bisulca*. In fact, the second sulcus is not found in workers of any other members of this group with fully costulate alitrunk, although we may expect that rare bisulcate ergatoid females of some species will turn up to confuse the situation. It should also be pointed out that the bisulcate condition of the new species is further support for the incorporation of the *Holcoponera* group into *Gnamptogenys*.

#### *Gnamptogenys turmalis*, sp. n.

Holotype worker: TL 4.4, HL 0.86, HW 0.81 (CI 94), WL 1.27, greatest diameter of compound eye 0.22, scape L 0.62, petiolar node L 0.41, W 0.57 mm.

Close to *G. nigrifrons* from Peru, but a little larger and more robust, with finer sculpture, and head ferruginous, concolorous with rest of body.

Paratype workers (8 specimens from two nest series from the type locality): TL 4.24-6, HL 0.85-0.91, HW 0.80-0.88 (CI 94-97), WL 1.24-1.40, GDE 0.21-0.23 mm; 27-31 costulae between the frontal carinae (about 24 or 25 in *G. nigrifrons*). The single available syntype worker of *G. nigrifrons* measured: TL 3.9, HL 0.80, HW 0.73 (CI 91), WL 1.21, GDE 0.21 mm.

Compared with *G. nigrifrons*, the new species is larger and relatively broader (see measurements and indices cited). In *G. nigrifrons*, the petiolar node is about 0.36 mm long by 0.48 mm wide, for a nodal index of 133. In *G. turmalis*, the node may be as much as 0.40 mm long and 0.59 mm wide, and the nodal index ranges from 138 to 148.

The antennal scape of *G. turmalis* just reaches the posterior margin of the head when held back as straight as possible in full-face view, but may or may not surpass it by a very small amount in different specimens, thus bridging couplet 22 of Brown's key to the species of *Gnamptogenys* (1958: 234). Actually, if forced to the first lug of couplet 22, *G. turmalis* keys out fairly easily to

*G. hartmani*, from which it differs in its larger size (*hartmani* HW without eyes < 0.80 mm) and finer sculpture (23-25 costulae between frontal carinae in *hartmani*). The petiolar node is narrower in *hartmani* (maximum W about 0.51 mm), but its nodal index (132-140) overlaps that of *turmalis*. The color of both *hartmani* and *turmalis* is concolorous ferruginous.

The three species, *hartmani*, *turmalis* and *nigrifrons* are very closely related, and it would not greatly surprise us if further collecting were to show that they are conspecific variants. Of the three, *hartmani* and *nigrifrons* are about the same size and have sculpture of similar gauge, but the costulae of *hartmani* are smooth and shining, and those of *nigrifrons* tend to be finely pitted and more opaque; *turmalis* is intermediate in this respect. Although *hartmani* and *nigrifrons* key out to different places in Brown's 1958 key, the difference in scape length (couplet 22) that splits them to separated couplets is actually a very slight one; this character state is ambiguous in *turmalis*. J. C. Moser (*in litt.*) has found several colonies of *G. hartmani* "always in nests of *Trachymyrmex*" in Louisiana, and as mentioned below, *G. turmalis* probably also raids *Trachymyrmex* nests. We may expect that *G. nigrifrons* will be found to have similar habits, and possibly also *G. bruchi*. The last-named species lacks any trace of a metanotal groove, whereas *turmalis*, *nigrifrons* and *hartmani* all have the alitruncal dorsum shallowly and broadly but rather distinctly impressed in the metanotal region. This impression is the obsolescent metanotal groove.

Holotype (MCZ) and paratypes (MCZ, WWK, DZSP, CU, Coll. P. B. Kownowski) all collected on Barro Colorado Island, Panama Canal Zone. The type colony was found on the night of 8.I.1960 (E. S. McCluskey & W. L. Brown, Jr. leg.) on Snyder-Molino Trail only a few yards beyond the Laboratory Clearing. It is believed that the ants were raiding a nest of the attine genus *Trachymyrmex*. The other series came from Wheeler Trail near the fourth marker, and were collected by R. D. Akre and students on the night of 22.III.1967, apparently from a file that was moving to a new nest. The details of observations on these ants will be given in another paper dealing with the feeding habits of *Gnamptogenys* species of the New World.

