

*Strumigenys xenohyla* Bolton

(Fig. 378)

*Strumigenys xenohyla* Bolton, 1983: 398, figs. 54, 73. Holotype and paratype worker, CAMEROUN: Nkoemvon, 7.ix.1980, N22 (*D. Jackson*) (BMNH) [examined].

[*Strumigenys xenohyla*: Bolton, 1995b: 399 (catalogue).]

WORKER. TL 2.3 - 2.4, HL 0.60 - 0.67, HW 0.47 - 0.53, CI 78 - 83, ML 0.29 - 0.33, MI 48 - 51, SL 0.33 - 0.36, SI 68 - 71, PW 0.26 - 0.27, AL 0.55 - 0.58 (4 measured). Outer margins of mandibles more or less straight, without a sharply inflected basal-external angle. Proximal preapical tooth very long, spiniform, much longer than maximum width of mandible. Length of left proximal preapical tooth greater than distance separating it from left apicodorsal tooth. Left distal preapical tooth more than half the length of the proximal. Eyes moderate in size (ca 0.15 X HW) but only slightly greater than maximum width of scape as the latter is somewhat dorsoventrally flattened and expanded. Preocular notch vestigial. Leading edge of scape, and upper scrobe margin, fringed with very conspicuous thickly spoon-shaped hairs. Propodeal dorsum smooth and shining.

*Strumigenys zandala* Bolton

*Strumigenys zandala* Bolton, 1983: 399, fig. 66. Holotype and paratype workers, EQUATORIAL GUINEA: Annobon I., 400-500 m., v.1902 (*L. Fea*) (MCSN, BMNH, MCZ) [examined].

[*Strumigenys zandala*: Bolton, 1995b: 399 (catalogue).]

WORKER. TL 2.2 - 2.3, HL 0.59 - 0.61, HW 0.42 - 0.44, CI 70 - 73, ML 0.26 - 0.27, MI 43 - 45, SL 0.33 - 0.35, SI 75 - 81, PW 0.24 - 0.30, AL 0.57 - 0.63 (11 measured). Outer margin of mandible shallowly convex and evenly curved. Curved hairs that fringe upper scrobe margin small and narrowly spatulate, only very slightly longer than hairs on leading edge of scape. Scape much shorter (SI, above) than in the closely related *sibyna* (SI 90 - 93). Maximum diameter of eye greater than maximum width of slender scape; eye with about 20 ommatidia in total. Preocular notch absent. Petiole node in dorsal view broader than long. Hairs on first gastral tergite short, stiff and simple, pointed apically.

THE MALAGASY FAUNA OF *STRUMIGENYS*

In the most recent synoptic list of the Malagasy fauna (Fisher, 1997) only four species of *Strumigenys* are recorded. One of these, *emmae*, is a pantropical tramp species. Another, *godeffroyi*, is based on an old record that is almost certainly a misidentification as no other material correctly referable to the species has ever been discovered in the region. The final two species of Fisher's list, *grandidieri* and *scotti*, therefore represent the only endemic Malagasy species of this genus that have been described to the present day.

This, the first synthesising taxonomic study of the regional fauna, raises the number of Malagasy species to 75. There are two tramp species, *rogeri* and *emmae*, which are listed and keyed here but discussed under the regional faunas of their origin, the Afrotropical and Austral regions respectively. The two other previously described species (*grandidieri*, *scotti*) and 71 new species are discussed below.

The fauna falls into nine indigenous species groups of which four, containing a total of 19 species, are endemic to Madagascar (*apios*-group, *dexis*-group, *grandidieri*-group and *adsita*-group). Two species groups, each with only a single species in the Malagasy region, are of Oriental-Malesian origin and are highly speciose in those regions (*godeffroyi*-group and *koningsbergeri*-group). The final three groups, containing 53 species, are the most speciose in the Malagasy region and are shared with the Afrotropical region (*arnoldi*-group, *rogeri*-group and *scotti*-group); one of the *rogeri*-group species, *vazimba*, is the largest *Strumigenys* species known.

CHECK-LIST OF MALAGASY *STRUMIGENYS* SPECIES

- adsita*-group  
*adsita* Fisher sp. n.
- apios*-group  
*agra* Fisher sp. n.  
*apios* Fisher sp. n.
- arnoldi*-group  
*abdera* Fisher sp. n.  
*alapa* Fisher sp. n.  
*bathron* Fisher sp. n.  
*charino* Fisher sp. n.  
*dolabra* Fisher sp. n.  
*heliani* Fisher sp. n.  
*levana* Fisher sp. n.  
*lutron* Fisher sp. n.  
*manga* Fisher sp. n.  
*micrans* Fisher sp. n.  
*mola* Fisher sp. n.  
*schuetzi* Fisher sp. n.  
*toma* Fisher sp. n.
- dexis*-group  
*alperti* Fisher sp. n.  
*carolinae* Fisher sp. n.  
*coveri* Fisher sp. n.  
*dexis* Fisher sp. n.  
*gorgon* Fisher sp. n.  
*peyrierasi* Fisher sp. n.  
*rabesoni* Fisher sp. n.  
*sylvaini* Fisher sp. n.  
*wardi* Fisher sp. n.
- emmae*-group  
*emmae* (Emery, 1890)
- godeffroyi*-group  
*agetos* Fisher sp. n.
- grandidieri*-group  
*actis* Fisher sp. n.  
*ampyx* Fisher sp. n.  
*bibiolona* Fisher sp. n.  
*chilo* Fisher sp. n.  
*dora* Fisher sp. n.  
*fanano* Fisher sp. n.  
*grandidieri* Forel, 1892
- koningsbergeri*-group  
*dicomas* Fisher sp. n.
- rogeri*-group  
*admixta* Fisher sp. n.  
*carisa* Fisher sp. n.  
*ection* Fisher sp. n.  
*fronto* Fisher sp. n.  
*hilaris* Fisher sp. n.  
*labaris* Fisher sp. n.  
*luca* Fisher sp. n.  
*lysis* Fisher sp. n.  
*milae* Fisher sp. n.  
*nambao* Fisher sp. n.

- norax* Fisher sp. n.
- rogeri* Emery, 1890
- sphera* Fisher sp. n.
- vazimba* Fisher sp. n.
- scotti*-group
- balux* Fisher sp. n.
- bola* Fisher sp. n.
- cabira* Fisher sp. n.
- chroa* Fisher sp. n.
- covina* Fisher sp. n.
- deverra* Fisher sp. n.
- diota* Fisher sp. n.
- diux* Fisher sp. n.
- doxa* Fisher sp. n.
- epulo* Fisher sp. n.
- europs* Fisher sp. n.
- finator* Fisher sp. n.
- glycon* Fisher sp. n.
- inatos* Fisher sp. n.
- ipsea* Fisher sp. n.
- langrandi* Fisher sp. n.
- lexex* Fisher sp. n.
- livens* Fisher sp. n.
- lucomo* Fisher sp. n.
- lura* Fisher sp. n.
- odacon* Fisher sp. n.
- origo* Fisher sp. n.
- ravola* Fisher sp. n.
- rubigus* Fisher sp. n.
- scotti* Forel, 1912
- tegar* Fisher sp. n.

KEY TO MALAGASY *STRUMIGENYS* SPECIES (workers)

- 1 With head in full-face view a preocular notch present, the ventrolateral margin of the head notched or indented immediately in front of the eye. With head in profile the preocular notch seen to continue vertically as a groove in the side of the head that extends towards the dorsal outline; in the same view preocular notch also seen to extend onto the ventral surface of the head as a transverse preocular groove that runs towards but does not reach the midline. An extremely deep and sharply defined post-buccal groove also present, extending across entire width of head immediately posterior of buccal cavity; postbuccal groove sharply separated from ventral preocular groove.....2
- With head in full-face view a preocular notch absent, the ventrolateral margin of the head continuous to the anterior margin of the eye, without trace of a notch or indentation immediately in front of the eye. With head in profile side in front of eye without a vertical groove that extends towards the dorsal outline; in the same view without a transverse preocular groove on the ventral surface of the head. Postbuccal groove vestigial or at most a shallow transverse impression immediately posterior of buccal cavity.....23
- 2 With head in profile, upper scrobe margin ending, or at least becoming extremely indistinct, at about the level of the eye..... 3
- With head in profile, scrobe, and its dorsal margin, extending posteriorly well beyond level of eye.....9

- 3 Preapical teeth absent or at most a small spiniform denticle may be present immediately basal of apicodorsal tooth on right mandible. Apical fork of mandible subtended by a third, shorter spiniform tooth.....4
- Preapical teeth present. Apical fork of mandible not subtended by a third spiniform tooth; at most the apicoventral tooth may have a minute spur or denticle at its ventral base.....7
- 4 With head in profile preocular groove meets and is interrupted by the upper scrobe margin before reaching the cephalic dorsum. Scapes relatively shorter, SI 78 - 86.....5
- With head in profile preocular groove extends uninterrupted to the cephalic dorsum, and is not interrupted by the upper scrobe margin. Scapes relatively longer, SI 91 - 132.....6
- 5 Mesonotum with 1 pair of erect hairs on anterior margin. Cephalic dorsum with a transverse row of four erect hairs immediately in front of occipital margin  
.....*actis* (p. 648)
- Mesonotum with 2 pairs of erect hairs (can be worn). Cephalic dorsum with a transverse row of six erect hairs immediately in front of occipital margin  
.....*ampyx* (p. 649)
- 6 Propodeal spines shorter, length of spine about equal to distance between bases of spines, distance between bases of spines measured distal to basal curvature. Dorsum of head sharply depressed behind vertex, forming a very shallow concave impression before occipital angles; in profile, outline of dorsal margin of occipital corners almost flat. Scapes relatively shorter, SI 91 - 106. (Figs 391, 415)  
.....*chilo* (p. 651)
- Propodeal spines long, much longer than distance between bases of spines. Dorsum of head evenly and gradually curved from vertex to posterior margin of occipital corner; in profile, outline of dorsal margin of occipital corners continuously and gradually curved, not flat. Scapes relatively longer, SI 115 - 132  
.....*bibiolona* (p. 650)
- 7 Large species, HL 1.25 - 1.45, HW 0.97 - 1.14. Mandible with truncated preapical teeth. Pronotal humeral hair absent. First gastral tergite and sternite without punctate sculpture or at most merely the extreme base of the tergite punctate, the sternite always smooth. (Figs 393, 414).....*grandidieri* (p. 654)
- Smaller species, HL 0.70 - 0.75, HW 0.55 - 0.59. Mandible with spiniform preapical teeth. Pronotal humeral hair present, stiff. First gastral tergite and sternite densely punctate over the anterior half or more of each sclerite.....8
- 8 Dorsum of petiole with at least 3 pairs of hairs. Propodeal spines broadly triangular. Propodeal declivity with a standing, posteriorly projecting hair at centre of lateral margin. Katepisternum smooth and shiny. Colour chocolate brown  
.....*dora* (p. 652)
- Dorsum of petiole with one pair of hairs. Propodeal spines narrowly triangular and almost spiniform. Propodeal declivity without standing hairs. Katepisternum reticulate-punctate. Colour orange brown. (Fig. 392).....*fanano* (p. 653)
- 9 In full-face view apical portion of the inner margin of the mandible concave or scooped out. Mandible without defined preapical teeth; a rounded tumulus or rarely a minute acute denticle may be present on the proximal apex of the preapical concavity. (Figs 394, 416).....*dicomas* (p. 655)
- In full-face view apical portion of the inner margin of the mandible not scooped out or concave. Mandible with 1 or more sharply defined acute preapical teeth and/or denticles.....10

10 Left mandible with 2 preapical teeth and/or denticles.....11  
 - Left mandible with 1 preapical tooth or denticle.....17

11 Pronotal humeral hair absent.....12  
 - Pronotal humeral hair present.....14

12 Scape relatively long, SI > 90. (Fig. 396).....*hilaris* (p. 661)  
 - Scape relatively short, SI < 90.....13

13 Mesonotum with a single pair of erect hairs, on anterior margin. In profile, petiole node broadly triangular with a blunt apex.....*luca* (p. 663)  
 - Mesonotum with two pairs of erect hairs, a shorter pair posterior to pair on anterior margin. In profile, petiole node evenly convex.....*milae* (p. 665)

14 Pronotal humeral hair flagellate. In profile preocular notch immediately in front of eye narrow, width of notch distinctly less than the maximum diameter of eye. (Fig. 368) (Cosmopolitan tramp species).....*rogeri* (p. 604)  
 - Pronotal humeral hair stiffly erect, filiform. In profile preocular notch immediately in front of eye broad, width of notch approximately equal to the maximum diameter of eye.....15

15 Dorsolateral margin of head posteriorly without stiff erect hairs that are longer than hairs on leading edge of scape. Upper scrobe margin with a narrow projecting lamellate rim above vertical preocular groove on side of head. Mesonotum with a single pair of erect hairs, located on anterior margin.....*lysis* (p. 664)  
 - Dorsolateral margin of head posteriorly with 2 - 4 (usually 3) stiff erect hairs that are longer than hairs on leading edge of scape. Upper scrobe margin without a projecting lamellate rim above vertical preocular groove on side of head; scrobe margin weakly marginate to rounded. Mesonotum with one or two pairs of erect hairs.....16

16 Mesonotum with a single pair of erect hairs, on anterior margin. (Fig. 395) .....*nambao* (p. 666)  
 - Mesonotum with two pairs of erect hairs, a shorter pair posterior to pair on anterior margin.....*norax* (p. 666)

17 Head massive, broad, HW 1.28 - 1.65. Propodeal spines recurved anteriorly. (Figs 399, 419).....*vazimba* (p. 669)  
 - Head narrower, HW < 0.90. Propodeal spines not recurved anteriorly.....18

18 Pronotal humeral hair long, stiffly projecting, filiform.....19  
 - Pronotal humeral hair absent.....20

19 Dorsolateral margin of head posteriorly with 2 - 3 stiff erect hairs that are longer than hairs on leading edge of scape. Head shorter and relatively broader, HL 0.80 - 0.88, CI > 80. (Figs 397, 417).....*fronto* (p. 660)  
 - Dorsolateral margin of head posteriorly without stiff erect hairs that are longer than hairs on leading edge of scape. Head longer and relatively narrower, HL 0.95 - 1.00, CI < 70.....*carisa* (p. 658)

20 Anterior margin of mesonotum with 2 pairs of stout standing erect hairs, one pair situated slightly anterior and mesad of second pair at anterior lateral margin of mesonotum.....*ection* (p. 659)  
 - Anterior margin of mesonotum with only a single pair of erect hairs, situated at anterior lateral margin of mesonotum. Rarely, a second pair of hairs is present posterior to the first pair, situated at the midlength of the lateral margin of the mesonotum.....21

- 21 Upper scrobe margin with a distinct, broad lamellate rim or flange throughout its length. Basal half of scape distinctly and sharply swollen or more or less subcylindrical. Dorsum of head with a transverse row of 6 hairs close to the occipital margin.....22
- Upper scrobe margin without a broad lamellate rim or flange throughout its length, lamellate rim when present limited to region above antennal insertion. Basal half of scape never sharply swollen, scape more or less subcylindrical. Dorsum of head with a transverse row of 4 or 6 erect hairs close to the occipital margin. (Figs 398, 418).....*sphera* (p. 668)
- 22 With head in ventral view, posterior-lateral and lateral margins of postbuccal groove with a lamellate rim; posterior-lateral face of groove concave.....*admixta* (p. 658)
- With head in ventral view, posterior and lateral margins of postbuccal groove rounded to bluntly marginate; posterior-lateral face of groove never concave, more or less vertical or gently sloping.....*labaris* (p. 662)
- 23 Leading edge of scape a dorsoventrally flattened convex lamella.....24
- Leading edge of scape not a dorsoventrally flattened convex lamella; scape elongate and subcylindrical.....47
- 24 In full-face view the mandibles asymmetric, the left mandible with 3 long or spiniform teeth (including preapical and apical), the right with 4 such teeth. HL 0.55 - 0.70, MI 17 - 33. Eyes usually conspicuous, never with 4 or less ommatidia; if eyes small, then lower scrobe margin marginate, forming a sharp ridge with ventral surface of head.....25
- In full-face view the mandibles symmetric, each with either 3 or 4 long or spiniform teeth. HL 0.37 - 0.71, MI 27 - 47. Eyes always small to minute (usually with 4 or less ommatidia); lower scrobe margin rounded, never forming a sharp ridge with ventral surface of head.....33
- 25 Dorsum of head with scattered punctures, the spaces between them smooth and shiny. Dorsum of promesonotum and petiole node smooth or with smooth surfaces between scattered punctures; without blanketing reticulate-punctate sculpture anywhere on the dorsum. Disc of postpetiole with scattered punctures or glassy smooth, without longitudinal sculpture. ....26
- Dorsum of head, and usually the dorsal surfaces of promesonotum and petiole node, entirely blanketed with dense fine reticulate-punctate to reticulate-granulate sculpture; without smooth spaces between scattered punctures. Disc of postpetiole usually with fine longitudinal striae or costulae, at least towards the sides.....30
- 26 Exposed cuticle of petiole node in dorsal view at least as long as broad, usually longer than broad. Pronotal disc as long as broad in dorsal view [length of pronotal disc measured from the anterior margin of the mesothoracic spiracle as seen in dorsal view to point at which the pronotum meets the cervical shield].....*coveri* (p. 640)
- Exposed cuticle of petiole node in dorsal view conspicuously broader than long. Pronotal disc broader than long in dorsal view.....27
- 27 Cephalic dorsum with appressed spoon-shaped hairs on the lateral portions of the occipital lobes behind the level of the scrobes, these hairs as large as those that border the upper scrobe margins.....*gorgon* (p. 642)
- Cephalic dorsum -without appressed spoon-shaped hairs on the lateral portions of the occipital lobes; such hairs are however present bordering the upper scrobe margins.....28
- 28 Labrum with apical lobes each terminating in a projecting broad fan-like lamella of translucent thin cuticle and a short trigger hair mesad of fan-like lamella; trigger

