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**The Neotropical Species of the Ant Genus
Strumigenys Fr. Smith: Group of cordovensis
Mayr**

By William L. Brown, Jr.

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(With 1 text-figure)

This paper is a continuation of my series on the New World fauna of the dacetine ant genus *Strumigenys* Fr. Smith. Earlier parts, containing keys to the abbreviations for measurements and proportions, may be found in Jour. New York Ent. Soc. 61: 53-59, 101-110 (1953). In addition to these, other parts have been published or are being prepared.

The *cordovensis* group includes four species as at present understood: *cordovensis* Mayr, *dolichognatha* Weber, *rehi* Forel, and *sublonga* sp. nov. These species are notable chiefly for their very long mandibles, which, however, are clearly only modifications of the *mandibularis* pattern; the dentition consists of an apical fork with a large intercalary tooth, and two subequal preapical teeth. *S. cordovensis* and *S. dolichognatha* have mandibles so long that they are at the extreme degree of such specialization among the ants. These mandibles are possibly used to lift the prey, presumed to be mainly or entirely furculate collembolans as in other species of the genus, clear of the ground after the mandibular strike is made, in this way preventing the springtails from kicking with the furcula against the ground and upsetting the ant. Such disproportionately large mandibles must be employed almost entirely in the open, because confined spaces would surely hinder their action; the large eyes of *rehi* suggest for that species an arboreal habitat consistent with its having been taken in epiphytic plants exported from Brazil. For ecological notes on the group, see Weber 1934, 1952.

Within the group, mandibular length varies considerably both absolutely and relatively in the best-known species (*cordovensis*), and the other species, each at present known from a single nest series, may eventually be shown to vary almost as much. At present, however, the mandibular proportions appear to characterize species populations, with which the variation of other characters is reasonably concordant (total body size, spacing of preapical mandibular teeth, eye size, pilosity, spongiform appendage development, etc.). Further collecting in the South

American forests may show that the samples here considered to be specifically discrete are only segments of the variation of one or two very plastic species, with *cordovens* in the present sense representing a northern peripheral stock. *S. sublonga* is particularly close to *cordovens*, and could represent a character-displaced population of *cordovens* from the upper Amazon tributaries; only further material can decide such questions.

In at least two of the species, *cordovens* and *dolichognatha*, the propodeal lamellae are very inconstant in size and form both inter- and intranidally, with the upper teeth sometimes well developed, sometimes virtually obsolete, as in *S. biolleyi* Forel. Such variation may occur even in single nest series; see fig. 1, D-G.

The trigger hairs of the labrum are present, but are rather short and delicate, perhaps because such slender setae could not stand up to attrition at the lengths necessary to match the mandibles; apparently, the long hairs of the inner mandibular border take over part of the trigger-hair function.

***Strumigenys cordovens* Mayr**

(Fig. 1, B, E, F, G)

Strumigenys cordovens Mayr, 1887, Verh. zool.-bot. Ges. Wien, 37: 573, worker.

Type loc.: Cordoba, Vera Cruz, Mexico.

Strumigenys (Strumigenys) cordovens, Emery, 1922, Gen. Ins., Hym., fasc. 174: 322, pl. 7, fig. 3, head of worker figured.

Strumigenys cordovens, Mann, 1922, Proc. U. S. Nat. Mus., 61 (13): 38, nest in rotten wood, Ceiba, Honduras.

Measurements based on about 40 workers from at least 12 colonies and representing 8 different localities, ranging from Cordoba, Mexico, to Trinidad and Dutch Guiana. Worker: TL 3.4-3.8, HL 0.73-0.82, ML 0.83-0.92 mm; CI 76-80, MI 109-123. Female: HL 0.78-0.79, ML 0.84-0.91 mm; CI 79-83, MI 107-113. Head as in fig. 1B. Mandibles as seen from the side extremely slightly or not at all curved upward from near the middle to the tips; distance between dorsal apical tooth and distal preapical tooth slightly less than the distance between the two preapicals, or in other words, the distal tooth of the preapical pair always closer to the apex than to its partner tooth. Apical fork composed of two long spiniform teeth, the ventral one slightly shorter than the dorsal, and a spiniform intercalary tooth half or more as long as the two main teeth.