### ***Proceratium goliath*, sp. n.**

(Figs. 1, 2)

Holotype worker: TL 6.6, HL (including clypeal lobe) 1.60, HW (without eyes) 1.50, WL 2.00, scape L 1.16, eye diameter 0.10 mm, CI 94.

Head with mandibles almost circular; sides gently convex and rounding evenly into strongly convex occipital outline, the latter with a tendency to become flattened over a narrow median area. Eyes situated a little in front of the midlength of the head, consisting each of a single convex, clear facet. Occipital carina on each side extending forward to the vicinity of the hypostomal suture and bounding an impressed "gular" area, just as in *P. stictum*. Frontal line distinct and cariniform on anterior half of cranium behind deeply impressed frontal area; frontal carinae sharply but

obliquely raised, broader and more convex than in *P. stictum*. Anterior median clypeal lobe broad, rounded, with a median emargination, its surface feebly convex, longitudinally costulate, with interspersed punctures. Antennal scapes thick, gently curved, with incrassate tips, just surpassing posterior margin of head in full face view when they are held as nearly straight back as they will go. Mandibles each with 4 strong teeth set in an oblique masticatory margin; basal margin convex; dorsal surface coarsely striate, with small interspersed punctures. Maxillary palpi 4-segmented, labial palpi 3-segmented; maxillary segment II has the "hammerhead" shape characteristic for the genus.

Alitrunk compact, convex above, sutures obsolete with only the faintest trace of a promesonotal suture, visible in certain lights. Propodeal angles slightly projecting, bluntly rounded (with some small points that are part of the sculpture); propodeal declivity concave in both directions, bounded on each side by a distinct carina; inferior propodeal plates poorly developed, low and rounded. Upper boundary of declivity concave; declivity transversely rugulose. Propodeal spiracle small, round.

Petiole low, loaf-shaped, sessile, about 0.75 as high as long and about 0.88 as broad as long, broadest near posterior third. Anterior cornuae prominent, connected by a strong, slightly concave shelf or ridge. Anterior subpetiolar process low, obtusely triangular, ordinarily hidden from lateral view by coxa; another insignificant convexity midway along the subpetiolar carina may be homologous with the tridentate process of the *P. stictum* holotype.

Gaster broad and strongly recurved, the second segment very strongly rounded and more extended to the rear than in *P. stictum*; as seen from above, both the postpetiole and the second segment are a little longer than broad, and the second segment is distinctly longer, and very slightly wider, than the postpetiole. Sting stout.

Legs long (hind femur L 1.61, hind tibia L 1.30 mm), stout, but relatively longer and less thick than in *P. stictum* (thickness of hind femur at its midlength is about 0.14 L in *P. goliath* holotype, but about 0.18 of L in *P. stictum*). Spurs 1 on each tibial apex, pectinate, as in other *Proceratium*. Tarsal claws simple, long and slender.

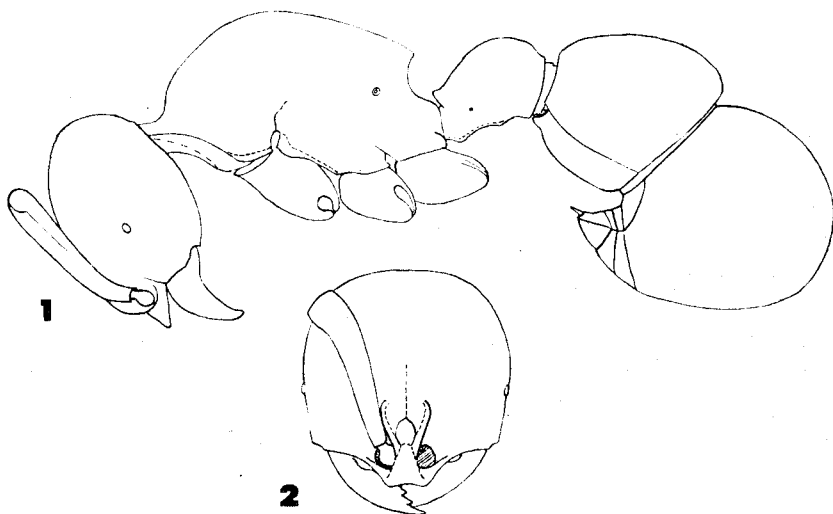
Head, alitrunk, petiole and postpetiole densely rugulose, with crowded, deep-set piligerous punctures having tuberculate, often shining bottoms. Second and succeeding gastric segments smooth and shining, with abundant exceedingly fine piligerous punctures (much smaller and less distinct than in *P. stictum*); antennae and legs finely and densely punctulate, weakly shining.

