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Rev. Brasil. Biol., 19 (3): 337-344
Outubro, 1959 — Rio de Janeiro, D. F.

**TWO NEW SPECIES OF "GYMNOMYRMEX" BORGMEIER,
1954 FROM SOUTHERN BRAZIL, WITH REMARKS ON
THE GENUS (Hymenoptera, Formicidae)¹**

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(With 9 text-figures)

Several years ago, Mr. F. Plaumann of Nova Teutônia, S. Catarina, Brazil, while sifting leaf mold with a Berlese funnel, discovered two looking ants, which later proved to be a new species of a new genus *myrmex splendens* Borgmeier, 1954. Recently, I have received from the collector additional specimens of this rare and interesting species, the hitherto unknown female, and also specimens representing the male of *Gymnomyrmex*.

The present note, besides the descriptions of the forms new, contains also a revised definition of the genus and a further discussion of its systematic relationships. In this connection, *Chelystruma* Brown, 1950, originally described as a subgenus of *Glamyromyrmex* Wheeler, is raised to a generic status.

I take great pleasure in thanking Mr. Plaumann for this very fine material, now deposited in my collection, and also Father Borgmeier for the donation of the holotype of *Gymnomyrmex splendens*.

As regards measurements, most of them are self-explanatory. It suffices to state here, that the "total length" is determined by measuring separately the maximum length of head with closed mandibles, of thorax, of petiole and of postpetiole-gaster and adding these values (cf. BROWN, 1950).

¹ Received for publication July 6, 1959.

Work supported by the "Conselho Nacional de Pesquisas".

Gymnomyrmex Borgmeier

Gymnomyrmex Borgmeier, 1954, *Rev. Brasil. Biol.*, 14(3):279.

Type of the genus — *Gymnomyrmex splendens* Borgmeier, 1954, by original designation and monobasic.

Worker and female — Head elongate, depressed, pyriform. Occiput excised. Mandibles thickened, sublinear, largely covered by the projecting, strongly convex or subtriangular anterior apron of the clypeus; chewing border with an elongate basal lamella, followed apicad by a series of 4-5 longer, acute teeth and, mostly on deflected apex, 5-6 minute to vestigial denticles; a strong and prominent apical tooth is lacking. Inferior border of cheeks (subocular ridge) sharply marginate, straight, not bearing anteriorly a ventrally directed tooth. Antennae with 5-segmented funiculus. Thorax slender, strongly compressed at mesoepinotum. Petiole, as seen from above, not strikingly anchor-shaped, its node elongate with the anterior border of disc ecarinate and the dorsal face subhorizontal. Integument of head and at least the sides of thorax smooth and shining. Hairs of anterior portion of head reduced and inconspicuous. Clypeus lacking bizarre and prominent scales or hairs.

The genus belongs to the tribe Dacetini of the subfamily *Myrmicinae*. Owing to the short mandibles and the flattened, pyriform head, BORGMEIER assigned it to the vicinity of *Smithistruma* Brown. Although there is something to be said in favor of this placement, I still feel that, on account of the shape of head and clypeus, the smooth and shining integument and the lack of prominent hairs on the clypeus, there is even a greater affinity with *Chelystruma* Brown, 1950, described as a subgenus of *Glamyromyrmex*, but deserving by all means full generic rank. *Gymnomyrmex* differs from *Chelystruma* in the still more elongate head, the shape of the petiole and principally in the shape and dentition of the mandibles, having the outer border scarcely convex and lacking a prominent apical tooth. *Chelystruma* (still monotypical — I have seen a single female of *lilloana* taken at the type locality by Dr. N. Kusnezov) has instead a broader head, triangular mandibles, crossing each other with their prominent apical tooth when closed, with their sides and dorsum conspicuously convex. Also the petiole is peculiar, presenting in dorsal view an anchorlike configuration; the node is anteriorly sharply carinate, strongly transverse, the disc and lateral spongiform appendages strongly slanted backwards and downwards, nearly vertical.