- hairs often difficult to see. Base of first gastral sternite with a row of flat, broad, spatulate appressed hairs. (Figs 387, 412).....*dexis* (p. 641)
- Labrum with apical lobes each terminating in one or two curved trigger hairs, without a fan-like lamella of translucent cuticle. Base of first gastral sternite without flat appressed hairs.....29
- 29 Mesonotum without standing hairs. First gastral tergite entirely without standing hairs.....*rabesoni* (p. 643)
- Mesonotum with a single pair of short straight standing hairs. First gastral tergite with a single pair of straight standing hairs close to the base.....*peyrierasi* (p. 643)
- 30 Erect short hairs entirely absent from dorsal surfaces of alitrunk, waist segments and first gastral tergite; hairs usually absent from cephalic dorsum, at most 1 pair of short simple hairs at occipital angles.....31
- Erect short hairs present as follows: a transverse row of 4 across the cephalic dorsum close to the occipital margin, one pair on the mesonotum, one pair posteriorly on the petiole node, two pairs posteriorly on the postpetiole disc, at least a basal row on first gastral tergite.....32
- 31 Cephalic dorsum immediately behind clypeus with a transverse band of scale-like hairs, arranged in several irregular rows; cephalic dorsum without erect hairs. Dorsal surfaces of promesonotum and petiole node entirely blanketed with dense fine reticulate-punctate to reticulate-granulate sculpture. Disc of postpetiole with fine longitudinal striae or costulae, at least towards the sides. Promesonotum flat with bluntly marginate humeral angles.....*alperti* (p. 639)
- Cephalic dorsum immediately behind the clypeus without scale-like hairs; cephalic dorsum with 1 pair of short simple hairs at occipital angles. Dorsal surfaces of promesonotum and petiole node with only scattered fine reticulate-punctate sculpture. Disc of postpetiole without fine longitudinal striae or costulae. Promesonotum transversely convex dorsally with rounded humeral angles  
.....*carolinae* (p. 640)
- 32 Postpetiolar disc finely longitudinally costulate. First gastral tergite without standing hairs between the apical and basal rows.....*wardi* (p. 645)
- Postpetiolar disc longitudinally reticulate-punctate, often with feeble longitudinal rugulae. First gastral tergite with standing hairs present between the apical and basal rows. (Fig. 388).....*sylvaini* (p. 644)
- 33 Antenna with 4 segments.....34
- Antenna with 6 segments.....38
- 34 Pronotal humeral hair present; looped, flagellate, or straight-clavate and projecting laterally.....35
- Pronotal humeral hair absent.....37
- 35 Pronotal humeral hair looped or flagellate.....*micrans* (p. 635)
- Pronotal humeral hair straight-clavate.....36
- 36 Row of scale-like to broadly spoon-shaped hairs on upper scrobe margin not terminating in a more or less straight clavate apicoscrobial hair. Scape strongly back-curved, with an anteriorly projecting subbasal lobe at the bend; apex of lobe with a projecting hair that is broadly clavate, almost fan-like. Preapical tooth of mandible set at the midlength of the mandible. (Fig. 385).....*schuetzi* (p. 636)
- Row of scale-like orbicular hairs on upper scrobe margin terminating in a more or less straight clavate apicoscrobial hair. Scape slightly back-curved, leading edge broadening at midlength and convex, not lobe-like, with a row of spoon-shaped

- hairs. Preapical tooth of mandible set in the distal third of the mandible. (Fig. 308) (Pantropical tramp species).....*emmae* (p. 950)
- 37 Pronotal disc without distinct longitudinal costulae; with densely reticulate-punctate sculpture as on posterior dorsum of head.....*lutron* (p. 633)  
 - Pronotal disc with distinct longitudinal costulae and not sculptured as posterior dorsum of head; in between costulae, pronotum smooth or with fine punctulate sculpture. ....*levana* (p. 632)
- 38 Pronotal humeral hair present, stiffly remiform to thickly clavate and projecting laterally.....39  
 - Pronotal humeral hair absent.....40
- 39 In profile, outline of alitrunk almost flat with a slight medial depression. Cephalic dorsum posterior of frontal lobes and along upper scrobe margin without hairs that are similar in shape to hairs on leading edge of scape. Lateral lobe on petiole very small and inconspicuous. Smaller, HL < 0.49, HW < 0.40. (Fig. 383)  
 .....*alapa* (p. 629)  
 - In profile, outline of alitrunk convex in anterior half, more or less flat in posterior half; anterior mesonotal dorsum steeply descending to its posterior half. Cephalic dorsum posterior of frontal lobes and along upper scrobe margin with hairs that are distinctly narrower than hairs on leading edge of scape. Lateral lobe on petiole well developed. Larger, HL > 0.55, HW > 0.48.....*manga* (p. 634)
- 40 Left mandible usually with two distinct preapical teeth: a longer proximal tooth and a smaller distal tooth. Larger, HL 0.53 - 0.71, HW 0.58 - 0.68.....41  
 - Left mandible with only one distinct, long preapical tooth; a minute denticle may also be present distal of the spiniform preapical tooth. Smaller HL 0.40 - 0.49, HW 0.38 - 0.45.....42
- 41 Cephalic dorsum posterior of frontal lobes and along upper scrobe margin without hairs that are similar in shape to hairs on leading edge of scape. Erect short, narrowly clavate hairs present on head, alitrunk and petiole. (Fig. 382).....*abdera* (p. 628)  
 - Cephalic dorsum posterior of frontal lobes and along upper scrobe margin with hairs that are similar in shape to hairs on leading edge of scape. Erect short, narrowly clavate hairs absent from head, alitrunk and petiole. (Figs 384, 411)  
 .....*heliani* (p. 632)
- 42 Apical fork of mandible consisting of 3 spiniform teeth, with an intercalary denticle between the apicoventral tooth and apicomedian tooth. Dorsum of alitrunk, petiole, postpetiole and gaster blanketed with numerous broadly spoon-shaped to suborbicular hairs. In profile, peduncle of petiole forming a broad translucent cuticular keel ventrally; spongiform tissue limited to a narrow strip at apex of the keel. In profile ventral spongiform tissue on postpetiole forming a hollow triangular projection. (Figs 381, 409).....*adsita* (p. 624)  
 - Apical fork of mandible consisting of 2 spiniform teeth, without intercalary dentition between the fork teeth. Dorsum of alitrunk, petiole, postpetiole and gaster without numerous clavate to spoon-shaped hairs. In profile, peduncle of petiole normal, not forming a broad keel ventrally. In profile ventral spongiform tissue on postpetiole not hollow and triangular in outline.....43
- 43 Cephalic dorsum with broad spoon-shaped to orbicular hairs present from posterior clypeal margin to occipital margin. Dorsum of petiole with a pair of broadly clavate to remiform hairs.....*bathron* (p. 629)  
 - Cephalic dorsum with clavate, spoon-shaped or orbicular hairs absent from posterior third of surface. Dorsum of petiole without a pair of broadly clavate to remiform hairs, at most with a pair of filiform to narrowly clavate hairs.....44



- 44 Mesonotum with a pair of short erect hairs on anterior margin. Base of first gastral tergite with a continuous row of sharply defined basal costulae ..... *mola* (p. 635)  
 - Mesonotum without a pair of short erect hairs on anterior margin. Base of first gastral tergite with or without a continuous row of well developed basal costulae.....45
- 45 In profile width of lamella on propodeal declivity distinctly less than half the width of the ventral spongiform strip on the petiole, approximately equal to the width of eye. Base of first gastral tergite with a continuous row of well developed basal costulae.....*charino* (p. 630)  
 - In profile width of lamella on propodeal declivity approximately half the width of the ventral spongiform strip on the petiole. Base of first gastral tergite without a continuous row of sharply defined basal costulae.....46
- 46 Basigastral costulae fine, radiating on each side of a central clear area which is free of costulae; punctulate-reticulate sculpture on tergite restricted to region of basal costulae, remainder of tergite smooth.....*dolabra* (p. 631)  
 - Basigastral costulae short, sparse and not sharply defined, gastral tergite covered in punctulate- to granulate-reticulate sculpture, at least on lateral margins. (Fig. 386) .....*toma* (p. 637)
- 47 Apical fork of right mandible with 2 (occasionally 1) intercalary teeth between the spiniform apicodorsal and apicoventral teeth; each mandible with 1 preapical stout tooth. (Figs 390, 413) (Mauritius).....*agetos* (p. 646)  
 - Apical fork of right mandible without intercalary teeth or denticles between the spiniform teeth; each mandible with 2 preapical teeth or preapical teeth absent. ....48
- 48 Apical fork of right mandible composed of 3 spiniform teeth; preapical teeth absent, or at most with a small subapical tooth or denticle on left mandible. Propodeal spines long slender and recurved.....49  
 - Apical fork of right mandible composed of 2 spiniform teeth; each mandible with 2 preapical teeth. Propodeal spines variable in size but not recurved.....50
- 49 Colour chocolate brown. Larger, HL 1.24 - 1.35. (Figs 389, 410).....*agra* (p. 625)  
 - Colour yellow. Smaller, HL 0.99 - 1.17.....*apios* (p. 626)
- 50 Inner margin of mandible with a translucent lamina that extends from proximal preapical tooth, or close to tooth, to level of anterior clypeal margin. Mandibles in full-face view almost straight and at full closure parallel.....51  
 - Inner margin of mandible without a translucent lamina extending from vicinity of proximal preapical tooth to level of anterior clypeal margin. Mandibles in full-face view with outer margins shallowly convex; rarely almost straight.....57
- 51 Upper scrobe margin bluntly marginate and gradually fading posterior of eyes, without a sharply defined rim.....52  
 - Upper scrobe margin distinct and forming a thin sharply defined ridge or lamella posterior of eyes.....55
- 52 Pronotal humeral hair present, flagellate. Anterior margin of mesonotum with a pair of filiform to narrowly clavate hairs.....*bola* (p. 672)  
 - Pronotal humeral hair absent. Anterior margin of mesonotum with a single pair of erect clavate hairs.....53
- 53 In dorsal view with a gap between inner margins of mandibular lamellae at full closure; width of gap approximately equal to or slightly greater than width of mandible. Gland of scape visible as an elongate patch of pale yellow tissue along the apical

- two thirds of the ventral scape. Disc of postpetiole more or less shiny and faintly punctulate. Petiole longer, 0.35 - 0.41.....*cabira* (p. 673)
- In dorsal view inner margins of mandibular lamellae more or less confluent at full closure; distance between inner margins of mandibles immediately distal of clypeal margin distinctly less than width of base of mandible. Glandular elongate patch of pale yellow tissue not visible near apex of ventral edge of scape. Disc of postpetiole densely reticulate-punctate. Petiole shorter, 0.20 - 0.30.....54
- 54 Larger, HL 0.75, HW 0.58 SL 0.48.....*tegar* (p. 695)
- Smaller, HL 0.57 - 0.62, HW 0.45 - 0.50, SL 0.36 - 0.40.....*balux* (p. 672)
- 55 Pronotal humeral hair absent. A glandular, elongate patch of pale yellow tissue not visible near apex of ventral edge of scape. Ventral spongiform lamella of petiole often with ventral margin medially notched or distinctly concave. HW 0.64 - 0.77. (Figs 404, 420).....*chroa* (p. 674)
- Pronotal humeral hair present, filiform or flagellate. Gland of scape visible as a elongate patch of pale yellow tissue near apex of ventral edge of scape. Ventral spongiform lamella of petiole with ventral margin without a medial notch, a shallow medial impression may be present. HW 0.52 - 0.63.....56
- 56 Pronotal humeral hair filiform. Hairs on petiole, postpetiole and first gastral tergite filiform.....*covina* (p. 675)
- Pronotal humeral hair flagellate. Hairs on petiole, postpetiole and first gastral tergite remiform to clavate.....*deverra* (p. 675)
- 57 Pronotal humeral hair absent. Mesonotum with a pair of remiform to thickly clavate hairs on anterior margin. (Fig. 400).....*diota* (p. 676)
- Pronotal humeral hair present, filiform, looped, or flagellate. Mesonotum with a pair of flagellate, filiform to narrowly clavate hairs on anterior margin.....58
- 58 Pronotal humeral hair stiffly filiform. Upper scrobe margin posteriorly with 1 or more stiff erect hairs that are longer than hairs on leading edge of scape.....59
- Pronotal humeral hair flagellate or looped. Upper scrobe margin posteriorly almost always without a stiff erect hair that is longer than hairs on leading edge of scape.....60
- 59 Pronotal dorsum without hairs except for those at the humeri. Mesonotum with only one pair of hairs. Colour brownish yellow.....*diux* (p. 677)
- Pronotal dorsum with standing hairs in addition to those at the humeri. Mesonotum with several pairs of hairs. Colour medium to dark brown. (Fig. 401).....*doxa* (p. 678)
- 60 Dorsum of petiole node mostly shiny and smooth, at most with superficial punctulate sculpture.....61
- Dorsum of petiole node mostly reticulate-punctate or reticulate-punctulate, occasionally the sculpture is weak and the node shiny between punctures, but disc of petiole is never mostly smooth.....63
- 61 Mesonotum with two pairs of hairs, a flagellate pair on anterior margin with a filiform pair immediately behind. Dorsolateral margins of head with 2 pairs of standing flagellate hairs near upper scrobe margin. (Fig. 402).....*epulo* (p. 679)
- Mesonotum with one pair of stiff, slightly clavate hairs. Dorsum of head without flagellate hairs.....62
- 62 Postpetiole disc with a pair of hairs on posterior margin only. Dorsum of petiole usually without hairs. In full-face view hairs on upper scrobe margin decumbent and sharply bent at basal third. Propodeal lamella well developed, widest section usually distinctly greater in width than the maximum width of eye. Head longer and

- broader, HL 0.78 - 0.86, HW 0.52 - 0.59.....*europs* (p. 680)
- Postpetiole disc with three pairs of hairs. Dorsum of petiole always with a pair of hairs. In full-face view hairs on upper scrobe margin subdecumbent to suberect, curved through entire length. Propodeal lamella represented by an inconspicuous, very narrow lamellate ridge. Head shorter and narrower, HL 0.57 - 0.64, HW 0.44 - 0.50.....*finator* (p. 681)
- 63 Mesonotum with only a single pair of erect hairs, located at anterior margin; shorter decumbent hairs may be present posterior to this pair.....64
- Mesonotum with 2 or more pairs of erect hairs; shorter curved hairs may also be present.....68
- 64 Upper scrobe margins fringed with filiform to narrowly spatulate hairs; in full-face view, hairs on upper scrobe margin subdecumbent to suberect, curved through entire length and projecting well beyond the scrobe margin. Mandibles in full-face view bowed outwards. In profile ventral spongiform curtain of petiolar peduncle well developed, even at anterior fourth of peduncle. Smaller, HL 0.42 - 0.48, HW 0.34 - 0.38.....*glycon* (p. 682)
- Upper scrobe margins fringed with narrowly spatulate to spoon-shaped hairs; in full-face view hairs on upper scrobe margin decumbent and sharply bent at basal third, not projecting well beyond the scrobe margin. Mandibles in full-face view almost straight, or with outer margins very shallowly and evenly convex. In profile ventral spongiform curtain of petiolar peduncle variable, either well developed or nearly absent. Larger, HL 0.53 - 0.70, HW 0.40 - 0.53.....65
- 65 Anterior half of first gastral sternite with numerous short suberect hairs. Pronotal dorsum without a longitudinal carina along midline. Mandible with spiniform preapical teeth.....*rubigus* (p. 693)
- Anterior half of first gastral sternite without hairs. Pronotal dorsum often with a longitudinal carina along midline. Mandible with stout preapical teeth.....66
- 66 Mesopleural gland set in a broad concave impression that extends along half of the anterior margin of the katepisternum; maximum width of concave impression approximately equal to width of forecoxa. Spongiform appendages of petiole nearly absent. Larger, HL 0.79 - 0.83, HW 0.54 - 0.57.....*ipsea* (p. 685)
- Mesopleural gland set in a narrow, concave impression that extends much less than one fourth of the anterior margin of the katepisternum; maximum width of concave impression less than the maximum width of forefemur. In profile ventral spongiform tissue of petiolar peduncle an irregular, narrow strip across the base of the peduncle or ventral strip well developed. Smaller, HL 0.53 - 0.70, HW 0.40 - 0.53.....67
- 67 Postpetiolar disc smooth and shiny, even at lateral margins. In profile ventral spongiform curtain of petiolar peduncle well developed across entire length of peduncle, width of curtain at anterior third of peduncle is approximately equal to or greater than maximum width of eye.....*scotti* (p. 694)
- Postpetiolar disc longitudinally striolate and usually feebly punctate on lateral margins. In profile ventral spongiform tissue of petiolar peduncle reduced or nearly absent across anterior third of peduncle, usually the deepest point in this section is distinctly less than maximum width of eye.....*inatos* (p. 684)
- 68 In profile ventral spongiform tissue of petiolar peduncle a narrow, irregular strip that is often not continuous across the base of the peduncle, the majority of the strip in the anterior third of the peduncle is distinctly less than the maximum width of eye (excluding spongiform tooth if present).....69
- In profile ventral spongiform curtain of petiolar peduncle conspicuous and well developed across the base of the peduncle, entire width of curtain approaches

- maximum width of eye.....72
- 69 Lateral margins of first gastral tergite with appressed fine hairs. Postpetiole with numerous hairs of variable length.....*lexex* (p. 687)  
 - Lateral margins of first gastral tergite without appressed hairs. Postpetiole with three pairs of erects hairs of similar length.....70
- 70 Dorsum of pronotum without erect hairs except for flagellate humeral hairs  
 .....*livens* (p. 688)  
 - Dorsum of pronotum with 1 or more pairs of short or long suberect or erect hairs in addition to the flagellate humeral hairs.....71
- 71 In profile anterior end of ventral spongiform lamella of petiolar peduncle produced into a ventrally directed triangular tooth.....*lucomo* (p. 688)  
 - In profile anterior end of ventral spongiform lamella of petiolar peduncle at most a small rounded lobe, not produced into a tooth.....*lura* (p. 690)
- 72 Cephalic dorsum immediately behind clypeus densely clothed with curved, decumbent spoon-shaped ground pilosity. Pronotal dorsum densely reticulate-punctate as on head and with faint longitudinal striolate sculpture. Anterior half of first gastral sternite with erect filiform hairs.....*ravola* (p. 693)  
 - Cephalic dorsum densely clothed with erect to curved filiform to narrowly spatulate ground-pilosity. Pronotal dorsum longitudinally striolate on a smooth surface or with superficial punctulate sculpture. Anterior half of first gastral sternite with or without erect filiform hairs.....73
- 73 Mesonotum with three pairs of erect hairs. Pronotum with at least one pair of stout erect hairs between the flagellate hairs at the pronotal humeri. (Fig. 403)  
 .....*origo* (p. 691)  
 - Mesonotum with two pairs of erect hairs. Pronotum without stout erect hairs between the flagellate hairs at the pronotal humeri.....74
- 74 Anterior half of first gastral sternite with erect filiform hairs. Upper scrobe margins fringed with filiform to narrowly spatulate hairs; in full-face view hairs on upper scrobe margin subdecumbent to suberect, curved at apex, and projecting well beyond the scrobe margin. Smaller, HL 0.48 - 0.51, HW 0.37 - 0.41  
 .....*odacon* (p. 691)  
 - Anterior half of first gastral sternite without erect hairs. Upper scrobe margins fringed with spatulate hairs; in full-face view hairs on upper scrobe margin decumbent and sharply bent at basal third, not projecting well beyond the scrobe margin. Larger, HL 0.56 - 0.59, HW 0.44 - 0.47.....*langrandi* (p. 686)

## THE MALAGASY *STRUMIGENYS* SPECIES

### *adsita*-group

#### DIAGNOSIS OF WORKER

Apical fork of mandible with 3 spiniform teeth: apicodorsal tooth is subtended by a smaller apicomedian spiniform tooth which itself is subtended by a denticle and the apicoventral tooth, which is similar in size to the apicomedian tooth; intercalary denticle cannot be seen when the mandibles are closed. Mandible with 1 spiniform preapical tooth, located at about the distal third of the length. Mandible in full-face view short (MI 29 - 35), narrowly linear and outcurved; dorsum, proximal of the preapical tooth, slightly concave.