Body covered with dense, brassy, appressed to suberect, pubescence, plus abundant longer hairs, golden brown, mostly 0.2-0.3 mm long, erect to decumbent, on all parts of the body and appendages, but especially on the dorsal surfaces and on the entire free surface of the second gastric segment, where the pilosity is very long and dense, and all directed posteriad, even on the underside.

Color deep brownish-red, legs a little lighter, more reddish; frontal lobes, clypeus, mandibles and petiolar cornuae with blackish margins.

Holotype, together with 5 paratypes and another worker that was dissected in the field, collected in disturbed wet lowland rain

forest about 2 km beyond (NW of) the steel bridge over the Rio Toro Amarillo, near Guapiles, Limon Province, Costa Rica (W. L. Brown, Jr., leg.) on 3 and 4.III.1966. The ants were in and under a fragment of rotten log about 75 cm long and 35 cm thick that was found lying in the middle of a wide, recently cleared trail. The same piece of wood held pockets containing 20-30 or more workers of *Basicros manni*, but although the log was reduced to small fragments over two days, the queen and brood of neither species could be found. The *Proceratium*, being so unusually large, and also more active than one finds other members of the genus, was originally taken for *Gnamptogenys* (= *Alfaria*) *simulans*. The count of Malpighian tubules (6, counted in a single worker) is also typical for *Gnamptogenys*, instead of 5, counted in *Proceratium silaceum* ( $n = 2$ ). Obviously, further counts are needed in order to establish the number of tubules in *Proceratium* adults.



*Proceratium goliath*, sp. n.: 1, worker, side-view; 2, worker, head in full-face view (Kempf del.).

Paratypes: of the 5 workers in the series, the holotype was largest, and the rest of the specimens were about as large or slightly smaller. The smallest measured TL 6.2, HL 1.50, HW 1.36, WL 1.85, scape L 1.13, eye diameter 0.10. CI 91. Variation among the paratypes is very slight. In a couple of the workers, the propodeal angles are a bit larger and more acute, while the inferior propodeal plates are somewhat more obviously developed, though still very low and rounded. The median subpetiolar process is sharply triangular in one specimen.

Holotype and paratypes deposited in MCZ; paratypes in WWK, DZSP and CU.

Queen, male and larva unknown.

*P. goliath* is closely related to *P. stictum* (Brown, 1958: 336, figs. 27, 45, 46, worker) from tropical northeastern Australia, but



differs in its much larger size, longer legs and antennae, its undeveloped propodeal teeth and inferior propodeal plates, its much more finely punctulate second gastric segment, and other minor characters. It is not close to any other species, being larger than any of them and having a longer, lower petiolar node, among other characters. Only *P. relictum* (Fiji) approaches *goliath* in size, and this has a thin scale-like node and much finer sculpture. *P. goliath* is a very primitive *Proceratium*, and we need to know its larva and something of the food habits.

### ***Pheidole cramptoni***

*Pheidole cramptoni* Wheeler, 1916: 4-5 (Soldier, worker. Type loc.: Kaieteur, [British] Guyana. Type in MCZ).