KEY TO GYMNOMYRMEX SPECIES — WORKERS

- 1 — Dorsum of pronotum distinctly marginate in front and at the sides; declivous face of epinotum and disc of petiolar node smooth and shiny
 *comis* sp. n.

- Dorsum of pronotum immarginate in front and at the sides; declivous face of epinotum and disc of petiolar node reticulate-punctate 2
- 2 - Promesonotum longitudinally rugose; lateral edge of frontal carinae slightly scalloped; thoracic dorsum with two pairs of long, flagellate hairs
 *rugithorax* sp. n.
- Pronotum smooth and shiny; lateral edge of frontal carinae continuous; dorsum of thorax lacking long, flagellate hairs *splendens* Borgmeier

***Gymnomyrmex splendens* Borgmeier**

(Figs. 1 and 8)

Gymnomyrmex splendens Borgmeier, 1954, *Rev. Brasil. Biol.*, 14 (3):279-282, figs. 1-6 (worker; Brazil, S. Catarina State: Nova Teutônia).

Types — 2 workers; holotype in my collection, paratype in the Museum of Comparative Zoology, at Harvard University, U.S.A.

I have three additional specimens, two workers and one female, taken by Mr. Plaumann from sifted soil cover in May (female) and December (workers) of 1957, at Chapecó, S. Catarina State, Brazil, not very far from the type locality.

Female (undescribed) — Total length 3.1 mm; maximum length of head capsule 0.71 mm; maximum width of head 0.45 mm; Weber's length of thorax 0.79 mm. Cephalic index 64; mandibulo-cephalic index 15. Possesses the same diagnostic characters as the worker. The following caste-related features, however, deserve special mentioning:

Ocelli situated upon a slight elevation of the vertex (figs. 1, 8). Thorax somewhat compressed. Shoulders rounded. Pronotum narrower than scutum, both finely and superficially, the scutellum more heavily reticulate-punctate. The latter (fig. 1) bulging caudad, slightly overhanging the reticulate-punctate declivous face of epinotum which lacks a differentiated basal face. Sides of thorax smooth and shining, except a narrow band along the ventral border and the epinotal spines and the infradental lamellae, flanking the reticulate-punctate declivous face. Petiole as in worker, but node distinctly shorter. Standing hairs scarce, but more numerous as in worker, with 10 erect setae on scutum, 2 on scutellum.

***Gymnomyrmex rugithorax* sp. n.**

(Figs. 2, 4, 7)

Worker (holotype) — Total length 2.8 mm; maximum length of head capsule 0.76 mm; maximum width of head 0.52 mm; Weber's length of thorax 0.74 mm; width of pronotum 0.29 mm. Cephalic index 69; mandibulo-cephalic