Funicular segments 2 and 3 of antenna small and often difficult to discern.

Leading edge of scape a dorsoventrally flattened convex lamella.

Upper scrobe margins in full-face view widely divergent behind the frontal lobes.

Spongiform appendage of petiole a narrow ventral strip; lateral lobes absent. Postpetiole with lateral and ventral lobes. Propodeal lamella a well developed wide strip.

Pilosity. Spatulate to spoon-shaped hairs present on cephalic dorsum behind clypeus, anterior clypeal margin, lateral clypeal margin, upper scrobe margin and leading edge of scape. Dorsal surface of postpetiole and gaster with spatulate to spoon-shaped hairs; entire body lacking flagellate hairs.

Sculpture. Fine dense reticulate-punctate sculpture blankets the entire dorsum of the head, alitrunk and petiole; postpetiole and gaster more or less unsculptured except for basigastral costulae.

Glands. Gland of scape near the apex on the ventral surface not apparent. Femoral gland bulla not visible. Tibial gland bulla visible but not distinct on mid and hind tibiae. Gland at base of calcar not visible. Tarsal glands not visible. Mesopleural gland visible and set in a narrow circular notch.

*S. adsita* is most similar to species in the *arnoldi*- and *emmae*-groups. It differs from *emmae* by having 6 antennal segments and differs from the *arnoldi*-group by having the apical fork of the mandible of 3 spiniform teeth with an intercalary denticle between the apicoventral and apicomedian tooth. The six-segmented antennae, structure of the scape and the mandibular dentition distinguish the group from other Malagasy *Strumigenys*.

*Strumigenys adsita* Fisher sp. n.

(Figs 381, 409)

HOLOTYPE WORKER. TL 2.1, HL 0.48, HW 0.44, CI 91, ML 0.14, MI 29, SL 0.25, SI 58, PW 0.28, AL 0.51. With the above characters and the following. Dorsal surfaces of head, alitrunk, waist segments and gaster blanketed with spatulate to spoon-shaped ground-pilosity; similar hairs fringe upper scrobe margin and leading edge of scape. Apicoscrobial and pronotal humeral hairs absent. Standing hairs absent from first gastral tergite. Cephalic dorsum, dorsum and sides of alitrunk and petiole reticulate-punctate. Promesonotum slightly convex dorsally and posteriorly bluntly dorsolaterally marginate; propodeal dorsum sloping posteriorly to the declivity. Propodeum without differentiated teeth, the propodeal lamella continuous down declivity. Peduncle of petiole in profile with a broad translucent ventral keel; spongiform tissue limited to a narrow strip along ventral margin of keel. In profile, ventral spongiform lobe of postpetiole forms a hollow triangle. First gastral tergite with basigastral costulae oblique and radiating medially on each side of a central clear area. Margin of basal truncated area of first gastral sternite with row of short, scale-like hairs.

PARATYPE WORKERS. TL 1.9 - 2.1, HL 0.46 - 0.49, HW 0.41 - 0.44, CI 86 - 94, ML 0.14 - 0.16, MI 29 - 35, SL 0.24 - 0.27, SI 56 - 64, PW 0.27 - 0.28, AL 0.49 - 0.56 (11 measured). As holotype.

Holotype worker, Madagascar: grassland near Forêt Ankazomivady, 28 km. SSW Ambositra, 1670 m., 20°46'30''S, 47°10'6''E, 12.i.1998, grassland, nest in soil in 2 adjoining cells, 9.5 cm. from surface, found by digging, SAM#011222 (*H. G. Robertson*) (SAM).

Paratypes. 20 workers and 5 queens (4 alate and 1 dealate) with same data as holotype (BMNH, MCZ).

The enormously expanded keel on the petiole and the characteristic mandibular dentition make *adsita* one of the most easily recognized Malagasy species. These characters, coupled with the presence of spoon-shaped hairs on all dorsal surfaces and the hollow-triangular ventral spongiform lobe of the postpetiole, immediately isolate *adsita* from all other species.

*apios*-group

## DIAGNOSIS OF WORKER

Apical fork of mandible with three spiniform teeth, the apicoventral tooth the shortest; without intercalary dentition. Preapical teeth absent or left mandible with a denticle or small tooth close to the apicodorsal tooth. Mandible in full-face view with blades almost straight and at full closure parallel. MI 54 - 68.

Scape slender and subcylindrical. SI 119 - 138.

Ventrolateral margin of head with preocular notch vestigial or absent; ventral preocular impression in the head absent.

Eye with maximum diameter exceeding maximum width of scape.

Scrobe vestigial or absent behind level of eye; dorsolateral margin of head not sharply defined behind eye, the cephalic dorsum rounding into the side.

Spongiform appendages of petiole absent. Postpetiole with ventral and lateral lobes reduced or absent; spongiform collar present.

Pilosity. Pronotal humeral hair usually absent. Apicoscrobial hair absent; upper scrobe margin without row of hairs. Cephalic ground-pilosity scale-like. Cephalic dorsum with 4 standing hairs, arranged as a transverse row near occipital margin; vertex without standing pair of hairs. Dorsal alitrunk without standing hairs. First gastral tergite with standing hairs which are simple or slightly thickened apically.

Sculpture. Head, dorsal alitrunk and petiole reticulate-punctate. Gaster unsculptured except for basigastral costulae.

Glands. Gland of scape visible as an elongate patch of pale tissue along the midsection of the ventral surface. Femoral gland bullae decreasing in size from hind femur where it is easily visible to the fore femur where it is minute to absent. Tibial gland bulla absent on all tibiae (*apios*) or present on fore and hind tibiae (*agra*). Gland at base of calcar conspicuous. Tarsal glands visible on at least first three tarsi, decreasing in size from basitarsus where it is elongate to the third tarsal segment where it is oval. Mesopleural gland visible and set in a narrow circular notch or a broad concave impression.

Members of the *apios*-group are easily distinguished by their combination of long cylindrical scape, apical fork of mandible composed of 3 spiniform teeth, very reduced or absent preapical dentition, long propodeal spines that are slender and recurved and the absence of a preocular notch. The two species included here are convergent on the southeast Asian *szalayi*-group and the *kraepelini*-complex of the *mayri*-group but are clearly derived from the Malagasy *grandidieri*-group.

*Strumigenys agra* Fisher sp. n.

(Figs 389, 410)

HOLOTYPE WORKER. TL 4.9, HL 1.13, HW 0.76, CI 67, ML 0.69, MI 60, SL 0.92, SI 122, PW 0.45, AL 1.44. Preapical dentition absent. In full-face view the short upper scrobe margin rounds cleanly into the long margin of the occipital lobe without trace of an angle, the two together forming a single evenly curved surface. Dorsum of head evenly rounded into side behind level of eye. Maximum diameter of eye distinctly greater than the maximum width of the scape. Leading edge of the long scape with a row of slender spatulate hairs which are slightly flattened. Cephalic dorsum with scale-like ground-pilosity; the upper scrobe margin undefined, without a row of hairs. Cephalic dorsum with 4 simple standing hairs arranged in a transverse row close to the occipital margin. Dorsum of alitrunk without standing hairs. Ground-pilosity on alitrunk as on head. Posterior portion of mesonotum shallowly depressed below level of pronotum; propodeal dorsum concave. Propodeal teeth long, slender and curved anterolaterally; lamella absent from declivity. Alitrunk dorsum and sides reticulate-punctate. Petiole peduncle very long; node in dorsal view reticulate-punctate and much longer than broad. Postpetiole disc reticulate-punctate.

Spongiform appendages of petiole absent; postpetiole without distinct lateral and ventral spongiform lobes. Basigastral costulae fine and superficial; gaster smooth and shiny when clean. Dorsal surface of postpetiole with a pair posteriorly projecting simple hairs, and posterior margin of gastral segments with standing hairs which are simple or very slightly thickened apically. Colour chocolate brown.

PARATYPE WORKERS. TL 4.8 - 5.4, HL 1.24 - 1.35, HW 0.68 - 0.77, CI 53 - 58, ML 0.69 - 0.86, MI 54 - 68, SL 0.85 - 0.95, SI 123 - 133, PW 0.41 - 0.47, AL 1.33 - 1.51. As holotype.

Holotype worker, Madagascar: 6.9 km. NE Ambanizana, 15°34'S, 50°00'E, 825 m., 2.ix.1993, sifted litter (leaf mold, rotten wood), rainforest, #976 (20)-10 (*B.L. Fisher*) (MCZ).

Paratypes. 4 workers and 1 queen (dealate) with same data as holotype but coded (28)-12, (45)-12, (46)-13, (49)-9, (29)-12 (BMNH, SAM).

*S. agra* and *apios* are closely related and are immediately recognizable by the tridentate apical mandibular fork, recurved propodeal spines and absence of spongiform tissue on a cylindrical-shaped petiole. *S. agra* is distinguished by its larger size, and chocolate brown colour.

#### *Strumigenys apios* Fisher sp. n.

HOLOTYPE WORKER. TL 4.0, HL 1.02, HW 0.60, CI 59, ML 0.59, MI 58, SL 0.80, SI 133, PW 0.36, AL 1.08. Right mandible with apicoventral tooth the shortest of the 3 teeth of the apical fork; preapical dentition absent. Left mandible with stoutly spiniform apicodorsal and apicomedian teeth, the apicoventral tooth much smaller, and smaller than its counterpart on the right mandible; a small preapical tooth or denticle present close to apicodorsal tooth. In full-face view the short upper scrobe margin rounds cleanly into the long margin of the occipital lobe without trace of an angle, the two together forming a single evenly curved surface. Dorsum of head evenly rounded into side behind level of eye. Maximum diameter of eye distinctly greater than the maximum width of the scape. Scape long, the leading edge with a row of slender spatulate hairs. Cephalic dorsum with appressed clavate to spoon-shaped ground-pilosity; dorsolateral margin of head without a row of hairs. Cephalic dorsum with 4 simple standing hairs arranged in a transverse row close to the occipital margin. Dorsum of alitrunk without standing hairs. Ground-pilosity on alitrunk sparse. Posterior portion of mesonotum shallowly depressed below level of pronotum; propodeal dorsum gently sloping to declivity. Propodeal teeth long, slender and curved anterolaterally; lamella absent from declivity. Alitrunk dorsum reticulate-punctate. Petiole node reticulate-punctate and much longer than broad. Postpetiole disc reticulate-punctate. Spongiform appendages of petiole absent. Lateral and ventral spongiform lobes of postpetiole vestigial. Basigastral costulae fine and superficial; gaster smooth and shiny when clean. Dorsal surface of postpetiole with a pair of posteriorly projecting simple hairs, and posterior margin of gastral segments with standing hairs which are simple or very slightly thickened apically. Colour yellowish brown

PARATYPE WORKERS. TL 4.0 - 4.5, HL 1.01 - 1.13, HW 0.64 - 0.70 CI 62 - 64, ML 0.59 - 0.63, MI 56 - 62, SL 0.78 - 0.84, SI 119 - 129, PW 0.36 - 0.41, AL 1.07 - 1.19. As holotype.

Holotype worker, Madagascar: 11.0 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°27'E, 1565 m., 16.xi.1994, sifted litter (leaf mold, rotten wood), montane rainforest #1232 (28)-4. (*B.L. Fisher*) (MCZ).

Paratypes. 3 workers with same data as holotype, 2 workers with same data as holotype but coded (49)-3 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 17.3 km. 218° SW Antanambao, 1580 m. (*B.L. Fisher*); R.S. Manongarivo, 20.4 km. 219° SW Antanambao, 1860 m. (*B.L. Fisher*); 6 km. ESE Andasibe (=Pirinet), 900 m. (*P.S. Ward*).

Measurements of non-paratypic material extends the range shown by the type-series: HL 0.99 - 1.17, HW 0.59 - 0.65, CI 55 - 62, ML 0.58 - 0.73, MI 59 - 62, SL 0.79 - 0.89, SI 128 - 138 (3 measured).

The single specimen from Andasibe is slightly larger and narrower. It has symmetric mandibles with both apical forks of 3 stout spiniform teeth, without preapical teeth or denticles; the sides of its alitrunk have more extensive reticulate-punctate sculpture. Additional collections will be necessary to determine if this specimen represent a sibling species

*S. apios* is distinguished from its close relative *agra* by its smaller size, and yellowish brown colour.

### *arnoldi*-group

#### DIAGNOSIS OF WORKER

Apical fork of mandible with 2 teeth; always with one long preapical tooth. In some species a second (distal) preapical tooth or denticle is present, between the long (proximal) preapical tooth and the apicodorsal tooth; when present the distal preapical tooth is often weaker on the left mandible than on the right. Mandible in full-face view short (MI 27 - 47), narrow, linear and outcurved in full-face view; the dorsum, proximal of the basalmost tooth, slightly concave.

Antenna usually 6-merous with funicular segments 2 and 3 small and often difficult to discern, but antenna 4-merous in *micrans*, *schuetzi*, *lutron*, *levana*.

Leading edge of scape a dorsoventrally flattened convex lamella.

Eye very small or vestigial, usually with 4 or less ommatidia.

Upper scrobe margins in full-face view widely divergent behind the frontal lobes.

Ventrolateral margin of head without trace of a preocular notch, the margin continuous in front of the eye. Ventral surface of head without a preocular transverse groove but postbuccal groove is distinct.

Promesonotum flat to slightly convex dorsally and bluntly marginate dorsolaterally.

Spongiform appendages of petiole usually well developed into a ventral curtain (narrow strip in *abdera*); lateral lobes present. Postpetiole with lateral and ventral lobes. Lamella on propodeal declivity usually well developed into a wide strip below the triangular propodeal spines (narrow in *charino*, *micrans*, *mola*).

Pilosity. Pronotal humeral hair absent or present. Apicoscrobial hair absent. Head with curved spatulate to spoon-shaped or orbicular hairs present on dorsum of head behind clypeus at least on anterior half (absent in *abdera*), anterior clypeal margin, lateral clypeal margin, upper scrobe margin (curved anteriorly) (short, simple appressed hairs in *abdera*), and leading edge of scape. Dorsum of head without erect hairs or with a transverse row of 4 hairs close to the occipital margin (*abdera*, *alapa*, *charino*, *levana*, *lutron*, *manga*, *micrans*, *mola*). Mesonotum without erect hairs, or with one pair on the mesonotum (*abdera*, *alapa*, *lutron*, *manga*, *micrans*, *mola*) or with two pairs (*levana*). Dorsal surface of postpetiole, and gaster with short filiform to narrowly clavate hairs; entire body usually lacking flagellate hairs.

Sculpture. Fine dense reticulate-punctate to reticulate-granulate sculpture blankets the entire dorsum of the head; the pronotum reticulate-punctate and occasionally with longitudinal costulae; remainder of the dorsal alitrunk reticulate-punctate (propodeum not reticulate-punctate in *manga*); petiole with dense reticulate-punctate sculpture or with faint reticulate-punctate sculpture that is almost effaced. Gaster unsculptured except for basigastral costulae.

Glands. Scape gland absent (*bathron*, *charino*, *dolabra*, *lutron*, *manga*, *micrans*, *mola*, *schuetzi*, *toma*) or visible as a elongate patch near apex of ventral scape (*abdera*, *alapa*, *heliani*, *levana*). Femoral and tibial gland bullae absent. Gland at base of calcar conspicuous. Tarsal glands absent (*alapa*, *bathron*, *toma*) or visible on at least first three tarsi of fortarsi, decreasing in size from basitarsus where it is elongate to the third tarsal segment where it is oval. Mesopleural gland visible and set in a circular notch.



In the Malagasy region members of this group are most similar to species of the *emmae*-, *adsita*- and *dexis*-groups but differ in mandibular dentition and hairs on upper scrobe margin. The apicoscrobial hair is absent (present in *emmae*); apical fork of mandible is never composed of 3 spiniform teeth as in *adsita*-group and mandibles are symmetric, each with either with 3 or 4 teeth (asymmetric in *dexis*-group).

In addition, the *arnoldi*-, *emmae*-, and *adsita*-groups can be distinguished from the *dexis*-group by the following characters: eye always small to minute (usually with 4 or less ommatidia) and the lower scrobe margin rounded, never forming a sharp ridge with ventral surface of head. In the *dexis*-group the eyes are usually conspicuous, never with 4 or less ommatidia, but if eyes small then the lower scrobe margin forms a sharply marginate ridge with ventral surface of head.

The *arnoldi*-group is also very speciose in the Afrotropical region (see there). The group diagnosis above is somewhat modified from the Afrotropical, to give a best representation of the Malagasy fauna. Within this region members of the group fall into four discrete complexes of related species.

- 1 *abdera*-complex (*abdera*, *bathron*, *charino*, *heliani*, *manga*, *mola*). Right and left mandible each with a spiniform proximal preapical tooth and a smaller distal preapical tooth or denticle; distal preapical is weakest on left mandible and may be a minute denticle. Antenna with 6 segments.
- 2 *alapa*-complex (*alapa*, *dolabra*, *toma*). Right and left mandible each with one spiniform preapical tooth, without preapical denticles more distally. Antenna with 6 segments.
- 3 *lutron*-complex (*levana*, *lutron*, *micrans*). Right and left mandible each with a spiniform proximal preapical tooth and a smaller distal preapical tooth or denticle; distal preapical is weakest on the left mandible. Antenna with 4 segments.
- 4 *schuetzi*-complex (*schuetzi*). Right and left mandible each with one spiniform preapical tooth, without preapical denticles more distally. Antenna with 4 segments.

***Strumigenys abdera* Fisher sp. n.**

(Fig. 382)

HOLOTYPE WORKER. TL 2.9, HL 0.70, HW 0.65, CI 93, ML 0.31, MI 44, SL 0.37, SI 57, PW 0.38, AL 0.77. Characters of *abdera*-complex. Mandible with 2 preapical teeth, the distal smaller than the proximal. A small denticle is present at base of apicoventral tooth of fork. Hairs on the dorsum of head posterior of frontal lobes and along upper scrobe margin are not similar in shape to hairs on leading edge of scape. Hairs along upper scrobe margin short, simple and appressed. In profile, promesonotal dorsum convex; propodeal dorsum convex anteriorly, sloping posteriorly to the declivity. Ground-pilosity of dorsum of head posterior to frontal lobes and promesonotum consisting of numerous small scale-like to orbicular hairs, most of which are closely applied to the surface. Erect, short and narrowly clavate hairs present on head and alitrunk as follows: a transverse row of 4 across the cephalic dorsum close to the occipital margin, one pair on the mesonotum. Hairs on petiole, postpetiole and gaster filiform to clavate. postpetiole disc with fine dense reticulate-punctate to reticulate-granulate sculpture. In profile, ventral spongiform lamella of petiole not well developed, tapering to a narrow strip near peduncle base. Propodeal tooth a blunt triangle that is incorporated in the lamella, the latter a narrow strip.