Epinotal lamellae well developed, very variable. In the Mexican specimens, the upper tooth is absent or represented only by a low convexity, so that the lamella has the general form of those of *S. biolleyi* Förel; see Figure 1G. In series from farther south in Central America and northern South America, the upper tooth or angle of the lamella is usually more distinct (Figures 1E, 1F), but varies widely even in single nest series.

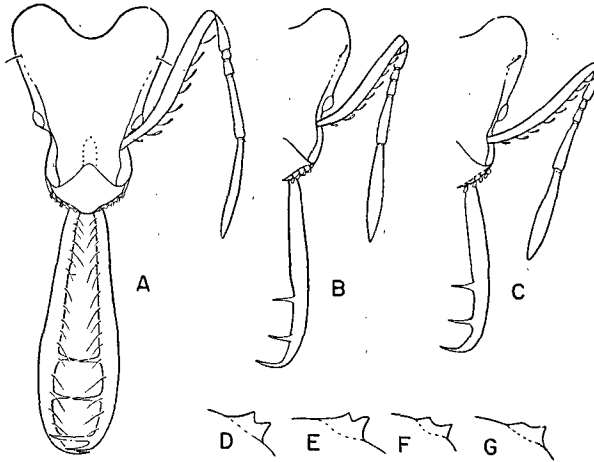


Fig. 1. Workers of three species of the *Strumigenys cordovensys* group: A, *S. dolichognatha* Weber, dorsal view of head and mandibles, syntype. — B, *S. cordovensys* Mayr, La Ceiba, Honduras, dorsal view of left half of head. — C, *S. sublonga* n. sp., dorsal view of left half of head (mandibular hairs omitted in B and C), paratype. — D, *S. sublonga*, lateral view of propodeal outline, paratype. — E, *S. cordovensys*, lateral view of propodeal outline, Zent, Costa Rica. — F, same, La Ceiba, Honduras. — G, same, type series, Cordoba, Veracruz, Mexico. (Drawings by Nancy Buffler).

Petiolar node rounded above, convex anteriorly, the posterior half of its dorsum covered by a broad transverse band of spongiform tissue that extends forward as a large lobe on each side to cover the greater part of the lateral surfaces of the node. Postpetiolar disc subquadrangle, with rounded posterior corners, not or only slightly broader than long and only very weakly convex, the spongiform appendages very voluminous and fitting snugly up against the discal margin. The disc usually shows several longitudinal costulae along the anterior margin, these either very short or extending to as far as the midlength of the free surface; rest of disc more or less smooth, sometimes with obscure granulation or punctulo-reticulation, usually

somewhat shining, at least over the posterior half. Basigastric costulae very short, extending to less than 1/10 the length of the basal segment.

Head with a rather sparse growth of short, inconspicuous reclinate or subreclinate hairs, rather broadly remiform at their tips, those on the scapes slightly longer and more slender, subreclinate and directed apicad. Occiput with a pair of stiffly erect remiform hairs in the middle, and a second pair, one hair of which graces the lateral border of each occipital lobe (Figure 1B). Each humerus with a long erect remiform hair; dorsum of promesonotum with several sparse rows of reclinate spatulate hairs much like those of the cephalic ground pilosity, the main row of these small hairs following the obsolete promesonotal suture in an arc. Propodeum almost or quite without pilosity of any kind, rarely with a few minute, fine reclinate hairs. Nodes with a few long, weak subflagellate hairs directed posteriad; anterior border of gastric dorsum, venter, and dorsum of posterior gastric segments with a few long, fine erect hairs.

Color yellowish to dark-ferruginous, gaster usually more or less infusate, sometimes approaching black.