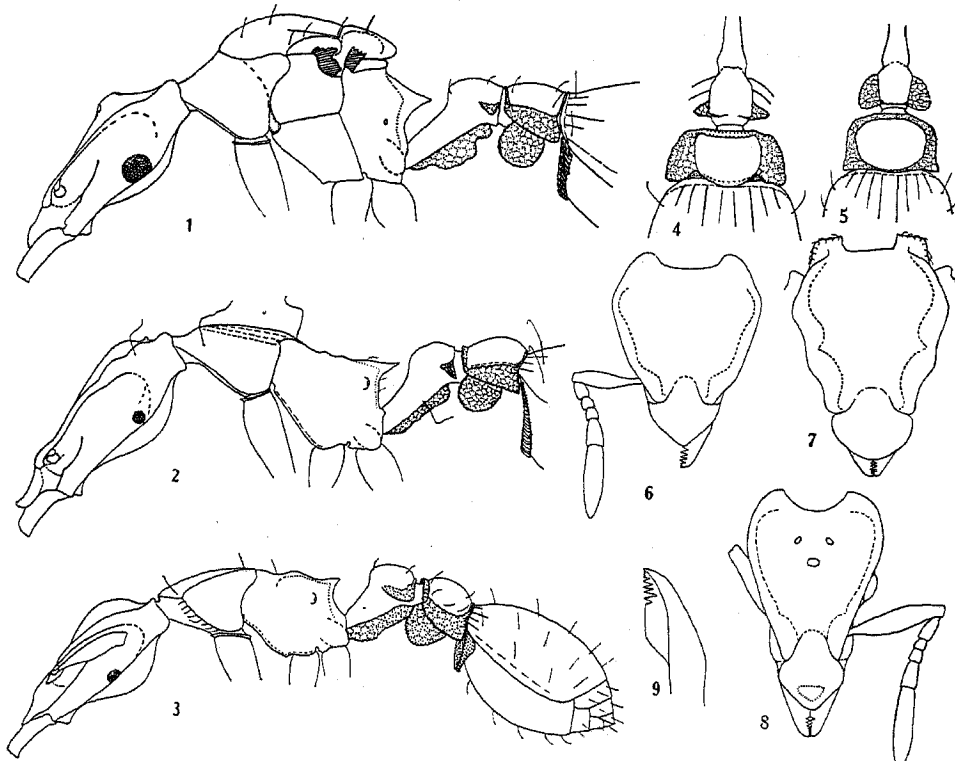
index 9. Reddish-brown; antennae and legs lighter; spongiform appendages dirty pale-yellowish; gaster fuscous.

Head (figs. 2, 7) depressed, broadly pyriform. Mandibles smooth and shining, little projecting from beneath clypeus; dentition basically as in *splendens* and *comis* (as only one specimen is available, no dissection of the mouth-parts has been made!). Clypeus rather flat, antero-mesially somewhat elevated, smooth and shining, covered with sparse, minute, setigerous punctures; anterior border semicircular, not drawn out to a point at the middle; posterior border between frontal carinae not well defined. Frontal carinae broad, greatly projecting above antennal scrobe, concealing preocular lamella in dorsal view, finely longitudinally rugulose and somewhat reticulate, diverging caudad till posterior third of head proper, where they curve obliquely mesad toward occiput; anterior corners slightly raised, separated by an excision from clypeus; lateral edges slightly scalloped. Front and vertex smooth and shining, covered with sparse, minute setigerous punctures, gently convex and raised above level of frontal carinae, curving down to deeply excised and carinate occipital border. Occipital lobes strongly projecting and somewhat constricted off at base, reticulate-punctate and rugulose. Antennal scrobe smooth and shining, posterior border ill-defined. Eyes situated behind the middle of head, just above the strongly marginate lower border of cheeks, which present a longitudinal reticulate stripe just above the margination. Eyes small, with about 5 facets across greatest diameter. Gular face of head smooth, shiny, discally convex. Scape clavate. Funicular segments I and IV subequal in length, more than twice as long as broad; segments II and III not much longer than broad; segment V nearly as long as I-IV combined.

Thorax (fig. 2) slender, its dorsum subopaque and sculptured, its sides mostly smooth and shining, except the finely reticulate-punctate borders of the respective sclerites. Dorsum of pronotum immarginate in front and at the sides, very gently convex transversely. Promesonotal suture absent. A median longitudinal carina extending from neck to anterior half of basal face of epinotum. Promesonotum at each side of the carina with several longitudinal rugae, the intervals sparsely reticulate-punctate, microsculpture becoming sharper caudad. Mesonotum flat, lateral borders gently convex, sharply marginate and somewhat raised. Mesoepinotal suture marked by a raised transverse carina, intersecting the longitudinal carina; dorsum of thorax somewhat excavate just in front and behind this carina. Basal face of epinotum flat, finely reticulate-punctate and slightly rugulose, the lateral borders marginate. Epinotal spines compressed; slender and acute, when seen from above, about as long as the distance between their bases. Declivous face of epinotum reticulate-punctate, margined at each side by a conspicuously raised, reticulate-punctate

infradental lamella. Epinotal spiracle prominent. Coxae, femora and tibiae finely reticulate-punctate and subopaque.