PARATYPE WORKER. TL 2.8 - 3.0, HL 0.70 - 0.71, HW 0.65 - 0.68, CI 93 - 96, ML 0.29 - 0.31, MI 42 - 44, SL 0.36 - 0.38, SI 54 - 56, PW 0.37 - 0.40, AL 0.69 - 0.72 (4 measured). As holotype.

Holotype worker, Madagascar: 40 km. S Ambalavao, Res. Andringitra 22°13'S, 46°58'E, 1275 m., 15.x.1993, sifted litter (leaf mold, rotten wood), montane rainforest, #793 (47)-6 (*B.L. Fisher*) (MCZ).  
Paratypes. 4 workers with same data as holotype but coded (49)-6, (23)-8 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 29 km. SSW Ambositra, Ankazomivady 1700 m. (*B.L. Fisher*).

Measurements of non-paratypic material extends the range shown by the type-series: HL 0.63 - 0.67, HW 0.58 - 0.64, CI 90 - 96, ML 0.27 - 0.30, MI 43 - 46, SL 0.34 - 0.39, SI 57 - 61 (4 measured).

*S. abdera* is easily distinguished from other species in the *arnoldi*-group by the presence of 2 preapical teeth and the absence of curved spatulate to spoon-shaped hairs on the dorsal surfaces of the head, alitrunk and petiole.

### *Strumigenys alapa* Fisher sp. n.

(Fig. 383)

HOLOTYPE WORKER. TL 1.7, HL 0.44, HW 0.38, CI 85, ML 0.14, MI 31, SL 0.23, SI 62, PW 0.23, AL 0.44. Characters of *alapa*-complex. Mandible with a single preapical tooth. Dorsum of head posterior of frontal lobes and along upper scrobe margin with spoon-shaped hairs that are similar in shape to hairs on leading edge of scape. In full-face view, occipital angles without spoon-shaped hairs. Cephalic dorsum with a transverse row of 4 erect, short clavate hairs near occipital margin. Pronotal humeral hair present, stiffly erect and clavate. Mesonotum with a pair of short erect hairs, located at anterior margin. In profile, promesonotal dorsum very shallowly convex; propodeal dorsum shallowly convex anteriorly, sloping posteriorly to the declivity. Spongiform tissue well developed on declivity of propodeum, petiole and postpetiole. Propodeal teeth incorporated in the lamellae, the latter broad, more than half as broad as ventral lamella of petiole. Colour dull yellow to pale brown.

PARATYPE WORKERS. TL 1.7 - 1.9, HL 0.43 - 0.48, HW 0.36 - 0.39, CI 81 - 84, ML 0.13 - 0.15, MI 29 - 32, SL 0.23 - 0.26, SI 60 - 69, PW 0.21 - 0.24, AL 0.45 - 0.48 (4 measured). As holotype.

Holotype worker, Madagascar: Prov. Toliara, Beza-Mahafaly, 27 km. E Betioky, 23°38'S, 44°38'E, 135 m., 23.iv.1997, sifted litter (leaf mold, rotten wood), tropical dry forest #1476 (L.O.)-1 (*B.L. Fisher*) (MZC).

Paratypes. 1 worker and 1 queen (dealate) with same data as holotype; 3 workers and 1 queen (dealate) with same data as holotype but coded (14)-1, (42)-1, (12)-1 (BMNH, SAM).

*S. alapa* is distinguished from other species in the *arnoldi*-group by the following combination of characters.

- 1 Head and upper scrobe margin with broadly spatulate to spoon-shaped hairs.
- 2 Pronotal humeral hair stiff, remiform to thickly clavate and projecting laterally.
- 3 Alitrunk in profile almost flat; mesonotum in profile without a deep depression posteriorly before meeting the propodeum.

### *Strumigenys bathron* Fisher sp. n.

HOLOTYPE WORKER. TL 2.0, HL 0.47, HW 0.45, CI 96, ML 0.17, MI 36, SL 0.26, SI 58, PW 0.26, AL 0.48. Characters of *abdera*-complex. Mandible with a single long preapical tooth. Dorsum of head from posterior clypeal margin to occipital margin including occipital angles and along upper scrobe margin with spoon-shaped hairs that are similar in shape to hairs on leading edge of scape. Pronotal humeral hair absent; anterior margin of mesonotum without erect stiff hairs. Dorsum of petiole with a pair of broadly clavate to remiform hairs on posterior lateral margin. In profile, promesonotal dorsum

convex; propodeal dorsum shallowly convex anteriorly, sloping posteriorly to the declivity. Cuticle on anterior half of propodeal declivity alveolate. Spongiform tissue well developed on declivity of propodeum, petiole and postpetiole. Propodeal teeth incorporated in the lamellae, with only a small point projecting; propodeal lamellae broad, more than half as broad as ventral lamella of petiole. Disc of postpetiole smooth; in dorsal view completely surrounded by spongiform tissue, forming a narrow band along anterior lateral angles. Color dull yellow to pale brown.

PARATYPE WORKERS. TL 1.8 - 1.9, HL 0.45, HW 0.43, CI 95 - 96, ML 0.15, MI 33 - 34, SL 0.22 - 0.24, SI 51 - 55, PW 0.23 - 0.25, AL 0.46 - 0.47 (2 measured). As holotype.

Holotype worker, Madagascar: 6.5 km. SSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°30'E., 875 m., 19.x.1994, sifted litter (leaf mold, rotten wood), rainforest #1070 (L.O.)-15 (*B.L. Fisher*) (MCZ). Paratypes. 2 workers with same data as holotype but coded (8)-9, (50)-1 (BMNH).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 5 km. SW Antalaha 50 m. (*G.D. Alpert*); 6.9 km. NE Ambanizana, Ambohitsitondroina 825 m. (*B.L. Fisher*); 5.3 km. SSE Ambanizana, Andranobe, 425 m. (*B.L. Fisher*).

Measurements of non-paratypic material extends the range shown by the types series: HL 0.41 - 0.46, HW 0.41 - 0.43, CI 94 - 97, ML 0.13 - 0.16, MI 32 - 35, SL 0.22 - 0.23, SI 53 - 57 (4 measured).

The sample from 6.9 km. NE Ambanizana differs slightly in the diagnostic characters of the type material. In this single specimen, the clavate hairs on petiolar dorsum are broader and the ventral spongiform lamella on the petiole is narrower. Additional collection may reveal that this is actually a sibling species.

*S. bathron* is distinguished from other species in the *arnoldi*-group that have 6 antennomeres by having the cephalic dorsum with broad spoon-shaped to orbicular hairs present on posterior third, dorsum of petiole with a pair of broadly clavate to remiform hairs; and lacking pronotal humeral hairs.

#### *Strumigenys charino* Fisher sp. n.

HOLOTYPE WORKER. TL 1.8, HL 0.44, HW 0.39, CI 89, ML 0.17, MI 38, SL 0.21, SI 54 PW 0.26, AL 0.47. Characters of *abdera*-complex. Right mandible with a spiniform preapical tooth; left mandible with a spiniform preapical tooth proximally and a minute distal preapical denticle. Cephalic dorsum posterior of clypeal margin with rows of spoon-shaped hairs on anterior two thirds; upper scrobe margin with spoon-shaped hairs. Cephalic dorsum with a transverse row of 4 erect, short clavate hairs near occipital margin. Pronotal humeral hair absent; mesonotum without standing hairs. Dorsum of alitrunk with short spatulate ground-pilosity. In profile, promesonotal dorsum very shallowly convex; propodeal dorsum more or less flat anteriorly, sloping posteriorly to the declivity and rounding into the sides. Propodeal tooth a small denticle incorporated in the very narrow lamella; in profile, width of lamella approximately the width of eye. Ventral spongiform tissue well developed and conspicuous on petiole and postpetiole. Base of first gastral tergite with a continuous row of well developed basal costulae. Color dull yellow to pale brown.

PARATYPE WORKERS. TL 1.8, HL 0.42 - 0.44, HW 0.38 - 0.40, CI 91 - 93, ML 0.16 - 0.17, MI 39 - 41, SL 0.20 - 0.22, SI 50 - 57, PW 0.24 - 0.26, AL 0.45 - 0.46 (3 measured). As holotype.

Holotype worker, Madagascar: Fotodriana, Cap Masoala, 25 m., 15°41'49''S, 50°16'13''E, 27.xi.1993, rainforest, Winkler app. 160.13981w (*G.D. Alpert*) (MCZ).

Paratypes. 1 worker with same data as holotype but coded 160.13982w; 2 workers (one with gaster missing) with same data as holotype but coded 160.3635w, 160.3636w and labeled lowland rainforest (*Alpert et al.*) (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: F.C. Andriantantely 530 m. (*H.J. Ratsirarson*).

Measurements of non-paratypic material extends the range shown by the type-series: HL 0.45 - 0.48, HW 0.43 - 0.45, CI 95 - 96, ML 0.17 - 0.19, MI 38 - 40, SL 0.23 - 0.25, SI 53 - 56 (3 measured).

Within the *arnoldi*-group with 6 antennal segments, *charino* is separated from all other members by having:

- 1 Cephalic dorsum posterior of clypeal margin with rows of spoon-shaped hairs on anterior two thirds.
- 2 Pronotal humeri and mesonotum without erect hairs.
- 3 Base of first gastral tergite with a continuous row of well developed basal costulae.
- 4 Lamella of propodeal declivity very narrow in profile, approximately equal to width of eye.

*Strumigenys dolabra* Fisher sp. n.

HOLOTYPE WORKER. TL 1.7, HL 0.40, HW 0.38, CI 94, ML 0.11, MI 28, SL 0.19, SI 50, PW 0.23, AL 0.45. Characters of *alapa*-complex. Mandible with a single preapical tooth. Anterolateral margin of clypeus with medially curved spoon-shaped hair that is larger and more conspicuous than hairs found on anterior margin of clypeus. Cephalic dorsum posterior of clypeal margin with spoon-shaped hairs on anterior two thirds; upper scrobe margin with spoon-shaped hairs. Pronotal humeral hair absent; mesonotum without standing hairs. In profile, promesonotal dorsum very shallowly convex anteriorly; propodeal dorsum gradually sloping posteriorly to the declivity and posteriorly meeting the sides in a blunt diverging angle. Propodeal dorsum meeting the declivity in a blunt angle without a noticeable tooth. Ventral spongiform tissue well developed and conspicuous on propodeum, petiole and postpetiole. In profile, spongiform lamella on propodeal declivity broad, approximately half the width of ventral spongiform curtain on petiole. First gastral tergite with few basigastral costulae. Punctulate-reticulate sculpture on tergite restricted to region of basal costulae, remainder of tergite smooth. Hairs on postpetiole and gaster filiform. Color pale brown.

Holotype worker, Madagascar: Prov. Toliara, southern Isoky-Vohimena Forest, 22°41'S, 44°50'E, 730 m., 21.i.1996, sifted litter (leaf mold, rotten wood), tropical dry forest, #1312 (5)-3 (*S. Razafimandimby*) (MCZ).

Within the *arnoldi*-group with 6 antennal segments, *dolabra* and *toma* are separated from all other members by having the following in combination.

- 1 Cephalic dorsum without hairs on posterior third which are similar in shape to hairs on leading edge of scape.
- 2 Pronotal humeri and mesonotum without erect hairs.
- 3 Base of first gastral tergite with few basal costulae.
- 4 Propodeum in profile terminating in a blunt angle.
- 5 Lamella on propodeal declivity broad.

*S. dolabra* is distinguished from *toma* as follows.

*S. dolabra*

- 1 First gastral tergite with punctulate-reticulate sculpture restricted to region of basal costulae, remainder smooth.
- 2 In full-face view cephalic dorsum with clavate to spoon-shaped hairs on anterior two-thirds, rows of hairs absent from vertex, posterior to apex of upper scrobe margin.

*S. toma*

- 1 First gastral tergite covered in punctulate- to granulate-reticulate sculpture, at least on lateral margins posteriorly.
- 2 In full-face view cephalic dorsum with broadly scale-like to orbicular hairs on anterior two-thirds, extending on to vertex, posterior to apex of upper scrobe margin.

*Strumigenys heliani* Fisher sp. n.

(Figs 384, 411)

**HOLOTYPE WORKER.** TL 2.6, HL 0.56, HW 0.63, CI 113, ML 0.24, MI 42, SL 0.31, SI 49, PW 0.35, AL 0.62. Characters of *abdera*-complex. Mandible with 2 preapical teeth, the distal smaller than the proximal. A small denticle is present at base of apicoventral fork tooth. Hairs on dorsum of head posterior of frontal lobes and along upper scrobe margin are similar in shape to hairs on leading edge of scape. Leading edge of scape greatly expanded, forming a dorsoventrally flattened convex lamella with the widest portion in apical third. In profile, promesonotal dorsum convex and bluntly marginate laterally; propodeal dorsum convex anteriorly, sloping posteriorly to the declivity. Mesopleural gland conspicuous and set in a deep concave impression. Ground-pilosity of dorsum of head posterior to frontal lobes consisting of rows of spatulate to spoon-shaped hairs. Erect hairs absent from head, alitrunk, and petiole. Hairs on gaster clavate. Head, alitrunk and petiole reticulate-punctate. Pleurae and sides of propodeum smooth except for peripheral punctures, which are most prominent on dorsal margin. postpetiole disc finely longitudinally costulate-punctulate. In profile the petiole with a well developed spongiform lamella. Postpetiole with well developed lateral and ventral spongiform lobes. Basigastral costulae well developed and sharply defined, extending across the basal third of gastral tergite, remainder of gaster more or less smooth and shiny. Propodeal tooth bluntly triangular and incorporated in the lamella, the latter a narrow strip. Colour pale orange-brown.

**PARATYPE WORKER** TL 2.4 - 2.5, HL 0.53 - 0.55, HW 0.61 - 0.63, CI 110 - 118, ML 0.23 - 0.26, MI 44 - 47, SL 0.27 - 0.30, SI 44 - 49, PW 0.33 - 0.37, AL 0.58 - 0.61 (4 measured). As holotype.

Holotype worker, Madagascar: Prov. Toamasina, F.C. Sandranantitra, 18°02.9'S, 49°05.5'E, 450 m., 18-21.i.1999, sifted litter (leaf mold, rotten wood) #101 (13)-1 (*H.J. Ratsirarson*) (MCZ).

Paratypes. 2 worker with same data as holotype; 2 workers with same data as holotype but coded #101 (14)-1 (BMNH, SAM).

*S. heliani* is distinguished from other species in the *arnoldi*-group by the absence of hairs on the dorsum of head posterior of frontal lobes and along upper scrobe margin that are similar in shape to hairs on leading edge of scape.

*Strumigenys levana* Fisher sp. n.

**HOLOTYPE WORKER.** TL 1.6, HL 0.37, HW 0.36, CI 95, ML 0.16, MI 43, SL 0.22, SI 62, PW 0.20, AL 0.41. Characters of *lutron*-complex. Mandible blade narrow, linear, outcurved; without intercalary denticles between the apical fork teeth. Right mandible with a short distal preapical tooth and a spiniform proximal preapical tooth located at about the apical third of the length; left mandible only with the spiniform proximal preapical tooth. Preocular lamina broad, projecting below the antennal insertion. Anterior clypeal margin with broad spoon-shaped hairs directed dorsally. Dorsum of head behind clypeus reticulate-punctate and with numerous broadly scale-like to spoon-shaped hairs on anterior two-thirds. Dorsum of head with a transverse row of 4 hairs close to the occipital margin. Upper scrobe margin with a continuous row of scale-like to spoon-shaped hairs; apicoscrobial hair absent. Eye very small, with 3 ommatidia in total and situated just above the ventral scrobe margin. Antenna with 4 segments. Leading edge of scape a dorsoventrally flattened convex lamella with a row of projecting scale-like to spoon-shaped hairs. In profile, the promesonotum slightly convex; propodeal dorsum shallowly convex anteriorly, sloping posteriorly to the declivity. Propodeal teeth very short, mostly incorporated in the lamella, with only a small point projecting. Sides of alitrunk smooth to superficially reticulate-punctate. Pronotal disc with distinct longitudinal costulae and not sculptured as posterior dorsum of head. In between costulae, pronotum smooth or with fine

punctulate sculpture; remainder of dorsal alitrunk and at least the upper half of the propodeal declivity reticulate-punctate to alveolate. Pronotal humeral hair absent. Mesonotum with 2 pairs of erect hairs. Ground-pilosity of dorsal alitrunk consisting of scattered small erect hairs. Dorsal surface of petiole node with faint reticulate-punctate sculpture that is almost effaced; the postpetiole glassy smooth. Petiole, postpetiole and gaster with clavate hairs. In profile the petiole with a well developed spongiform lamella. Postpetiole with well developed lateral and ventral spongiform lobes. Base of first gastral tergite with fine costulae radiating on each side of a broad central clear area, remainder of gaster more or less smooth and shiny. Color dull yellow to pale brown.

PARATYPE WORKER TL 1.6 - 1.7, HL 0.38 - 0.39, HW 0.34 - 0.35, CI 88 - 91, ML 0.17 - 0.18, MI 43 - 47, SL 0.21 - 0.23, SI 62 - 66, PW 0.20 - 0.21, AL 0.39 - 0.41 (5 measured). As holotype.

Holotype worker, Madagascar: Prov. Toamasina, F.C. Sandranantitra, 18°02.9'S, 49°05.5'E, 450 m., 21-24.i.1999, sifted litter (leaf mold, rotten wood) #102 (26)-3 (*H.J. Ratsirarson*) (MCZ).

Paratypes. 8 workers with same data as holotype but coded (21)-1, (20)-2, (25)-3, (6)-3, (8)-3 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Andranobi, Route d'Andriamena, ca 25 km. W Morarano Sud ca. 1250 m. (*A. Peyrieras*); F.C. Andriantantely 530 m. (*H.J. Ratsirarson*).

Measurements of non-paratypic material extend the range shown by the type-series: HL 0.39 - 0.42, HW 0.35 - 0.38, CI 91, ML 0.16 - 0.18, MI 41 - 42, SL 0.24, SI 63 - 68 (2 measured).

*S. levana* is distinguished from other species in the *arnoldi*-group by the presence of 4 antennal segments, distinct longitudinal costulae on the pronotal disc, and absence of a pronotal humeral hair.