*Pheidole cramptoni* subsp. *petiolicola* Wheeler, 1921: 147 (Soldier, worker. Type loc.: Kartabo, [British] Guyana. Types in MCZ).  
*Syn. n.*

The type soldiers of *petiolicola* are slightly smaller than those of *cramptoni*, but this and other differences mentioned by Wheeler are both variable and very minor. These are no more than slight nest variants of a single species. *P. cramptoni* could be a synonym of some older species name, but if so, our rather casual search has failed to find it.

Lenko & Brown found this species twice near Manaus, in the heart of Amazoniam Brazil, during 1962. The first collection (M-101) was a large colony or group of colonies found under the bark of a large, punky "white-rotten" log in rain forest at km 40 on the road from Manaus to Itacoatiara, NE of Manaus (27.VIII.1962). The second colony with winged queens was taken in the base of a rotten branch of a tree about 2 m above the ground, in secondgrowth forest bordering a plantation of "Brazil" nut, or "castanha do Pará", at Aleixo, 14 km SE Manaus, on 11.IX.1962. In Guyana, as indicated by Wheeler, this species has been found nesting in hollow petioles of *Tachigalia*.

### ***Megalomyrmex silvestrii***

*Megalomyrmex silvestrii* Wheeler, 1909: 235 (Worker. Type loc.: Cordoba, Veracruz, Mexico. Syntype in MCZ, examined); Mann, 1922: 29 (Ceiba and San Juan Pueblo, Honduras).

*Megalomyrmex* (*Wheelerimyrmex*) *sjöstedti* Wheeler, 1925: 30 (Worker (dealate) female. Type loc.: Llinquipata, Peru. Part of syntype series in MCZ, examined). *Syn. n.*

*Megalomyrmex* (*Wheelerimyrmex*) *sjöstedti* var. *langi* Wheeler, 1925: 31 (Worker, male. Type loc.: Kamakusa, [British] Guyana. Syntypes in MCZ, examined). *Syn. n.*

*Megalomyrmex brasiliensis* Borgmeier, 1930: 34-35, pl. 5, figs. 33, 35 (Worker. Type loc.: Gaspar, Santa Catarina, Brazil. Type in CTB (WWK), examined). *Syn. n.*

*Megalomyrmex brasiliensis* var. *missionensis* Santschi, 1936: 405 (Worker. Type loc.: Loreto, Misiones, Argentina. Types in

Coll. Santschi, Basel; syn- or nidotype in WWK, examined).  
*Syn. n.*

*Megalomyrmex* [!] (*Cepobroticus*) *wheeleri* Weber, 1940: 425, figs. 15, 16 (Worker, queen. Type loc.: Barro Colorado Island, Panama Canal Zone. Syntype worker in MCZ, examined); 1941: 106-107 (Biology). *Syn. n.*

This species apparently is fairly common in forest from southern Mexico to northern Argentina. The extensive synonymy is due in large part to Wheeler's inexplicable inaccuracies of description. In his *M. sjöstedti* and var. *langi*, the differences he mentions in the form of the propodeal (= metasternal) plates simply cannot be seen in direct comparison with *silvestrii*, and the reported differences in antennal proportions are at best insignificant. Color differences exist among the series available, some being dark brown, others prevailing light reddish- or yellowish-brown, but the alitrunk is usually lighter than head and gaster.

Most of the samples (from the localities listed below) are larger in body size (length of worker alitrunk including cervix 1.33 to 1.44 mm) than those from Barro Colorado Island, in the Panama Canal Zone (1.15-1.22 mm), but the Amazonas series ranges from 1.10 to 1.26, the type series of var. *langi* from Guyana is intermediate (1.29-1.33 mm), and workers from Cerro Campana, Panama, and from Honduras overlap the large and intermediate sizes (1.30-1.42 mm). At least part of Weber's type series of *wheeleri* appears to have come from an incipient nest. South Brazilian workers tend to have proportionately large eyes.

The variation noted seems to represent erratic local trends in a single species. The similarities among these series are much more impressive than the differences. Among the synonyms, it may be noted that *wheeleri* was not compared by Weber with *silvestrii*, but only with *M. symmetochus*, a quite different species.