Petiole (figs. 2, 4) finely reticulate-punctate, subopaque, strongly pedunculate, peduncle longer than node. Node somewhat longer than broad, finely and irregularly rugose. Postero-lateral spongiform appendages small and tri-



Gymnomyrmex splendens Borgmeier, female — Fig. 1: Body in profile; fig. 8: head in dorsal view. — *Gymnomyrmex rugithorax* sp. n., worker — Fig. 2: Body in profile; fig. 4: pedicel in dorsal view; fig. 7: head in dorsal view. — *Gymnomyrmex comis* sp. n., worker — Fig. 3: Body in profile; fig. 5: pedicel in dorsal view; fig. 6: head in dorsal view; fig. 9: mandible in ventral view. Kempf del.

angular; longitudinal ventral spongiform crest well developed. Postpetiole, including the very broad lateral spongiform border, twice as broad as long; disc smooth and shiny, subsemicircular; postero-lateral corner of spongiform border not drawn out into an acute angle or spine. Ventro-lateral spongiform appendages well developed.

Gaster broad oval, smooth and shining, anteriorly bordered by a thin sinuate lamella. First tergite with 8-9 basidorsal costulae, which are widely spaced, extending backwards about one fourth the length of the tergite. Pad of spongiform hairs along border of anterior truncation of first sternite moderately developed.

Minute, short, appressed hairs in punctures of clypeus, front and vertex. Flagellate hairs: one at each side of occiput, two pairs on promesonotum, near anterior and posterior corners, one projecting from each side ventrally of petiole. Slightly shorter, pointed, oblique or decumbent hairs on occipital lobes, gular face, dorsum of thorax, sides and disc of petiolar node, postpetiolar disc, also on legs, where they are rather oblique than decumbent. Dorsum of gaster with longer, thin, silky and flexuous hairs, about 24 on first tergite.

Type — Nova Teutônia, Santa Catarina State, Brazil, sifted from jungle floor cover, December 1958, Fritz Plaumann coll.: 1 worker (holotype), Coll. Kempf, n. 3002.

This very striking species differs from *splendens* quite obviously in the shape of the clypeus, the broader, more projecting and scalloped frontal carinae, the shape of the occipital lobes, the sculptured and carinate thoracic dorsum, the shape of the pedicel, the presence of flagellate hairs and the otherwise more abundant pilosity.

***Gynomyrmex comis* sp. n.**

(Figs. 3, 5, 6, 9)

Worker (holotype) — Total length 2.4 mm; maximum length of head capsule 0.66 mm; maximum width of head 0.51 mm; Weber's length of thorax 0.63 mm; width of pronotum 0.27 mm. Cephalic index 77; mandibulo-cephalic index 10. Fuscous-brown; mandibles, antennae and legs yellowish-brown; spongiform appendages whitish.

Head (figs. 3, 6) depressed, broadly pyriform. Mandibles (fig. 9) smooth and shining, little projecting from beneath the clypeus; chewing border with a broad, long, semidiaphanous basal lamella, nearly completely covered by the clypeus, and distally serially dentate, the basal four teeth fairly large, the following 6-7 apical teeth, mostly on the strongly deflected apical end, minute or nearly vestigial. Clypeus flat, smooth and shining, with sparse, minute setigerous punctures; anterior apron nearly triangular tapering to a somewhat rounded point, posterior border vestigial. Frontal carinae broadly expanded over antennal scrobe, yet more constricted in front than in the preceding species, exposing a portion of the preocular lamella, when seen from above; diverging caudad to about posterior fourth of head, then curving mesad toward occiput; outer edge continuous, dorsal face finely, mostly longitudinally, rugulose. Front and vertex smooth and shiny, with sparse setigerous points, nearly flat anteriorly, not conspicuously raised above level of frontal carinae, posterior portion sloping down to deeply and more broadly excised and carinate occipital border. Occipital lobes completely rounded, not constricted off the head proper, laterally and posteriorly submarginate. Antennal scrobe deeply exca-

vate, smooth and shining, posterior border behind eyes defined. Eyes having 12 facets, 4 across greatest diameter, situated just behind the middle of head, above the strongly marginate lower border of cheeks. Gular face smooth and shining, discally convex. Scape and funiculus essentially as in *rugithorax*.