### *Strumigenys lutron* Fisher sp. n.

HOLOTYPE. TL 1.6, HL 0.39, HW 0.38, CI 98, ML 0.14, MI 36, SL 0.20, SI 53, PW 0.23, AL 0.42. Characters of *lutron*-complex. Mandible blade narrow, linear, outcurved; without intercalary denticles between the apical fork teeth. Right mandible with 2 preapical teeth, a short distal tooth and a spiniform proximal tooth located at about the apical third of the length; left mandible with at most a distal preapical denticle but proximal preapical tooth spiniform. Anterior clypeal margin broad, projecting beyond the mandibular bases on each side, with a feeble median impression and with numerous small spatulate to spoon-shaped hairs which are curved towards the midline. Lateral margin of clypeus short. Preocular lamina broad, projecting below the antennal insertion. Median portion of clypeus broad, finely punctulate and with scale-like to spoon-shaped hairs present. Dorsum of head behind clypeus reticulate-punctate and with numerous broadly scale-like to spoon-shaped hairs on anterior two-thirds. Outer margin of frontal lobe and upper scrobe margin with a continuous row of scale-like to spoon-shaped hairs. Hairs on upper scrobe margin not terminating at the posterior end with a more or less straight clavate hair. Eye very small, with 3 ommatidia in total and situated just above the ventral scrobe margin. Antenna with 4 segments. Leading edge of the scape a dorsoventrally flattened convex lamella with a row of projecting scale-like to spoon-shaped hairs. Dorsum of head with a transverse row of 4 hairs close to the occipital margin. Pronotal humeral hair absent. Mesonotum with a pair of short filiform hairs on anterior margin (can be worn). In profile, the promesonotum slightly convex; propodeal dorsum shallowly convex anteriorly, sloping posteriorly to the declivity. Propodeal teeth very short, mostly incorporated in the lamellae, with only a small point projecting. Sides of alitrunk smooth to superficially reticulate-punctate. Dorsal alitrunk and at least the upper half of the propodeal declivity reticulate-punctate, the punctures more strongly defined and denser on the pronotum than on the propodeum, where they may be superficial. Ground-pilosity of dorsal alitrunk consisting of numerous small appressed hairs. In profile the petiole with a well developed spongiform lamella. Dorsal surface of petiole node finely punctate to reticulate, the postpetiole smooth. Petiole, postpetiole and

gaster with short simple to narrowly clavate hairs. Colour dull yellow to pale brown.

PARATYPE WORKERS. TL 1.6 - 1.7, HL 0.39 - 0.41, HW 0.36 - 0.38, CI 92 - 96, ML 0.13 - 0.15, MI 33 - 39, SL 0.19 - 0.21, SI 52 - 57, PW 0.22 - 0.24, AL 0.41 - 0.45 (6 measured). As holotype.

Holotype worker. Madagascar: Prov. Toamasina, S.F. Tampolo; 10 km. NNE Fenoarivo Atn., 17°17'S, 49°26'E, 10 m., 4.iv.1997, sifted litter (leaf mold, rotten wood), littoral rainforest #1342 (49)-1 (*B.L. Fisher*) (MCZ).

Paratypes. 6 workers with same data as holotype but coded (21)-2, (34)-1, (36)-3, (42)-2, (47)-3 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 2.7 km. WNW Ste Luce, 20 m. (*B.L. Fisher*); Mandena, 8.4 km. NNE Tolagnaro, 20 m. (*B.L. Fisher*); Forêt de Petriky, 12.5 km. W Tolagnaro, 10 m. (*B.L. Fisher*).

Measurements of non-paratypic material extend the range shown by the type-series: HL 0.39 - 0.40, HW 0.38, CI 96 - 98, ML 0.15, MI 38 - 39, SL 0.20 - 0.21, SI 52 - 55 (2 measured).

*S. lutron* is immediately separated from other members of the *arnoldi*-group by having 4 antennal segments, pronotal humeral hair absent, and pronotal disk with densely reticulate punctate sculpture without distinct longitudinal costulae.

#### *Strumigenys manga* Fisher sp. n.

HOLOTYPE WORKER. TL 2.4, HL 0.56, HW 0.49, CI 88, ML 0.22, MI 40, SL 0.26, SI 53, PW 0.29, AL 0.63. Characters of *abdera*-complex. Left mandible with a distal preapical denticle and a proximal preapical tooth; right mandible with a small distal preapical tooth and a proximal preapical tooth. Cephalic dorsum posterior of clypeal margin and upper scrobe margin with clavate to spoon-shaped hairs that are distinctly narrower than the hairs on leading edge of scape. Cephalic dorsum with a transverse row of 4 erect, short clavate hairs close to the occipital margin. Pronotal humeral hair present, stiffly projecting; mesonotum with a short clavate hair on lateral anterior margin. In profile, outline of alitrunk convex in anterior half, more or less flat in posterior half; anterior mesonotal dorsum steeply descending to its posterior half. Propodeal dorsum more or less flat and meeting the declivity in rounded angle without a noticeable cuticular tooth. In profile, spongiform lamella continuous down propodeal declivity and marginate medially, forming a triangular tooth at apex of declivity. Ventral spongiform tissue and lateral lobes well developed and conspicuous on petiole and postpetiole; petiolar lamella notched medially. Base of first gastral tergite with basal costulae arising on each side of a central clear area. Dorsal surfaces of petiole, postpetiole, and gaster with clavate standing hairs. Color brown.

PARATYPE WORKERS. TL 2.5, HL 0.56 - 0.57, HW 0.51 - 0.52, CI 90 - 91, ML 0.22, MI 39, SL 0.30 SI 59 - 60, PW 0.30 - 0.31, AL 0.65 - 0.67 (2 measured). As holotype.

Holotype worker, Madagascar: Forêt d'Ankazomivady, 29 km. SSW Ambositra, 1700 m., 20°46'36''S, 47°9'54''E, 8.i.1998, disturbed forest, nest 3 cm. below leaf-litter covered soil surface found by digging SAM#011226 (*H.R. Robertson*) (SAM).

Paratypes. 2 worker and 1 queen (dealate) with same data as holotype (BMNH).

*S. manga* is separated from the other species in the *arnoldi*-group with 6 antennal segments by the presence of an erect pronotal humeral hair, presence of hairs on anterolateral margin of mesonotum, and the shape of the alitrunk in profile which is convex anteriorly and more or less flat posteriorly.

*Strumigenys micrans* Fisher sp. n.

HOLOTYPE WORKER. TL 1.7, HL 0.41, HW 0.35, CI 86, ML 0.18, MI 44, SL 0.25, SI 71, PW 0.21, AL 0.42. Characters of *lutron*-complex. Mandible blade narrow, linear, outcurved; no intercalary denticles present. Right mandible with a long spiniform proximal preapical tooth, at about the apical third of the length, and a short distal preapical tooth; left mandible with proximal but without distal preapical tooth. Preocular lamina broad, projecting below the antennal insertion. Anterior clypeal margin with broad spoon-shaped hairs directed dorsally. Dorsum of head behind clypeus reticulate-punctate and with numerous decumbent to suberect spatulate to spoon-shaped hairs on anterior two-thirds. Dorsum of head with a transverse row of 4 clavate hairs close to the occipital margin. Upper scrobe margin with a continuous row of clavate to spoon-shaped hairs. Hairs on upper scrobe margin not terminating at the posterior end with a more or less straight clavate hair. Eye very small, with 3 ommatidia in total and situated just above the ventral scrobe margin. Antenna with 4 segments. Leading edge of scape a dorsoventrally flattened convex lamella with a row of projecting spoon-shaped hairs. In profile, the promesonotum slightly convex; propodeal dorsum shallowly convex anteriorly, sloping slightly posteriorly before meeting the declivity in a blunt angle without a noticeable tooth; lamellae very narrow. Sides of alitrunk mostly smooth and shiny with weak longitudinal striolate sculpture on dorsal side or pronotum. Pronotal disc with longitudinal striolate and costulae sculpture. In between costulae, pronotum smooth or with fine punctulate sculpture; remainder of dorsal alitrunk and at least the upper half of the propodeal declivity reticulate-punctate. Pronotal humeral hair present, flagellate or looped. Mesonotum with 1 pair of erect hairs on anterior margin. Ground-pilosity of dorsal alitrunk consisting of a few scattered small suberect fine hairs. Dorsal surface of petiole node with faint reticulate-punctate sculpture that is almost effaced; the postpetiole glassy smooth. Petiole, postpetiole and gaster with clavate to remiform hairs. In profile the petiole with a well developed spongiform lamella. Postpetiole with well developed lateral and ventral spongiform lobes. Base of first gastral tergite with costulae radiating on each side of a broad central clear area, remainder of gaster smooth and shiny where clean. Color dull yellow to pale brown.

Holotype worker, Madagascar: Prov. Toamasina, P.N. Mantadia 895 m. 18°47.5'S, 48°25.6'E, 25-28.xi.1998 sifted litter (leaf mold, rotten wood), rainforest #111 (20)-1 (*H.J. Ratsirarson*) (MCZ).

*S. micrans* is distinguished from other species in the *arnoldi*-group by the presence of a laterally projecting flagellate or looped pronotal humeral hair and antenna with 4 segments.

*Strumigenys mola* Fisher sp. n.

HOLOTYPE WORKER. TL 1.9, HL 0.44, HW 0.41, CI 91, ML 0.16, MI 36, SL 0.23, SI 56, PW 0.25, AL 0.52. Characters of *abdera*-complex. Right mandible with a long proximal and a small distal preapical tooth; left mandible with a long proximal preapical tooth and a distal preapical denticle. Cephalic dorsum posterior of clypeal margin with spoon-shaped hairs on anterior two thirds; upper scrobe margin with spoon-shaped hairs. Posterior margin of vertex with a row of 4 erect, narrowly clavate hairs. Pronotal humeral hair absent; anterior margin of mesonotum with a pair of short standing hairs. In profile, promesonotum shallowly convex; metanotal groove a shallow concave depression. Propodeal dorsum convex anteriorly, sloping posteriorly to the declivity and posteriorly rounding into the sides. Propodeal dorsum meeting the declivity in a blunt angle without a noticeable tooth. In profile, spongiform lamella on propodeal declivity narrow, increasing in width at base of declivity. Ventral spongiform tissue well developed and conspicuous on petiole and postpetiole. Ventral lobe on petiole small. Base of first gastral tergite with a continuous row of well defined basal costulae, remainder of gaster smooth and shiny. Pilosity of postpetiole and gaster filiform to narrowly clavate. Color dull yellow to pale brown.



PARATYPE WORKERS. TL 1.7 - 1.9, HL 0.41 - 0.44, HW 0.38 - 0.40, CI 90 - 96, ML 0.15 - 0.16, MI 35 - 40, SL 0.19 - 0.24, SI 48 - 60, PW 0.23 - 0.25, AL 0.42 - 0.47 (6 measured). As holotype.

Holotype worker, Madagascar: 43 km. S Ambalavao, Res. Andringitra 22° 14'S, 47° 00'E, 825 m., 5.x.1993, sifted litter (leaf mold, rotten wood), rainforest #747 (7)-7 (B.L. Fisher) (MCZ).

Paratypes. 6 worker and 2 queens (dealate) with same data as holotype but coded (2)-11, (8)-12, (19)-12, (31)-8, (26)-12, (42)-15, (43)-11 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Ranomafana Nat. Park, Miaranony Forest 700 m. (E. Rajeriarison); 7 km. W Ranomafana 900 m. (W.E. Steiner); 45 km. S Ambalavao 785 m. (B.L. Fisher); 9.0 km. NE Ivohibe 900 m. (S. Razafimandimby).

Measurements of this material were within range of shown by the type-series (4 measured).

Of the species known of this group which lack pronotal humeral hairs and lack spoon-shaped or scale-like hairs on the posterior third of the dorsum of the head, *mola* is immediately identifiable by the presence of a pair of hairs on the anterior margin of the mesonotum.

*Strumigenys schuetzi* Fisher sp. n.

(Fig. 385)

HOLOTYPE WORKER. TL 1.7, HL 0.40, HW 0.42, CI 105, ML 0.13, MI 32, SL 0.21, SI 50, PW 0.23, AL 0.41. Characters of *schuetzi*-complex. Mandible blade narrow, linear, outcurved; no intercalary denticles present between the apical fork teeth. Preapical dentition consisting of a single long spiniform tooth at about the midlength of each blade. Anterior clypeal margin broad, projecting beyond the mandibular bases on each side and with numerous small spatulate to spoon-shaped hairs which are curved towards the midline. Lateral margin of clypeus short. Preocular lamina broad, projecting below the antennal insertion. Median portion of clypeus broad, finely punctulate and with scale-like to spoon-shaped appressed hairs present. Dorsum of head behind clypeus reticulate-punctate and with broadly scale-like to orbicular shaped hairs anterior of occipital corners. Dorsum of head without a transverse row of hairs close to the occipital margin. Row of scale-like to broad spoon-shaped hairs on upper scrobe margin not terminating at the posterior end with a more or less straight clavate hair. Eye very small, with 3 ommatidia in total and situated just above the ventral scrobe margin. Antenna with 4 segments. Leading edge of scape a dorsoventrally flattened convex lamella with a row of projecting broadly spoon-shaped hairs. Scape strongly back-curved, with a anteriorly projecting subbasal lobe at the bend, and apex of lobe with a projecting broad clavate, almost fan-like hair. In profile, the promesonotum slightly convex; propodeal dorsum shallowly convex anteriorly, sloping posteriorly to the declivity. Propodeal teeth very short, mostly incorporated in the lamellae, with only a small point projecting; lamella a very narrow strip. Side of alitrunk mostly smooth and shiny with weak peripheral punctures. Pronotal disk reticulate-punctate with longitudinal striolate and costulae sculpture, remainder of alitrunk dorsum reticulate punctate. Pronotal humeral hair present, straight clavate; remainder of alitrunk dorsum without erect hairs. Ground-pilosity of dorsal alitrunk consisting of scattered small suberect fine hairs. Dorsal surface of petiole node reticulate-punctate; the postpetiole more or less smooth. Petiole with a pair of broad clavate hairs; postpetiole and gaster with clavate to filiform hairs. In profile the petiole with a well developed spongiform lamella. Postpetiole with well developed lateral and ventral spongiform lobes. Base of first gastral tergite with costulae radiating on each side of a broad central clear area, remainder of gaster smooth and shiny where clean. Color pale brown.

PARATYPE WORKER TL 1.6 - 1.8, HL 0.39 - 0.41, HW 0.41 - 0.42, CI 103 - 108, ML 0.13 - 0.15, MI 33 - 38, SL 0.21 - 0.22, SI 50 - 53, PW 0.24 - 0.25, AL 0.38 - 0.43 (4 measured). As holotype.

Holotype worker, Madagascar: Prov. Antsiranana, R.S. Manongarivo, 10.8 km. 229° SW Antanambao, 400 m., 13°57.7'S, 48°26.0'E, 8.xi.1998, sifted litter (leaf mold, rotten wood) #1996 (03)-2 (*B.L. Fisher*) (MCZ).

Paratypes. 10 workers with same data as holotype but coded #1996 (7)-2, (10)-2, (11)-2, (50)-4, (9)-2, (38)-3, (46)-4, (2)-2, (23)-1 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 12.8 km. SW Antanambao, 780 m. (*B.L. Fisher*); R.S. Manongarivo, 14.5 km. SW Antanambao, 1175 m. (*B.L. Fisher*).

Measurements of non-paratypic material extend the range shown by the type-series: HL 0.40 - 0.45, HW 0.42 - 0.45, CI 99 - 103, ML 0.14 - 0.16, MI 32 - 35, SL 0.24, SI 54 - 56 (3 measured).

*S. schuetzi* is distinguished from other species in the *arnoldi*-group by the presence of a laterally projecting straight clavate pronotal humeral hair, antenna with 4 segments, and mandible with only one preapical tooth, set at the midlength of blade. The upper scrobe margin with broadly spoon-shaped hairs that do not terminate at the posterior end with a more or less straight clavate hair also helps to distinguish this species.

### *Strumigenys toma* Fisher sp. n.

(Fig. 386)

HOLOTYPE WORKER. TL 1.7, HL 0.42, HW 0.38, CI 91, ML 0.12, MI 27, SL 0.21, SI 56, PW 0.25, AL 0.46. Characters of *alapa*-complex. Preapical dentition of each mandible a single spiniform tooth. Anterolateral margin of clypeus with a spoon-shaped hair curved medially that is larger than hairs found on anterior margin of clypeus. In full-face view, cephalic dorsum posterior of clypeal margin with broadly scale-like to orbicular hairs on anterior two thirds, extending on to vertex posterior of apex of upper scrobe margin. Upper scrobe margin with broadly scale-like hairs. Pronotal humeral hair absent; mesonotum without standing hairs. In profile, pronotal dorsum shallowly convex; mesonotum with a shallowly concave depression. Propodeal dorsum more or less flat anteriorly, sloping slightly posteriorly before meeting the declivity in a blunt angle without a noticeable tooth. Ventral spongiform tissue well developed and conspicuous on propodeum, petiole and postpetiole. In profile, spongiform lamella on propodeal declivity broad, approximately half the width of ventral spongiform curtain on petiole. Disc of postpetiole covered by a densely punctulate film of spongiform tissue. Basigastral costulae short, sparse and not sharply defined; first gastral tergite covered in punctulate-reticulate to granulate-reticulate sculpture, at least on lateral margins. Hairs on postpetiole and gaster filiform. Color pale brown.

PARATYPE WORKERS. TL 0.42, HL 0.39, HW 0.39, CI 93, ML 0.12, MI 28, SL 0.20, SI 52, PW 0.25, AL 0.48 (1 measured). As holotype.

Holotype worker, Madagascar: Prov. Fianarantsoa, 28 km. SSW Ambositra, Ankazomivady, 20°46.5'S, 47°10.1'E, 1670 m., 11.i.1998, sifted litter, grassland, #1620 (25)-2 (*B.L. Fisher*) (MCZ).

Paratype. 1 worker with same data as holotype (BMNH).

*S. toma* forms a close species pair with *dolabra* within the *arnoldi*-group. Characters distinguishing *toma* are discussed under *dolabra*.

### *dexis*-group

#### DIAGNOSIS OF WORKER

Mandibles with asymmetrical dentition: left mandible with 5 teeth and denticles in total, right mandible with 6. Left mandible has 3 long teeth (second or third from the base is the longest) followed by either a denticle and a smaller tooth or 2 denticles that share a common base, these located ventral to the third tooth. Right mandible has a

long basal tooth followed by a much smaller second tooth; these are followed by two more long teeth (the third from the base longer than the fourth) and the fourth is subtended by a pair of denticles, or a denticle and a short tooth, below the base of the fourth tooth. Therefore in full-face view the left mandible has 3 long or spiniform teeth and the right has 4, the apical denticles not being visible in this aspect. Mandible short (MI range 17 - 33), with a broadly rounded prominent basal-external angle visible; the dorsum proximal of the basalmost tooth distinctly concave, the concave area margined distally by a rim or carina that traverses the mandible. Mandible broad basally and tapering strikingly toward the apex in full-face view, leaving a subovate gap between the inner margins distal of the basal lamella.

Leading edge of scape a dorsoventrally flattened convex lamella.

Upper scrobe margins in full-face view widely divergent behind the frontal lobes.

Ventrolateral margin of head without trace of a preocular notch, the margin continuous in front of the eye. Ventral surface of head without a preocular transverse groove but postbuccal groove is distinct.

Promesonotum usually flat and bluntly marginate dorsolaterally (rounded in *carolinae*).

Spongiform appendages of petiole well developed, with a ventral curtain and lateral lobes.

Postpetiole with lateral and ventral lobes. Lamella of propodeal declivity usually well developed into a wide strip below the triangular propodeal spines (narrow in 2 species).