Variation: In addition to the variation of the propodeal lamellae already mentioned above, there are signs of trends in absolute head length (HL) and in the length of the mandibles relative to the head proper (MI). Samples from Mexico and Honduras have shorter mandibles, MI 109-112 (111), 6 workers measured. From three Costa Rican localities, MI is very variable, 112-119 (114), 6 workers measured. In four or more nest series from the Panama Canal Zone, MI is still more variable, but perceptibly greater: 114-123 (119), 15 workers measured. One worker from Trinidad is MI 114, and one from Paramaribo is 115.

HL is highest in Mexico, 0.79-0.82 mm, but the sample is very small and the figure is overlapped by individual specimens from Costa Rica and the Canal Zone.

Localities for material studied: Mexico: Cordoba, Vera Cruz, syntypes and/or nidotypes [MCZ, Acad. Nat. Sci. Philadelphia, Naturh. Mus., Wien]. Honduras: La Ceiba (W. M. Mann). Costa Rica: Zent (Mann). Guapiles (F. Nevermann). Turrucare (collector?). Panama Canal Zone: Barro Colorado Island, various collections by J. Zetek, K. W. Cooper. Trinidad: Nariva Swamp (N. A. Weber). Dutch Guiana: Paramaribo (Geijskes).

Strumigenys mokensis Forel, new status

Strumigenys cordovensis var. *mokensis* Forel, 1905, Ann. Soc. Ent. Belg., 49: 158, worker. Type loc.: La Moka, Venezuela.

Of the characters mentioned for this form by Forel, those of head width, promesonotal suture, and so on, all seem to be part of the normal variation of *cordovensis* as seen in the series dealt with above. However, Forel does mention that the mandibles are as long as the head, "but not longer".

Exactly what the mandible-length to head-length ratio is, it is now impossible to say, because Forel's statements of this kind were only casual, and lacked sufficient precision for the present studies of *Strumigenys*. It seems most likely that these La Moka samples are *cordovensis* with mandibulo-cephalic index in the low 100's, although it is not impossible that they represent the species next described as *sublonga*, or even another independent species that I have not seen. It has proven difficult to trace the type of *mokensis*; apparently it is not in Forel's collection at Geneva.

Under the circumstances, I think it is best to raise *mokensis* to a provisional rank of species, the category in which it must have standing, in my opinion, to avoid synonymy.

Strumigenys sublonga, new species

(Fig. 1, C, D.)

Holotype worker: TL 3.6, HL 0.78, ML 0.75, WL 0.78, scape L 0.61, funiculus 0.88 mm. CI 78, MI 96.

Similar to *cordovensis*, but the mandibles slightly shorter than the head proper. Both points of propodeal lamellae well developed and acute, subequal in size, the upper larger than usual in *cordovensis* (compare Fig. 1D with 1E-G). Posterior dorsal spongiform band of petiolar node thinner, the lateral lobes smaller, covering less than half the lateral surfaces of the node. Postpetiolar disc much as in *cordovensis*, but broader both absolutely and in relation to its own length; surface weakly convex, shining, with 6-7 fine but distinct costulae running its entire length. Pilosity differing only slightly from that of *cordovensis*, tending somewhat toward that of *rehi* in its very slightly larger size and in the presence of a very few narrow spatulate

ground hairs on the posterior propodeal dorsum. Promesonotal dorsum with one or two additional pairs of conspicuous erect remiform hairs. First gastric segment with a few long, straggling flagellate hairs on the middle and posterior parts as well as the anterior section. Basal costulae of gaster rather strong and conspicuous, 16 or so in number, extending $1/5$ to $1/4$ the length of the segment bearing them. Eyes slightly larger than in *cordovensis*, greatest diameter 0.07 mm. General color medium ferruginous, gaster only slightly darker.

Holotype selected from a series of workers with two dealate females from the lower Rio Madidi, Bolivia (W. M. Mann leg., Mulford Biological Expedition). Holotype in USNM.

Paratypes: six of the additional specimens were measured among the workers: HL 0.74-0.79, ML 0.72-0.75, CI 76-80, MI 96-98. Two dealate females: HL 0.73-0.76, ML 0.70-0.72, CI 80-82, MI 95-96. Paratypes in USNM, MCZ and elsewhere.