The queen of *M. silvestrii* is only slightly larger than the workers, and has a rather reduced alitrunk for a myrmicine of this caste. Perhaps such reduction is in keeping with Weber's finding of 3 nests and a single dealate queen of this species in Barro Colorado Island nests of *Cyphomyrmex costatus*. Two colonies Brown found at the same locality, however, as well as those from Cerro Campana, Panama, and Santa Teresa, Brazil, were nesting independently of other ants so far as he could tell.

The colony (Brown Cat. n.º M-72) from Igarapé Marianil, near Manaus, was found in a small rotten log in rain forest on 26.VIII. 1962, in a small chamber with a small species of *Trachymyrmex*. The ants of both species were found throughout the fungus garden of the chamber, but off to one side in a smaller chamber was found a group of the *Trachymyrmex* clustered with a small piece of fungus garden unoccupied by *Megalomyrmex*. This second group appeared to be under attack by some blackish *Solenopsis*, possibly *S. picea* or near. To Brown at the time, the situation suggested that the *M. silvestrii* colony had successfully attacked and moved into the attine nest, and was in the process of plundering it. Perhaps *M. silvestrii* is not so much a parasite as it is a mass-foraging predator that specializes in raiding, and sometimes occupying, the nests of small Attini. It would be interesting to know the habits better, especially the details of nest founding. As Weber

has already noted, the colonies of *M. wheeleri* are usually small (less than 100, and usually only 25-60 workers, plus 1-4 dealate queens, in the colonies seen by Brown).

Ettershank (1966: 73-171) has put subgenera *Wheelerimyrmex* and *Cepobroticus* into straight synonymy of *Megalomyrmex*, an action with which we concur.

In addition to certain type material listed in the synonymy above, we have examined the following samples:

BRAZIL. Rio de Janeiro. Angra dos Reis (Jussara), L. Travassos & H. Souza Lopes leg., CTB 5748 (WWK). Guanabara. Rio de Janeiro, Corcovado, H. Souza Lopes leg., CTB 5775 (WWK). Espirito Santo. Santa Teresa, about 800 m, nest in large rotten log, wet mountain forest. W. L. Brown, Jr. leg., MCZ. Amazonas. Igarapé Marianil, about 24 km NE of Manaus. W. L. Brown, Jr. leg., MCZ.

PERU. Valle de Chanchamayo, W. Weyrauch leg., WWK.

SURINAM. Dirkshoop, J. van der Drift leg., WWK.

PANAMA. Canal Zone, Barro Colorado Island, W. L. Brown, Jr. & E. S. McCluskey leg., two nests in the forest, B-31 inside a small clod of soil in the leaf litter, and B-111 in a small piece of rotten wood, 10 mm deep and 15 mm wide, also contained many termites, MCZ, WWK.

HONDURAS. La Lima (C. Evers leg., WWK); San Juan Pueblo, W. M. Mann leg., WWK, MCZ.

### *Solenopsis bondari*

*Myrmica virulens* Fred. Smith, 1858: 132 (Worker. Type loc.: Ega (= Tefé), Amazonas, Brazil). *Nomen oblitum*.

*Solenopsis bondari* Santschi, 1925: 236 (Worker. Type loc.: Bahia, Brazil). *Syn. n.*

*Solenopsis (Solenopsis) bondari*; Creighton, 1930: 46 (Worker. [British] Guyana record; syntypes redescribed).

Smith published the name *Myrmica virulens* over a six-line description that is useless for purposes of determination. However, the description is followed by this note:

"This species is allied to *M. saevissima*. Mr. Bates says, "It is found only in the forest; its formicarium is in the earth, under vegetable debris. Its sting is more painful than that of *M. saevissima*.""