Pilosity. Apicoscrobial hair absent. Pronotal humeral hair absent. Head with broadly spatulate to spoon-shaped hairs present on mandible, lateral clypeal margin (curved anteriorly), upper scrobe margin (curved anteriorly) and leading edge of scape; entire body lacking flagellate hairs. Dorsal surface of mandible with elongate spatulate hairs that are directed towards the midline.

Sculpture. Two forms of basic sculpture are developed within the group, described under the species-complexes, below.

Glands. Gland of scape visible as an elongate patch of pale tissue near the apex of the ventral scape. Femoral gland bulla absent to well developed; decreasing in size from hind femur where it is easily visible to fore femur where it is minute to absent. Absent on all femora of *sylvaini* and *wardi*. Tibial gland bulla absent on all tibiae (*sylvaini*, *wardi*), or present on hind tibia (*peyrierasi*, *gorgon*, *dexis*, *coveri*), or present on hind and fore tibia (*alperti*, *carolinae*). Gland at base of calcar conspicuous. Tarsal glands not visible. Mesopleural gland visible and set in a narrow circular notch.

This group shows a morphocline of shortening mandibles. At the longest (*sylvaini*, MI 28 - 31; *carolinae*, MI 29 - 33) the species are more or less "ordinary" *Strumigenys*, but at the other end the mandibles are shorter and more powerfully constructed (*dexis*, MI 17 - 20), closely resembling short-mandibulate groups of *Pyramica*. However, even at this end of the morphocline the species retain the apomorphies of *Strumigenys*. It appears that the members of the group are evolving to fill the "powerfully short-mandibulate *Pyramica*" niche, which is almost empty in the Malagasy region.

The structure of the mandibles and their dentition is immediately diagnostic of the *dexis*-group. The presence of a rim or carina that traverses a basal concavity of the mandibles and the asymmetric mandibles are apomorphies for the group.

Members of this group fall into two discrete complexes of related species.

1 *dexis*-complex (*coveri*, *dexis*, *gorgon*, *peyrierasi*, *rabesoni*) Cephalic dorsum with scattered punctures that are separated by areas of smooth unsculptured cuticle. Promesonotal dorsum with sculpture either the same as the head or even more sparsely punctate and with more extensive smooth areas. Blanketing fine dense reticulate-punctate to reticulate-granulate sculpture never present.

2 *sylvaini*-complex (*alperti*, *carolinae*, *sylvaini*, *wardi*). Cephalic dorsum blanketed with fine dense reticulate-punctate to reticulate-granulate sculpture and opaque.

Promesonotal dorsum blanketed with the same sculpture except in *carolinae*. Scattered punctures separated by smooth shiny areas never present on head and promesonotum.

*Strumigenys alperti* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.3, HL 0.60, HW 0.52, CI 87, ML 0.14, MI 23, SL 0.27, SI 52, PW 0.31, AL 0.64. Characters of *sylvaini*-complex. Lateral margin of clypeus, upper scrobe margin, and leading edge of scape each fringed with a row of curved spoon-shaped hairs. Clypeal dorsum with short, anteriorly-directed spatulate hairs. Dorsum of head immediately behind clypeus with a transverse band of scale-like hairs, arranged in 3 - 4 rows, these hairs similar in size to those fringing the upper scrobe margins. Similar but somewhat more spoon-shaped hairs are also numerous on the dorsal surfaces of the occipital lobes, but they are absent from the median posterodorsal area of the head. There are no standing hairs of any description on the head, alitrunk, postpetiole or first gastral tergite. Eye conspicuous, with 4 - 5 ommatidia in the longest row. Promesonotal dorsum finely and densely reticulate-punctate, the sculpture fading posteriorly on the propodeal dorsum. Pleurae glassy smooth. Petiole node broader than long in dorsal view, finely reticulate-punctate and with several pairs of posteriorly curved decumbent spatulate hairs. Disc of postpetiole completely surrounded by spongiform tissue; disc with weak longitudinal striolate sculpture on each side of a smooth median strip. Basigastral costulae moderately developed, extending for some distance onto the first gastral tergite.

**PARATYPE WORKERS.** TL 2.4, HL 0.60 - 0.61, HW 0.52 - 0.54, CI 85 - 89, ML 0.14 - 0.15, MI 23 - 25, SL 0.27 - 0.28, SI 50 - 54, PW 0.31 - 0.32, AL 0.66 - 0.68 (2 measured). As holotype.

Holotype worker, Madagascar: 17 km. W Andapa, Res. d'Anjanaharibe Sud, 875 m., 2.xi.1994, 14°45'27.9''S, 49°30'36.7''E, primary rainforest, nest in log under moss, 543.12969w (*G.D. Alpert*) (MCZ).

Paratypes. 1 worker and 1 queen (dealate) with same data as holotype but 543.12968q; 1 worker (gaster missing) with same data but 543.13484w (MCZ, BMNH).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 6.9 km. NE Ambanizana, 825 m. (*B.L. Fisher*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1200 m. (*B.L. Fisher*); 6.5 km. SSW Befingotra, Res. Anjanaharibe-Sud 875 m. (*B.L. Fisher*).

The non-paratypic material shows greater size-variation than the type-series: HL 0.60 - 0.66, HW 0.51 - 0.58, CI 85 - 89, ML 0.15 - 0.17, MI 24 - 27, but otherwise matches all the critical diagnostic characters.

*S. alperti* is immediately separated from all other members of the group by its unique possession of a transverse band of scale-like hairs, made up of 4 - 5 rows, on the cephalic dorsum immediately behind the clypeus. *S. alperti* can be separated from *carolinae* by the presence of reticulate-punctate sculpture on the promesonotum. *S. alperti* and *carolinae* together can be separated from other two members of the *sylvaini*-complex by the following characters.

*S. alperti* + *carolinae*

- 1 Erect short simple hairs entirely absent from dorsal surfaces of head, alitrunk, waist segments and first gastral tergite.
- 2 Head dorsolaterally with broad scale-like hairs present.
- 3 Disc of postpetiole completely surrounded by spongiform tissue in dorsal view.

*S. wardi* + *sylvaini*

- 1 Erect short simple hairs present on dorsal surfaces of head, alitrunk, waist segments and first gastral tergite.
- 2 Head dorsolaterally without scale-like hairs.
- 3 Disc of postpetiole not surrounded by spongiform tissue in dorsal view, with anterolateral

angles and anterior halves of sides free.

*Strumigenys carolinae* Fisher sp. n.

**HOLOTYPE WORKER** TL 2.2, HL 0.55, HW 0.47, CI 85, ML 0.17, MI 31, SL 0.26, SI 56, PW 0.27, AL 0.57. Characters of *sylvaini*-complex. Entire dorsum of head blanketed with fine, dense reticulate-punctate to reticulate-granulate sculpture. Clypeal dorsum with short, anteriorly-directed spatulate hairs. Spoon-shaped hairs are numerous on the dorsal surfaces of the occipital lobes, but they are absent from the median posterodorsal area of the head and from immediately behind clypeus. There are no standing hairs of any description on the head, alitrunk, postpetiole or first gastral tergite. Eye conspicuous, with 4 - 5 ommatidia in the longest row. Promesonotal dorsum mostly smooth. Pronotal humeri rounded. Mesopleural gland large and circular. Petiole node broader than long in dorsal view, and with several pairs of posteriorly curved decumbent spatulate hairs. Disc of postpetiole completely surrounded by spongiform tissue; disc with a mostly smooth dorsal disk. Basigastral costulae moderately developed, extending for some distance onto the first gastral tergite.

**PARATYPE WORKER** TL 2.2 - 2.4, HL 0.55 - 0.58, HW 0.46 - 0.49, CI 81 - 87, ML 0.16 - 0.18, MI 29 - 32, SL 0.26 - 0.27, SI 55 - 57, PW 0.26 - 0.30, AL 0.55 - 0.62 (4 measured). As holotype.

**Holotype worker, Madagascar:** Prov. Antsiranana, R.S. Manongarivo, 10.8 km. 229° SW Antanambao, 400 m. 13°57.7'S, 48°26.0'E, 8.xi.1998, sifted litter (leaf mold, rotten wood), rainforest #1996 (40)-2 (*B.L. Fisher*) (MCZ).

**Paratypes.** 36 workers and 3 queens (dealate) with same data as holotype but coded (13)-1, (18)-1, (32)-1, (35)-1, (35)-2, (35)-3, (38)-1, (38)-2, (42)-2, (44)-4, (45)-1, (46)-1, (46)-2, (49)-1, (50)-6, (51)-1, (55)-2, (56)-7, (70)-2 (BMNH, SAM).

**NON-PARATYPIC MATERIAL EXAMINED.** Madagascar: R.S. Manongarivo, 12.8 km. 228° SW Antanambao, 780 m. (*B.L. Fisher*); R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*); Nossi Be Island (*P. Saranya*).

Measurements of this material extends the range shown by the type-series: HL 0.58 - 0.65, HW 0.46 - 0.52, CI 79 - 83, ML 0.18 - 0.21, MI 30 - 33, SL 0.28 - 0.30, SI 56 - 59 (6 measured).

*S. carolinae* is immediately separated from all other members of the group by its unique possession of:

- 1 Rounded pronotal humeri.
- 2 Dense reticulate-punctate to reticulate-granulate sculpture present on the dorsum of the head but absent from promesonotum.

*Strumigenys coveri* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.4, HL 0.63, HW 0.51, CI 81, ML 0.14, MI 22, SL 0.28, SI 55, PW 0.31, AL 0.68. Characters of *dexis*-complex. With head in full-face view the dorsal surfaces of the occipital lobes with broad spoon-shaped hairs similar in shape and size to those projecting from the upper scrobe margins; these hairs occupy a longitudinal strip on each side from the apices of the upper scrobe margins to the apices of the occipital lobes, but absent from the vertex proper. Eye with 12 - 13 ommatidia in total. Punctures on vertex small and faint, widely spaced, the distance between punctures greater than the diameter of the punctures. Punctate sculpture sparse and faint on dorsal promesonotum, almost effaced. Pronotum in dorsal view relatively narrow, about as broad as long, decidedly not conspicuously broader than long. Dorsum of petiole node (discounting spongiform tissue) longer than broad. Disc of postpetiole smooth. Basigastral costulae weakly developed and inconspicuous, sparse, faint and short. Standing hairs completely absent from dorsal surfaces of body.

PARATYPE WORKERS. TL 2.4, HL 0.63 - 0.64, HW 0.51 - 0.52, CI 80 - 83, ML 0.14, MI 22, SL 0.28 - 0.29, SI 55 - 56, PW 0.30 - 0.31, AL 0.66 - 0.68 (2 measured). As holotype but number of ommatidia in eye varies from 11 to 13.

Holotype worker, Madagascar: 1 km. W Andampibe, Cap Masoala, 125 m., 2.xii.1993, 15°51'37''S, 50°10'53.4''E, lowland rainforest, Winkler app. 259.3308w (*Alpert et al.*) (MCZ).

Paratypes. 1 worker with same data as holotype; 2 workers (one with head missing) 2 km. W Andampibe, Cap Masoala, 125 m., 1.xii.1993, 15°41'25''S, 50°10'10''E, lowland rainforest, Winkler app. 238.3325w (*Alpert et al.*) (SAM, BMNH).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 6.3 km. S Ambanizana, Andranobe, 25 m., (*B.L. Fisher*); 5.3 km. SSE Ambanizana, Andranobe, 425 m. (*B.L. Fisher*); Prov. Toamasina, F.C. Didy 960 m. (*H.J. Ratsirarson*).

Measurements of this material extends the range shown by the type-series: HL 0.62 - 0.68, HW 0.51 - 0.55, CI 80 - 85, ML 0.14 - 0.17, MI 22 - 26.

Within the *dexis*-complex *coveri* is immediately separated from all other members (*dexis*, *gorgon*, *peyrierasi*, *rabesoni*) by the condition of the petiole node. In dorsal view the cuticular area of the node (discounting the lateral lobes and posterior collar) is at least as long as broad, and usually distinctly longer than broad in *coveri*, while in the other species it is very obviously broader than long. The basigastral costulae are very short with a few feeble longer costulae in *coveri*, while in the other species, costulae well developed and numerous. Further differentiating characters are noted under the other species of the complex.

### *Strumigenys dexis* Fisher sp. n.

(Figs 387, 412)

HOLOTYPE WORKER. TL 2.4, HL 0.66, HW 0.57, CI 88, ML 0.12, MI 18, SL 0.29, SI 51, PW 0.36, AL 0.68. Characters of *dexis*-complex. Transverse edge of the depressed proximodorsal area of mandible with a short row of curved spoon-shaped hairs approximately the same as those fringing the upper scrobe margin. Each labral lobe terminates anteriorly in a broad fan-shaped lamella of thin translucent cuticle and a short trigger-hair mesad of fan-like lamella; trigger-hairs often difficult to see. Clypeal dorsum with minute appressed hairs, the lateral margins with a short row of anteriorly curved large spoon-shaped hairs. Upper scrobe margin in full-face view with a continuous row of anteriorly curved spoon-shaped hairs that are similar to those on the leading edge of the scape; the row ends at the apex of the scrobe and does not extend onto the side of the occipital lobe. Eye with 7 ommatidia in total. Cephalic dorsum without standing hairs of any description but with scattered minute flattened appressed hairs present. Area of cuticle within antennal scrobe densely reticulate-punctate except for extreme posterior portion which is superficially reticulate to smooth. Dorsum of head behind clypeus with separated shallow punctures, the spaces between them shining; ventral surface of head unsculptured. Pronotum in dorsal view with strongly convex sides, appearing very short and broad. Flattened dorsum of pronotum sculptured as vertex; pleurae and sides of propodeum smooth and shining; propodeal declivity with a band of fine punctate sculpture between the teeth. Lamella of propodeum broad and sinuate, apices of propodeal teeth free. Dorsal surfaces of alitrunk, waist segments and first gastral tergite without standing hairs, but minute appressed flattened hairs are sparsely present everywhere except on first gastral tergite. Base of first gastral sternite and posterior margins of petiole and postpetiole, with a row of flat, broad, spatulate appressed hairs. Petiole node in dorsal view broader than long, with extensive lateral spongiform lobes. Disc of postpetiole completely surrounded by spongiform tissue in dorsal view; sides and posterior margin of the disc forming a single convex arc and the disc with scattered but easily visible punctures upon a smooth surface. In profile all spongiform lobes of the waist segments well developed. Legs with spatulate to scale-like hairs present, but without standing pilosity.

PARATYPE WORKERS. TL 2.4 - 2.5, HL 0.65 - 0.66, HW 0.58 - 0.59, CI 88 - 90, ML 0.12 - 0.13, MI 18 - 20, SL 0.29, SI 49 - 50, PW 0.36 - 0.37, AL 0.68 (2 measured). As holotype.

Holotype worker, Madagascar: 45 km. S Ambalavao, 22°13'S, 47°01'E, 785 m., 25.ix.1993, sifted litter (leaf mold, rotten wood), rainforest, #696 (40)-6 (*B.L. Fisher*) (MCZ).

Paratypes. 1 worker with same data as holotype; 1 worker with same data but #696 (20)-9 (SAM, BMNH).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 6.5 km. SSW Befingotra, Ris. Anjanaharibe-Sud 875 m. (*B.L. Fisher*); 6.9 km. NE Ambanizana, Ambohitsitondroina 825 m. (*B.L. Fisher*); S.F. Tampolo, 10 km. NNE Fenoarivo Atn. 10 m. (*B.L. Fisher*); Rte. d'Anosibe, km. 33 (*A. Peyrieras*); F.C. Sandranantitra 450 m. (*H.J. Ratsirarson*); F.C. Andriantantely 530 m. (*H.J. Ratsirarson*); Ranomafana Nat. Park, Vohiparara forest 1160 m. (*E. Rajeriarison*); 43 km. S Ambalavao, Ris. Andringitra 825 m. (*B.L. Fisher*); 9.0 km. NE Ivohibe 900 m. (*S. Razafimandimby*); R.S. Ivohibe 8.0 km. E Ivohibe 1200 m. (*S. Razafimandimby*); 11 km. NW Enakara, Ris. Andohahela 800 m. (*B.L. Fisher*).

Members of these series tend to be a little larger than the type-series and to have the head fractionally broader, HL 0.68 - 0.70, HW 0.63 - 0.64, CI 90 - 93, ML 0.12 - 0.13, MI 17 - 19, but otherwise match the types perfectly.

Within the group *dexis* is related to *coveri*, *gorgon*, *peyrierasi* and *rabesoni*, a complex of five species that share a distinctive form of sculpture in which cephalic and promesonotal punctures are spaced out and separated by areas of smooth cuticle, rather than having the entire surface opaque and blanketed with reticulate-punctate sculpture (promesonotal punctures absent in *carolinae*). Of these five species *dexis* is identified by its relatively short mandibles, broad head and unique labrum, where both anterior lobes sport a single fan-like lamella of very thin translucent cuticle that projects anteriorly. In addition:

- 1 The petiole node in *coveri* is as long as or longer than broad in dorsal view (distinctly broader than long in *dexis*).
- 2 The head has large spoon-shaped hairs on the dorsum of the occipital lobes in *gorgon* (absent in *dexis*).
- 3 The punctate sculpture of the vertex is much denser and more crowded in *rabesoni* than in *dexis*.
- 4 The mesonotum has a single pair of short straight standing hairs in *peyrierasi* (absent in *dexis*).

The presence of dense blanketing reticulate-punctate sculpture on the dorsum of the head distinguishes the *sylvaini*-complex from *dexis* and its immediate allies discussed above. Beside the sculpture *alperti* and *carolinae* have a unique distribution of scale-like hairs anteriorly on the cephalic dorsum, and *sylvaini* and *wardi* have standing hairs on the head and body, neither of which occurs in the four species of the *dexis*-complex.

### *Strumigenys gorgon* Fisher sp. n.

HOLOTYPE WORKER. TL 2.4, HL 0.60, HW 0.52, CI 87, ML 0.15, MI 25, SL 0.28, SI 54, PW 0.34, AL 0.64. Characters of *dexis*-complex. With head in full-face view the dorsal surfaces of the occipital lobes with broad spoon-shaped hairs similar in shape and size to those projecting from the upper scrobe margins; these hairs occupy a longitudinal strip on each side from the apices of the upper scrobe margins to the apices of the occipital lobes, but absent from the vertex proper. Punctures on cephalic vertex shallow and poorly defined, not crowded together. Eye with 8 ommatidia in total. Punctures on pronotal dorsum shallow and faint, almost effaced, very widely scattered so that most of the dorsum is smooth. Pronotum in dorsal view distinctly broader than long. Petiole node in dorsal view (excluding spongiform tissue) broader than long. Disc of postpetiole smooth and shining. Basigastral costulae moderately long and sharply defined, extending backwards over one-quarter the length of the first gastral tergite.