All of the differences of *sublonga* from *cordovensis* are relatively minor, and may represent extremes of variation within *cordovensis*. Until we know more about the *cordovensis* group in the Amazon-Orinoco drainage, it seems best to recognize the Bolivian form as a distinct species.

***Strumigenys rehi* Forel**

Strumigenys Rehi Forel, 1907, Mitt. naturh. Mus., Hamburg, 24: 3, worker. Type loc.: Hamburg Plant Quarantine, from Manaus, Brazil.

A cotype (syntype) worker borrowed from the Forel Collection at Geneva, courtesy of Dr. Ch. Ferrière, measured as follows: TL 3.7, HL 0.76, ML 0.76, WL 0.80, scape L 0.64 mm. CI 76, MI 100. Like *cordovensis*, but with the following differences:

Head slightly less broadened behind; eyes larger, protruding, but perhaps not quite so much as in *cordovensis*; maximum diameter about 0.09 mm. Promesonotum slightly more convex above, promesonotal suture not or extremely indistinctly carinate. Ventral tooth of propodeal lamella longer and more acute. Petiole with a long, slender peduncle. Node longer than broad and with summit and most of sides free of spongiform tissue; this tissue generally less heavily developed than in *cordovensis*. Postpetiolar disc very distinctly convex, opaque or subopaque and with 4-5

fine longitudinal costulae; spongiform appendages here not so voluminous as in *cordovensis*.

Basidorsal costulae of gaster few, short and well spaced. Dorsum of gaster otherwise shining, covered with numerous distinct and well spaced, short, pointed appressed hairs; posterior segments with a few longer, weak, erect or suberect hairs. Head, alitrunk and nodes covered with a rather even and abundant growth of narrow-to-medium width, decumbent or arched spatulate hairs, longer, more uniform and more abundant, especially on propodeal dorsum, than those of *cordovensis*. Nodes with numerous short, arched, narrowly spatulate hairs directed posteriorly. No flagellate or subflagellate hairs; erect clavate or remiform hairs rather short on head; a remiform pair gracing the humeral angles. General body color concolorous, even, medium ferruginous.

This species, taken from orchid plants originating from the Amazon Basin, has the attributes of a specialized arboreal member of its group; I refer especially to the large eyes, which distinctly exceed those of the ground-dwelling *cordovensis*.

***Strumigenys dolichognatha* Weber, new status**

(Fig. 1, A)

Strumigenys sp., Wheeler, 1927, Quart. Rev. Biol., 2: 14, fig. 13, worker, form and musculature of head.

Strumigenys (*s. str.*) *cordovensis* subsp. *dolichognatha* Weber, 1934, Rev. Ent., Rio de Janeiro, 4: 40, worker, male. Type loc.: Kartabo, British Guiana.

Six syntype workers: HL 0.84-0.90, ML 1.04-1.08 mm; CI 75-77, MI 119-124. These are the largest members of the group and have the mandibles proportionately longer on the average. The distal preapical tooth is closer to the proximal preapical than it is to the dorsal apical tooth. Propodeal teeth very variable, even within the small type nest series; some specimens have the upper tooth rounded, while in others it is acute. The antepenultimate antennal segment (funicular segment IV) is absolutely and relatively longer than in *cordovensis*.

The male is described and figured by Weber (*loc. cit.* and Fig. 14B) at some length. The type collection, made in a rotten log in rain forest, came from a cavity lined with gray fungus. This species is known only from the type series.

S. dolichognatha is at the terminus of a gradual morphocline within the *mandibularis* series. Working backward from *dolichognatha*, the

morphocline runs first to *cordovens*, then *sublonga*, *rehi*, *saliens*, *smithii* group, *mandibularis*. Along this series, the mandibles become shorter and thicker, but the basic dentition remains unchanged in formula.

References

- Weber, N. A., 1934, Notes on neotropical ants, including the descriptions of new forms. — *Rev. Ent.*, Rio de Janeiro, 4: 22-59; cf. pp. 40, 41.
— 1952, Biological notes on Dacetini (Hymenoptera, Formicidae). — *Amer. Mus. Novit.*, No. 1554, 7 pp., cf. p. 2.