Thorax (fig. 3) rather smooth and shiny throughout. Pronotum anteriorly and laterally distinctly marginate, the dorsal and the lateral faces meeting at a right angle. Promesonotal sutures obsolete. Humeral corner marked, rectangular. Promesonotum, in profile, gently convex, separated from basal face of epinotum by a broad, shallow transverse impression. Mesonotum with a longitudinal, more or less vestigial carinule in the middle, its lateral borders nearly straight, sharply marginate. Basal face of epinotum subquadrate, laterally and posteriorly between the spines marginate, with vestigial punctures and rugosities. Epinotal spines compressed, somewhat diverging caudad and distinctly shorter than the distance between their bases, when seen from above. Declivous face smooth and shining, margined at each side by a strongly elevated infradental lamella. Legs, with the exception of the nearly smooth and shiny lateral face of fore coxae and dorsal apices of femora, finely reticulate-punctate and subopaque.

Petiole (fig. 5) reticulate-punctate, except the smooth and shiny disc of node. Node long, more highly raised over, and more distinct from peduncle. Spongiform appendages better developed than in preceding species, the lateral ones rounded, longer and broader, the ventral longitudinal crest deeper. Postpetiole less than twice as broad as long, the lateral spongiform margin narrower, the smooth and shiny disc relatively broader than in *rugithorax*. Posterolateral angle of spongiform appendages slightly drawn out and marked. Ventrolateral appendages of postpetiole well developed.

Gaster smooth and shining, broadly oval, with a thin, sinuate lamella in front, about 8 basidorsal costulae, median ones extending backward for about one third the length of the tergite the lateral ones gradually shorter. Ventral pad of spongiform hairs around border of anterior truncated face of first sternite better developed.

Minute appressed setulae on clypeus, front and vertex shorter than in *rugithorax*. Standing hairs long, pointed: 3 pairs on thorax, 2 pairs on petiole, 5 pairs — oblique to decumbent on postpetiolar disc, many on gaster, about 24 on first tergite, the anteriormost hairs somewhat inclined forward. Long decumbent hairs on posterior half of lateral border of head, along lower border of cheeks, on gular face, occipital lobes, border of laterotergite of pronotum, scapes and legs.

Types — Serra Geral, Santa Catarina State, Brazil, sifted from soil cover, December 1958, Fritz Plaumann coll.: 3 workers (holotype and paratypes), Coll. Kempf, n. 3003.

The two paratypes agree completely with the foregoing description of the holotype. Also the variation in size is insignificant. Here are the measurements of the paratypes: Total length 2.4-2.5 mm; maximum length of head capsule 0.65-0.66 mm; maximum width of head 0.51 mm; Weber's length of thorax 0.63-0.65 mm; width of pronotum 0.26-0.27 mm. Cephalic index 77-78; mandibulo-cephalic index 10.

The relatively broader and shorter head, the anteriorly marginate pronotum, the nearly completely smooth and shiny thorax and the type of pilosity separate *comis* both from *splendens* and *rugithorax*. It is interesting to note that precisely in the aforesaid features *comis* resembles rather closely *Chelystruma lilloana*, from which it may be distinguished by the features of the mandibles and the petiole, already discussed in the generic diagnosis of *Gymnomyrmex*.

RESUMO

Neste trabalho o autor descreve duas novas espécies de formigas, *Gymnomyrmex rugithorax* e *Gymnomyrmex comis*, colecionadas por F. Plaumann no Oeste Catarinense. À base destes novos achados é revisto o diagnóstico genérico de *Gymnomyrmex* e discute-se a afinidade do gênero.

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