PARATYPE WORKERS. TL 2.4 - 2.5, HL 0.60 - 0.64, HW 0.52 - 0.55, CI 86 - 89, ML 0.15 - 0.17, MI 25 - 27, SL 0.28 - 0.30, SI 51 - 55, PW 0.34 - 0.36, AL 0.64 - 0.68 (4

measured). As holotype but eye with 8 - 10 ommatidia in total.

Holotype worker, Madagascar: 6.9 km. NE Ambanizana, 15°34'S, 50°00'E, 825 m., 2.xii.1993, sifted litter (leaf mold, rotten wood) rainforest, #976 (41)-1 (*B.L. Fisher*) (MCZ).

Paratypes. 4 workers with same data as holotype but coded (37)-1, (44)-1, (48)-1 (SAM, BMNH).

Within the *dexis*-complex, the species *gorgon*, *peyrierasi* and *rabesoni* form a close cluster. The three together differ from *dexis* in possessing simple labral trigger-hairs, where *dexis* has them replaced by a pair of fan-like thin cuticular lamellae. *S. coveri* separates from *gorgon*, *peyrierasi* and *rabesoni* by having the petiole node longer than broad, the pronotum only as broad as long and the eye somewhat larger, with 11 - 13 ommatidia in total. In *gorgon*, *peyrierasi* and *rabesoni* the petiole node and the pronotum are both broader than long in dorsal view, and the eye is somewhat smaller, with 7 - 10 ommatidia in total. *S. gorgon* is distinguished from *peyrierasi* and *rabesoni* by the presence in the former of broad spoon-shaped hairs laterally on the dorsal surfaces of the occipital lobes, absent in the latter. *S. gorgon* is distinguished from *rabesoni* by the densely crowded punctate sculpture of the vertex in *rabesoni*, which in *gorgon* is much fainter and more widely spaced. Finally, *gorgon* is distinguished from *peyrierasi* by the presence of a single pair of short straight standing hairs on the mesonotum in *peyrierasi*, absent in *gorgon*.

#### *Strumigenys peyrierasi* Fisher sp. n.

HOLOTYPE WORKER. TL 1.4, HL 0.59, HW 0.55, CI 93, ML 0.12, MI 21, SL 0.26, SI 48, PW 0.32, AL 0.60. Characters of *dexis*-complex. With head in full-face view the dorsal surfaces of the occipital lobes without broad spoon-shaped hairs similar in shape and size to those projecting from the upper scrobe margins. Punctures on vertex broad, scattered, distance separating one puncture from another is greater than the diameter of each puncture. Eye with 7 ommatidia in total. Pronotum distinctly broader than long in dorsal view, with scattered punctures on an otherwise smooth surface. Petiole node in dorsal view broader than long (discounting spongiform tissue). Disc of postpetiole smooth. Basigastral costulae fine and faint, but extending back over at least the basal third of the tergite.

Holotype worker, Madagascar: Bongolava, Pref. Tsiroanomandidy, 6-11.xii.1974, forest humus and litter (*A. Peyrieras*) (MCZ).

*S. peyrierasi* is distinguished from other species in the *dexis*-complex by having the following characters.

- 1 Mesonotum with a single pair of short straight standing hairs.
- 2 First gastral tergite with a single pair of straight standing hairs close to the base.

#### *Strumigenys rabesoni* Fisher sp. n.

HOLOTYPE WORKER. TL 2.3, HL 0.61, HW 0.53, CI 87, ML 0.14, MI 23, SL 0.26, SI 49, PW 0.33, AL 0.64. Characters of *dexis*-complex. With head in full-face view the dorsal surfaces of the occipital lobes without broad spoon-shaped hairs similar in shape and size to those projecting from the upper scrobe margins. Punctures on vertex broad, numerous and crowded, the diameter of each puncture greater than the distance separating one puncture from another. Eye with 8 ommatidia in total. Pronotum distinctly broader than long in dorsal view, with scattered punctures on an otherwise smooth surface. Petiole node in dorsal view broader than long (discounting spongiform tissue). Disc of postpetiole smooth. Basigastral costulae fine and faint, but extending back over at least the basal quarter of the tergite.



PARATYPE WORKERS. TL 2.3 - 2.5, HL 0.60 - 0.66, HW 0.52 - 0.58, CI 84 - 89, ML 0.13 - 0.16, MI 22 - 24, SL 0.26 - 0.29, SI 48 - 52, PW 0.32 - 0.38, AL 0.64 - 0.70 (10 measured). As holotype but eye with 7 - 10 ommatidia in total.

Holotype worker, Madagascar: 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°28'E, 1200 m., 9.xi.1994, sifted litter (leaf mold, rotten wood) montane rainforest, #1192 (33)-1 (*B.L. Fisher*) (MCZ).

Paratypes. 11 workers and 3 queens (dealate) with same data as holotype but coded (2)-1, (3)-1, (9)-1, (11)-1, (39)-1, (40)-1, (46)-1, (47)-1, (49)-2; 1 worker and 1 queen (dealate) with same data as holotype but 1280 m., 5.xi.1994, #1158 (17)-1 and #1158 (22)-1 (*B.L. Fisher*) (SAM, BMNH).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*); Prov. Toamasina, F.C. Andriantately 530 m. (*H.J. Ratsirarson*); P.N. Mantadia 895 m. (*H.J. Ratsirarson*).

Measurements of this material extends the range shown by the type-series: HL 0.60 - 0.65, HW 0.54 - 0.59, CI 88 - 99, ML 0.12 - 0.15, MI 20 - 23, SL 0.28 - 0.31, SI 48 - 55 (3 measured).

*S. rabesoni* forms a close species pair with *gorgon* within the *dexis*-complex of this group. Characters isolating *rabesoni* are discussed under *gorgon*, with further comments under *dexis*.

### *Strumigenys sylvaini* Fisher sp. n.

(Fig. 388)

HOLOTYPE WORKER TL 2.0, HL 0.65, HW 0.56, CI 87, ML 0.19, MI 30, SL 0.30, SI 54, PW 0.38, AL 0.71. Characters of *sylvaini*-complex. Entirety of head blanketed with fine, dense reticulate-punctate sculpture, opaque everywhere. Dorsum of head without scale-like hairs that are similar in size to those on the fringing rows. Instead the head dorsally with sparse, minute and inconspicuous decumbent to appressed spatulate hairs, and with a row of 4 short erect hairs close to the occipital margin. Eye with 4 - 5 ommatidia in the longest row. Dorsal alitrunk, petiole node, and postpetiole disc finely reticulate-punctate, the postpetiole disc with feeble longitudinal rugulae. Pleurae smooth and shining. Short standing hairs present as follows: mesonotum with a single pair, 1 pair posterodorsally on the petiole node, 2 pairs posterodorsally on the postpetiole, transverse rows of hairs present between a basal and an apical row on the first gastral tergite. Lamella of propodeum narrow below the triangular propodeal spines, leaving most of the spine length free. Petiole node in dorsal view broader than long. Disc of postpetiole in dorsal view not completely surrounded by spongiform tissue, the anterolateral angles and anterior halves of the sides free. Basigastral costulae short but well developed and conspicuous.

PARATYPE WORKERS TL 1.6 - 2.0, HL 0.60 - 0.65, HW 0.55 - 0.56, CI 86 - 91, ML 0.18 - 0.19, MI 29 - 30, SL 0.28 - 0.29, SI 51 - 53, PW 0.34 - 0.37, AL 0.67 - 0.72 (4 measured) As with holotype.

Holotype worker, Madagascar: 38 km. S Ambalavao, Res. Andringitra 22°12'S, 46°58'E, 1680 m., 24.x.1993, ex root mat, montane rainforest #827-2 (*B.L. Fisher*) (MCZ).

Paratypes. 1 worker and 1 queen (dealate) with same data as holotype; 3 workers with same data as holotype but 23.x.1993 #830 (50)-3, #830 (36)-8, and #830 (40)-5 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 17.3 km. 218° SW Antanambao 1580 m. (*B.L. Fisher*); R.S. Manongarivo, 20.4 km. 219° SW Antanambao 1860 m. (*B.L. Fisher*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud 1280 m. (*B.L. Fisher*); Andranobi, Route d'Andriamena, ca 25 km. W Morarano Sud ca 1250 m. (*A. Peyrieras*); For. d'Ambatofitorahana 293 to 294 km. on route national no. 7 1800 m. (*A. Peyrieras*); Itremo Mts. 1680 m. (*A. Peyrieras*); 28 km. SSW Ambositra 1660 m. (*P.S. Wurd*); 29 km. SSW Ambositra, Ankazomivady 1700 m. (*B.L. Fisher*); 40 km. S Ambalavao, Res. Andringitra 1275 m. (*B.L. Fisher*); 8.0 km. NE Ivohibe 1200 m. (*S. Razafimandimby*); 9.0 km. NE Ivohibe 900 m. (*S. Razafimandimby*); R.S. Ivohibe, 7.5 km. ENE Ivohibe 900 m. (*S. Razafimandimby*); R.S. Ivohibe 8.0 km. E Ivohibe 1200 m. (*S. Razafimandimby*); R.S. Ivohibe, 6.5 km. ESE Ivohibe 1575 m. (*S. Razafimandimby*); 13 km. NW Enakara, Res. Andohahela 1250 m. (*B.L. Fisher*); Mandena, 8.4 km. NNE 30° Tolagnaro 20 m. (*B.L. Fisher*).

Measurements of this material extends the range shown by the type-series: HL 0.59 - 0.67, HW 0.52 - 0.57, CI 85 - 88, ML 0.18 - 0.19, MI 28 - 31.

One of the most widely distributed member of the *dexis*-group in the rainforest region of Madagascar. Distinguished from other members of the *sylvaini*-complex by having:

- 1 Erect short simple hairs present on dorsal surfaces of head, alitrunk, waist segments and first gastral tergite.
- 2 Postpetiole disc reticulate-punctate with feeble longitudinal rugulae.
- 3 First gastral tergite with standing hairs present between the apical and basal rows.

***Strumigenys wardi* Fisher sp. n.**

**HOLOTYPE WORKER.** TL 2.2, HL 0.58, HW 0.48, CI 83, ML 0.15, MI 26, SL 0.26, SI 54, PW 0.29, AL 0.60. Characters of *sylvaini*-complex. Entirety of head blanketed with fine, dense reticulate-punctate sculpture, opaque everywhere. Dorsum of head without scale-like hairs that are similar in size to those on the fringing rows. Instead the head dorsally with sparse, minute and inconspicuous decumbent to appressed spatulate hairs, and with a row of 4 short erect hairs close to the occipital margin. Eye with 4 - 5 ommatidia in the longest row. Dorsal alitrunk and petiole node finely reticulate-punctate, the postpetiole disc finely longitudinally costulate. Pleurae smooth and shining. Mesonotum with a single pair of short standing hairs, standing hairs also present as follows: 1 pair posterodorsally on the petiole node, 2 pairs posterodorsally on the postpetiole, a basal and an apical transverse row on the first gastral tergite. Lamella of propodeum narrow below the triangular propodeal spines, leaving most of the spine length free. Petiole node in dorsal view distinctly broader than long. Disc of postpetiole in dorsal view not completely surrounded by spongiform tissue, the anterolateral angles and anterior halves of the sides free. Basigastral costulae short but well developed and conspicuous.

Holotype worker, Madagascar: 5 km. SW Antalaha, 50 m., 6.xii.1993, 14°56'17''S, 50°15'42''E, secondary forest, Winkler app. 280.13485w (*G.D. Alpert*) (MCZ).

**NON-PARATYPIC MATERIAL EXAMINED.** Madagascar: F.C. Didy 960 m. (*H.J. Ratsirarson*); F.C. Andriantantely 530 m. (*H.J. Ratsirarson*); P.N. Mantadia 895 m. (*H.J. Ratsirarson*); Perinet (*W.L. Brown*); 6 km. ESE Andasibe 900 m. (*P.S. Ward*); R.S. Ivohibe, 7.5 km. ENE Ivohibe 900 m. (*S. Razafimandimby*); 9.0 km. NE Ivohibe 900 m. (*S. Razafimandimby*); R.S. Ivohibe 8.0 km. E Ivohibe 1200 m. (*S. Razafimandimby*); 10 km. NW Enkara, Ris. Andohahela 430 m. (*B.L. Fisher*); 11 km. NW Enkara, Ris. Andohahela 800 m. (*B.L. Fisher*).

Measurements of this material extends the range shown by the holotype: HL 0.59 - 0.63, HW 0.49 - 0.52, CI 81 - 83, ML 0.15 - 0.16, MI 26.

Distinguished from other members of the *sylvaini*-complex by having:

- 1 Erect short simple hairs present on dorsal surfaces of head, alitrunk, waist segments and first gastral tergite.
- 2 The postpetiole disc finely longitudinally costulate.
- 3 The first gastral tergite without standing hairs between the apical and basal rows.

***godeffroyi*-group**

**DIAGNOSIS OF WORKER**

Apical fork of mandible of 2 spiniform teeth; with 1 - 2 intercalary teeth or denticles. A single spiniform preapical tooth, that is longer than width of mandible where it arises, is present near the apicodorsal tooth. Mandible with the outer margins shallowly and evenly convex. MI 40 - 43.

Scape slender, subcylindrical. SI 73 - 80.

Ventrolateral margin of head without a preocular impression or notch; with head in profile the dorsal and ventral outlines without impressions except for the postbuccal groove.

Eye large, its maximum diameter exceeding the maximum width of the scape.

Propodeal declivity with a broad and conspicuous lamella whose posterior (free) margin is partially or entirely convex or straight.

Spongiform appendages of waist segments well developed.

Pilosity. Cephalic dorsum with curved narrowly spatulate ground-pilosity on anterior two-thirds; simple standing hairs present along occipital margin and 1 - 2 pairs at about highest point of vertex. Pronotal humeral hair present. Dorsal surfaces of promesonotum, petiole, postpetiole and gaster with simple standing hairs.

Sculpture. Head, alitrunk dorsum and petiole reticulate-punctate. Gaster unsculptured except for basigastral costulae.

Glands. Gland of scape near the apex on the ventral surface not apparent. Femoral gland bullae decreasing in size from hind femur where easily visible to the fore femur where it is minute to absent. Tibial gland bullae visible on mid and hind tibiae. Gland at base of calcar conspicuous. Tarsal gland bullae visible on at least first three tarsi, decreasing in size from basitarsus where it is elongate to the third tarsal segment where it is oval. Mesopleural gland visible and set in a narrow circular notch.

This diagnosis is modified from that given for the group in the Malesian-Oriental-East Palaearctic fauna, where there are 64 species, because only a single species occurs in the Malagasy region. In the subdivisions of the group noted there, *agetos* would fall into the *signeae*-complex as its hind basitarsus lacks erect flagellate hairs, its pronotal humeral hair is not flagellate, and flagellate hairs are absent from dorsal surfaces of the head, alitrunk and gaster.

*S. agetos*, known only from Mauritius (where it may be an introduction), is easily distinguished from all other species of the Malagasy region by its combination of subcylindrical scape, apical fork of left mandible with two intercalary denticles, mandible with a single preapical tooth, and the absence of a preocular notch in the ventrolateral margin of the head.

*Strumigenys agetos* Fisher sp. n.

(Figs 390, 413)

HOLOTYPE WORKER. TL 3.3, HL 0.75, HW 0.60, CI 80, ML 0.32, MI 42, SL 0.45, SI 75, PW 0.36, AL 0.84. Mandible in full-face view with the outer margins shallowly and evenly convex, the width approximately constant from the level of the preapical tooth to near the base where the mandibles are somewhat narrowed. Apical fork with 1 or 2 intercalaries; either both with 2, or left mandible with 2 intercalary denticles and right mandible with a small intercalary tooth. Anterior clypeal margin broadly concave and with a row of short hairs that are curved ventrally at more or less right angles. Upper scrobe margins more or less straight and shallowly divergent posteriorly. Hairs that fringe upper scrobe margin slender and similar in shape to those on leading edge of scape, terminating in an erect filiform hair in apicoscrobial position. Eye large, with about 20 ommatidia, the maximum diameter of the eye distinctly greater than the maximum width of the scape. Cephalic dorsum with curved narrowly spatulate ground-pilosity on anterior two-thirds; simple standing hairs present along posterior margin of head and with 1 - 2 more anteriorly situated pairs. Pronotal dorsum with several pairs of simple hairs; mesonotum with a pair of standing hairs on anterior margin. Posterior portion of mesonotum depressed behind the level of the standing hairs. Propodeal teeth triangular and incorporated in broad lamellae. Sides of alitrunk reticulate-punctate peripherally, the pleurae mostly smooth. Pronotal dorsum reticulate-punctate and longitudinally feebly rugulose. Remainder of dorsal alitrunk reticulate-punctate. Petiole node in dorsal view reticulate-punctate and distinctly longer than broad. Postpetiole smooth and shining. Spongiform appendages of waist segments well developed, the petiole with a medially impressed ventral curtain and conspicuous lateral lobe on the node. Postpetiole with large lateral and ventral spongiform lobes of which the ventral is the larger, larger than the exposed area of the postpetiole disc in profile.

Basigastral costulae arising continuously across tergite, longer than disc of postpetiole; remainder of first gastral tergite smooth. Dorsal surfaces of petiole, postpetiole and gaster with simple standing hairs.

PARATYPE WORKERS. TL 3.1 - 3.3, HL 0.73 - 0.76, HW 0.56 - 0.60, CI 77 - 80, ML 0.30 - 0.33, MI 40 - 43, SL 0.43 - 0.45, SI 73 - 80, PW 0.34 - 0.37, AL 0.78 - 0.85 (8 measured). As holotype.

Holotype worker, Mauritius: Le Pouce 700 m., 20°12'S, 57°31'E, 9.iv.1989, under stone, low closed forest #10260 (P.S. Ward) (MCZ).

Paratypes. 8 workers with same data as holotype (BMNH, SAM, UCD).

Among the Malagasy region species which have a cylindrical scape but lack a preocular notch, *agetos* is immediately recognized by its dentition.

### *grandidieri*-group

#### DIAGNOSIS OF WORKER

Apical fork of mandible with 2 - 3 spiniform teeth, without intercalary teeth or denticles.

Mandible with 0 - 2 stout preapical teeth, when present situated in the apical third of the length. Mandibles in full-face view and at full closure almost straight, parallel. MI 49 - 64.

Scape elongate and cylindrical. SI 77 - 132.

Upper scrobe margin ends, or at least becomes extremely indistinct, at about the level of the eye; without a row of hairs or fringed with a row of hairs which are the same shape and size as those on the cephalic dorsum.

Promesonotum flat to slightly convex dorsally and bluntly marginate laterally.

Ventrolateral margin of the head notched or indented immediately in front of the eye. With head in profile the preocular notch seen to continue vertically as a groove up the side of the head that extends towards the dorsal outline. Preocular notch also extends onto the ventral surface of the head as a transverse preocular groove that runs towards but does not reach the midline. An extremely deep and sharply defined post-buccal groove also present, extending across entire width of head immediately posterior of buccal cavity; post-buccal groove sharply separated from ventral preocular groove.