These words correspond perfectly to a species of *Solenopsis* that Lenko & Brown found widespread in Brazilian Amazonia during 1962 (areas around Belém, Pará, Manaus and Benjamin Constant, Amazonas), and Brown found common at Tingo Maria, Peru, in 1967. This *Solenopsis* is bright yellow in color, monomorphic, and about the size of small majors of *S. saevissima* or *S. geminata*, but the postpetiole is subglobose and very large. It is found in populous colonies living in the soil beneath the forest leaf litter, and it stings so painfully that the Amazonians know it well under the name "tachi de terra". The word "tachi" (pronounced tah-SHEE in English) applies to the painfully-stinging *Pseudomyrmex triplarina* as well as to the sympatric plant (*Triplaris*) in which it lives symbiotically. Therefore, tachi de terra means "tachi of the

ground". It is one of the very few ants of this region for which the local people have special names.

Although the name *virulens* was considered synonymous with *S. saevissima* by Mayr as early as 1862, it finally ended in synonymic lists under *S. geminata* and remained buried there until it was included in a checklist of *Solenopsis* species by Ettershank (1966) after we had "rediscovered" it in 1962.

Study trips to the European museums in 1963 and 1964 turned up the types, placed with the *S. geminata* lots in the British Museum. The types are two workers on one card, accompanied by a blue label "979" above the light blue round label with "58" over "6", and a white label, "*M. virulans*/ type Sm." The left hand specimen is hereby designated as lectotype; it measures as follows: total outstretched length including mandibles 4.6, head length 0.96, head width without eyes 0.85, diagonal length of alitrunk 1.25, postpetiole width 0.41 mm.

The second thing we found out in Europe was that our digms of *virulens* compared closely in London with the types of that species, also matched the types of *S. bondari* in the Naturhistorisches Museum in Basel. There exists some slight geographical variation in depth of color, width of postpetiole, and size of clypeal teeth, but we judge this to be of no significance at species level. The names *virulens* and *bondari* are considered synonyms for the same species.

The problem of which name to use is automatically settled by Article 23b of the International Rules. The name *virulens*, having remained in synonymy more than 50 years, is a *nomen oblitum* by any reasonable interpretation of this ambiguously worded article (which urgently requires revision more in line with the needs of non-ornithological animal taxonomy), and *bondari* takes its place. Although the loss of such a descriptive name as *virulens* is regrettable, the name *bondari* has been used in the most recent comprehensive revision of *Solenopsis* s. str. (Creighton, 1930) and is therefore "current". The surprising thing is that the ant has received so little attention in the literature under any name.

*S. bondari* is known from Guyana (see Creighton, *op. cit.*), and so is probably widespread in hylean South America, though in fact it remains unreported from the Orinoco drainage. From the Amazon and its main tributaries at low and moderate elevations, the range runs southward in Brazil to the type locality (Bahia), and beyond to São Paulo, but its limits are not well known. Samples have been taken in: São Paulo, município de Iporanga, 1.XI.1961, K. Lenko & H. Reichardt leg., 20 w DZSP n.º 2457 (more specimens in DZSP); Piassaguera (= Raiz da Serra), 2.XII.1906, H. Luederwaldt leg. (Museu Paulista n.º 6781), "*S. geminata diabolus* Wheeler, Forel det.", "*saevissima*? Luederwaldt det." 1 w.; Ilha de São Sebastião (off the São Paulo coast), 1906 Gunther leg. 9 workers, Museu Paulista n.º 2491, CTB 2124, ("*geminata incrassata* Type, Forel det.!!); Caraguatatuba, 2.IV.1962, K. Lenko leg., 9 workers, DZSP 1941, 2124 (more specimens in DZSP). Guanabara, Rio de Janeiro, 30.XI.1927, O. Conde leg., 3 workers, CTB 3260 WWK). Espírito Santo, Corrego Itá, I.1960, W. Grossmann leg., ex coll Seabra WWK/s/n) 10 workers. Mato Grosso, Utiariti, Rio Pa-

pagaio, VIII.1961, K. Lenko leg., DZSP n.º 1566, 4 workers (more specimens in DZSP). *Acre*, Porto Valter, X.1961, L. Herbst leg., 3 workers (WWK). *Amazonas* and *Pará*, Peru (see above).

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