Spongiform appendages of petiole segments absent or weakly developed. Ventral spongiform lobes of postpetiole nearly absent or small but distinct.

Pilosity. Pronotal humeral hair usually absent but sometimes with a projecting stiff hair (*dora*, *fanano*). Upper scrobe margin without a row of hairs (*actis*, *ampyx*, *bibiolona*, *chilo*) or fringed by a continuous row of small curved hairs (*dora*, *fanano*, *grandidieri*). Cephalic dorsum with 4-6 standing hairs, usually with a transverse or of 4 near occipital margin. Mesonotum with at least 1 pair of erect hairs on anterior margin (none in *bibiolona*); entire body lacking flagellate hairs.

Sculpture. Head and alitrunk reticulate-punctate; middorsum of head and pronotal dorsum frequently with longitudinal or oblique rugulae in *grandidieri*. Petiole node and postpetiole disc in dorsal view reticulate-punctate. First gastral tergite unsculptured except for basigastral costulae or reticulate-punctate (*dora*, *fanano*).

Glands. Scape gland visible as an elongate patch near apex of ventral or leading edge of scape. Femoral gland bullae decreasing in size from hind femur where it is easily visible to fore femur where it is minute to absent (*bibiolona*, *chilo*, *grandidieri*), or absent on all femora. Tibial gland bullae absent on all tibiae (*dora*), present only on hind tibia (*actis*, *ampyx*), or present on hind and fore tibiae (*bibiolona*, *chilo*, *fanano*, *grandidieri*). Gland at base of calcar conspicuous. Tarsal gland bullae absent (*dora*) or visible on at least first three tarsi, decreasing in size from basitarsus where it is elongate to the third tarsal segment where it is oval. Mesopleural gland visible and set in a circular notch or concave impression.

The combined presence of a preocular notch in the ventrolateral margin of the head, a preocular impression on the ventral surface of the head, and an upper scrobe margin that ends, or at least becomes extremely indistinct, at about the level of the eye, is immediately diagnostic of the *grandidieri*-group.

The group contains 7 species, all of which are endemic in the Malagasy region; there are 3 complexes of related species.

- 1 *chilo*-complex (*actis*, *ampyx*, *bibiolona*, *chilo*). Preapical teeth absent or at most a small spiniform denticle present immediately proximal of apicodorsal tooth on right mandible. Apical fork of mandible subtended by a third, shorter spiniform tooth. Upper scrobe margin without a row of hairs.
- 2 *dora*-complex (*dora*, *fanano*). Preapical teeth present, acute. Apical fork of mandible not subtended by a third spiniform tooth; at most the apicoventral tooth may have a minute spur or denticle at its ventral base. Upper scrobe margin fringed by a continuous row of small curved hairs. Pronotal humeral hair stiff. First gastral tergite and sternite densely punctate over the anterior half or more of the sclerite.
- 3 *grandidieri*-complex (*grandidieri*). Preapical teeth present, truncated. Apical fork of mandible not subtended by a third spiniform tooth; at most the apicoventral tooth may have a minute spur or denticle at its ventral base. Upper scrobe margin fringed by a continuous row of small curved hairs. Pronotal humeral hair absent. Gaster unsculptured except for basigastral costulae.

*Strumigenys actis* Fisher sp. n.

HOLOTYPE WORKER. TL 3.4, HL 0.88, HW 0.70, CI 80, ML 0.46, MI 52, SL 0.59, SI 84, PW 0.36, AL 0.85. Characters of *chilo*-complex. Mandibles almost straight and at full closure parallel. Apical fork of mandible subtended by a third, shorter spiniform tooth, the fork effectively 3-dentate; without intercalary teeth or denticles. Preapical teeth absent. Upper scrobe margin ends, or at least becomes extremely indistinct, at about the level of the eye; when viewed in profile upper scrobe margin extends posteriorly across dorsal apex of vertical preocular groove of side of head; preocular groove meets and is interrupted by the upper scrobe margin before reaching the cephalic dorsum. Eye large, convex, and plainly visible in full-face view. Scape long and slender, approximately straight, the leading edge with a row of slender hairs which are slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with curved spoon-shaped ground-pilosity; the upper scrobe margin without a row of hairs. Cephalic dorsum with 4 simple standing hairs arranged in a transverse row close to the occipital margin. Dorsum of head reticulate-punctate. Mesonotum with a single pair of stout standing hairs situated on anterior margin. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk as on head but sparser. With the alitrunk in profile the posterior portion of the mesonotum sharply depressed, the metanotal groove represented by a shallow impression. Pronotal humeri rounded. Lateral margin of posterior pronotum bluntly marginate. Anterior mesonotum with a narrow carina above the mesothoracic spiracle. Propodeal tooth long and slender, almost spiniform; propodeal lamella absent. Alitrunk dorsum and sides reticulate-punctate. Petiole node in dorsal view reticulate-punctate and much longer than broad. Postpetiole disc reticulate-punctate. Spongiform appendages of petiole weakly developed. Postpetiole with small but distinct lateral and ventral spongiform lobes. Basigastral costulae fine across base of gaster without a central clear area; gaster smooth and shiny where clean. Dorsal surfaces of petiole often with a pair of short posteriorly projecting hairs; postpetiole with a pair of posteriorly projecting stout hairs; gaster with stout standing hairs which are weakly swollen apically. Colour dull yellow to light medium brown.

Holotype worker, Madagascar: 43 km. S Ambalavao, Res. Andringitra, 22°14'S, 47°00'E, 825 m., 5.x.1993, sifted litter (leaf mold rotten wood), rainforest #747 (14)-8 (*B.L. Fisher*) (MCZ).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Perinet, 900 m., (*J.-M. Betsch*); Ranomafana Nat. Park, Vohiparara Forest, 1160 m. (*E. Rajerison*); Parc Nat. de Ranomafana (*Bartolozzi et al.*); Ranomafana Nat. Park, 1040 m. (*W.E. Steiner*); 7 km. W Ranomafana, 900 m. (*W.E. Steiner*); 3 km. W Ranomafana, 950 m. (*P.S. Ward*); 7.5 km. ENE Ivohibe, 900 m. (*S. Razafimandimby*); 9.0 km. NE Ivohibe, 900 m. (*S. Razafimandimby*).

Measurements of this material extend the range shown by the type-series: TL 3.3 - 3.9, HL 0.86 - 1.01, HW 0.65 - 0.86, CI 75 - 92, ML 0.44 - 0.54, MI 49 - 59, SL 0.56 - 0.70, SI 79 - 86, PW 0.34 - 0.41, AL 0.80 - 0.99 (9 measured).

Among the Malagasy species that have the mandibular apical fork subtended by a shorter third tooth *actis* is easily isolated by the following characters:

- 1 Upper scrobe margin ends, or at least becomes extremely indistinct, at about the level of the eye; when viewed in profile, upper scrobe margin extends posteriorly across dorsal apex of vertical preocular groove of side of head; preocular groove meets and is interrupted by the upper scrobe margin before reaching the cephalic dorsum.
- 2 Mesonotum with 1 pair of erect hairs, on anterior margin.
- 3 Cephalic dorsum with a transverse row of four erect hairs immediately in front of occipital margin.

#### *Strumigenys ampyx* Fisher sp. n.

HOLOTYPE WORKER. TL 2.6, HL 0.76, HW 0.64, CI 85, ML 0.42, MI 55, SL 0.52, SI 81, PW 0.33, AL 0.76. Characters of *chilo*-complex. Mandibles almost straight and at full closure parallel. Apical fork of mandible subtended by a third, shorter spiniform tooth, the fork effectively 3-dentate; without intercalary teeth or denticles. Preapical teeth absent but a small spiniform denticle may occur immediately proximal of apicodorsal tooth on right mandible. Upper scrobe margin ends, or at least becomes extremely indistinct, at about the level of the eye; when viewed in profile, upper scrobe margin extends posteriorly across dorsal apex of vertical preocular groove of side of head; preocular groove meets and is interrupted by the upper scrobe margin before reaching the cephalic dorsum. Eye large, convex, and plainly visible in full-face view. Scape long and slender, approximately straight, the leading edge with a row of slender hairs which are slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with curved spoon-shape ground-pilosity; the upper scrobe margin without a row of hairs. Cephalic dorsum with 6 simple standing hairs arranged in a transverse row close to the occipital margin. Dorsum of head reticulate-punctate. Pronotum without standing hairs. Mesonotum with two pairs of stout standing remiform to narrowly clavate hairs: a pair on anterior margin and a posteriorly situated pair. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk as on head but sparser. With the alitrunk in profile the posterior portion of the mesonotum sharply depressed, the metanotal groove represented by a shallow impression. Pronotal humeri rounded. Lateral margin of posterior pronotum bluntly marginate. Anterior mesonotum with a narrow carina above the mesothoracic spiracle. Propodeal tooth long, slender, almost spiniform; propodeal lamella absent. Alitrunk dorsum and sides reticulate-punctate. Petiole node in dorsal view reticulate-punctate and much longer than broad. Postpetiole reticulate-punctate. Spongiform appendages of petiole weakly developed. Postpetiole with small but distinct lateral and ventral spongiform lobes. Basigastral costulae fine and superficial across base of gaster without a central clear area; gaster smooth and shiny where clean. Dorsal surfaces of petiole and postpetiole each with a pair of posteriorly projecting stout hairs; gaster with stout standing hairs which are weakly swollen apically. Colour dull yellow to light medium brown.

PARATYPE WORKERS. TL 2.9 - 3.1, HL 0.74 - 0.79, HW 0.62 - 0.67, CI 83 - 87, ML 0.40 - 0.43, MI 53 - 57, SL 0.50 - 0.55, SI 78 - 85, PW 0.32 - 0.35, AL 0.72 - 0.77 (8

measured). As holotype.

Holotype worker, Madagascar: Isalo Nat. Park, Ranohira Canon de Singe forest, 800 m., 22°29'S, 45°33'E, 17.ii.1993, twig nest, #1397w (*E. Rajeriarison*) (MCZ).

Paratypes. 10 workers with same data as holotype but coded: #.13962, .13965, .13968, .13970, .13977 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: F.C. Didy 960 m. (*H.J. Ratsirarson*); 6 km. ESE Andasibe, 900 m. (*P.S. Ward*); Ranomafana (*A. Kingman*); Ranomafana (*V. Roth*); 7 km. W Ranomafana Nat. Park, 900 m. (*W.E. Steiner*); Isalo Nat. Park (*E. Rajeriarison*).

Measurements of this material extend the range shown by the type-series: HL 0.80 - 0.81, HW 0.66 - 0.73, CI 83 - 89, ML 0.43 - 0.46, MI 53 - 57, SL 0.54 - 0.57, SI 77 - 82 (3 measured).

Among the Malagasy species that have the mandibular apical fork subtended by a shorter third tooth *ampyx* is easily isolated by the following characters:

- 1 Upper scrobe margin ends, or at least becomes extremely indistinct, at about the level of the eye; when viewed in profile, upper scrobe margin extends posteriorly across dorsal apex of vertical preocular groove of side of head; preocular groove meets and is interrupted by the upper scrobe margin before reaching the cephalic dorsum.
- 2 Mesonotum with 2 pairs of erect hairs on anterior margin.
- 3 Cephalic dorsum with a transverse row of six erect hairs immediately in front of occipital margin.

#### *Strumigenys bibiolona* Fisher sp. n.

HOLOTYPE WORKER. TL 3.5, HL 0.85, HW 0.52, CI 61, ML 0.51, MI 60, SL 0.65, SI 126, PW 0.32, AL 0.91. Characters of *chilo*-complex. Mandibles almost straight and at full closure parallel. Apical fork of mandible subtended by a third, shorter spiniform tooth; the fork effectively 3-dentate; without intercalary teeth or denticles. Preapical teeth absent. Upper scrobe margin ends anterior of preocular groove; when viewed in profile, upper scrobe margin curves downwards at anterior margin of vertical preocular groove of side of head and almost meets preocular lamina; scrobe margin does not extend across dorsal apex of preocular groove so that the latter extends uninterrupted to the cephalic dorsum. Eye large, convex, and plainly visible in full-face view. Dorsum of head evenly and gradually curved from middorsum to posterior margin of occipital corner; in profile, outline of dorsal margin of occipital corners curved. Scape long and slender, approximately straight, the leading edge with a row of slender hairs which are slightly flattened or spoon-shaped apically. Cephalic dorsum with inconspicuous curved fine ground-pilosity; the upper scrobe margin without a row of hairs. Cephalic dorsum with 4 simple standing hairs arranged in a transverse row close to the occipital margin. Dorsum of head reticulate-punctate. Alitrunk dorsum without standing hairs. Propodeum without a pair of short posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk as on head but sparser. With the alitrunk in profile the posterior portion of the mesonotum sharply depressed, the metanotal groove represented by a shallow impression. Pronotal humeri rounded. Lateral margin of posterior pronotum bluntly marginate. Anterior mesonotum without a narrow carina above the mesothoracic spiracle. Propodeal spines slender, almost spiniform; spines long, much longer than distance between base of spines; propodeal lamella absent. Alitrunk dorsum and sides reticulate-punctate. Petiole node in dorsal view reticulate-punctate and much longer than broad. Postpetiole reticulate-punctate. Waist segments without spongiform appendages. Disc of postpetiole with spongiform collar. Basigastral costulae absent. First gastral tergite and sternite with superficial reticulate-punctate sculpture over the anterior half or less of the sclerite, remainder of gaster smooth and shiny. Petiole without erect hairs. Dorsal surface of postpetiole with a pair posteriorly projecting stout hairs; gaster with stout standing hairs which are weakly swollen apically. Colour dull yellow to light brown.

propodeal lamella absent. Alitrunk dorsum and sides reticulate-punctate. Petiole node in dorsal view reticulate-punctate and much longer than broad. Postpetiole disc reticulate-punctate. Spongiform appendages of petiole absent, extremely reduced on postpetiole but the latter with a spongiform collar. Basigastral costulae fine to superficial across base of gaster without a central clear area; gaster smooth and shiny where clean. Dorsal surfaces of petiole and postpetiole each with a pair posteriorly projecting stout hairs; gaster with stout standing hairs which are weakly swollen apically. Colour dull yellow to light brown.

PARATYPE WORKERS. TL 3.4 - 3.6, HL 0.85 - 0.90, HW 0.61 - 0.68, CI 71 - 77, ML 0.50 - 0.52, MI 58 - 60, SL 0.62 - 0.65, SI 94 - 103, PW 0.34 - 0.37, AL 0.89 - 0.96 (4 measured). As holotype.

Holotype worker, Madagascar: 5.3 km. SSE Ambanizana, Andranobe, 15°40'S, 49°58'E, 425 m., 21.xi.1993, sifted litter (leaf mold, rotten wood), rainforest, #926 (23)-10 (*B.L. Fisher*) (MCZ).

Paratypes. 2 workers with same data as holotype but coded (27)-8, (11)-6; 2 workers and 1 queen (dealete) with same data as holotype but labeled 25.xi.1993, ex rotten log, rainforest, and coded #961 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Nosy Mangabe, 150 m. (*P.S. Ward*); Mangabi I. (*W.L. & D.E. Brown*); 6.3 km. S Ambanizana, Andranobe, 25 m. (*B.L. Fisher*); 1 km. W Andampibe, Cap Masoala, 125 m. (*G.D. Alpert*); 2 km. W Andampibe, Cap Masoala, 125 m. (*Alpert et al.*); 10 km. NNE Fenoarivo Atn., S.F. Tampolo, 10 m. (*B.L. Fisher*); F.C. Didy 960 m. (*H.J. Ratsirarson*); F.C. Andrianantely 530 m. (*H.J. Ratsirarson*); P.N. Mantadia 895 m. (*H.J. Ratsirarson*); F.C. Sandranantitra 450 m. (*H.J. Ratsirarson*); Perinet (*W.L. Brown*); 6 km. ESE Andasibe, 900 m. (*P.S. Ward*); Rte d'Anosibe, Km. 33 (*A. Peyrieras*); 7 km. W Ranomafana, 900 m. (*W.E. Steiner*); Ranomafana Mieranony Village (*G.D. Alpert*); 43 km. S Ambalavao, Res. Andringitra, 825 m. (*B.L. Fisher*); 7.5 km. ENE Ivohibe, 900 m. (*S. Razafimandimby*); 9.0 km. NE Ivohibe, 900 m. (*S. Razafimandimby*); 10 km. NW Enakara, Res. Andohahela, 430 m. (*B.L. Fisher*); 6 km. SSW Eminiminy, Res. Andohahela, 330 m. (*P.S. Ward*); 6 km. SSW Eminiminy, Res. Andohahela, 330 m. (*Alpert et al.*); 6 km. SSW Eminiminy, Res. Andohahela, 250 m. (*W.E. Steiner*); 2.7 km. WNW 302° Ste Luce, 20 m. (*B.L. Fisher*); Mandena, 8.4 km. NNE 30° Tolagnaro, 20 m. (*B.L. Fisher*).

The non-paratypic material shows greater size variation than the type-series alone: HL 0.68 - 0.97, HW 0.50 - 0.72, CI 71 - 79, ML 0.40 - 0.55, MI 56 - 63, SL 0.47 - 0.67, SI 91 - 106 (12 measured), but otherwise matches all critical diagnostic characters.

*S. chilo* is widely distributed in Madagascar rain forests and forms a close species pair with *bibiolona* within the *grandidieri*-group. They both have the mandibular apical fork subtended by a shorter third tooth, and the scrobe margin does not extend across the dorsal apex of the preocular groove so that the latter extends uninterrupted to the cephalic dorsum.

*S. chilo* is easily differentiated from *bibiolona* by the following characters:

- 1 Dorsum of head sharply depressed behind middorsum, forming a very shallow concave impression before occipital angles; in profile, outline of dorsal margin of occipital corners almost flat.
- 2 Propodeal spines shorter, length of spine about equal to distance between bases of spines, where distance between bases of spines is measured distal to basal curvature.

### *Strumigenys dora* Fisher sp. n.

HOLOTYPE WORKER. TL 3.2, HL 0.73, HW 0.57, CI 79, ML 0.37, MI 52, SL 0.46, SI 81, PW 0.36, AL 0.75. Characters of *dora*-complex. Mandibles almost straight and at full closure parallel. Apical fork of mandible with 2 spiniform teeth, without intercalary teeth or denticles. Mandible with 2 preapical teeth, situated in the apical third of the length; proximal preapical tooth longer than the distal. Upper scrobe margin ends, or at least becomes extremely indistinct, at about the level of the eye. Eye large, convex, and plainly visible in full-face view. Scape stout, curved near base, widest at about the midlength, the leading edge with a row of hairs which are slightly flattened or spoon-shaped apically. Cephalic dorsum with curved remiform to narrowly clavate ground-pilosity; the upper scrobe margin fringed with a row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 6 simple standing hairs arranged in a transverse row close to the occipital margin and a more anteriorly situated pair. Dorsum of head reticulate-punctate. Pronotal humeri rounded, the humeral hair stiffly projecting. Alitrunk dorsum



with numerous standing simple hairs. Propodeal declivity with one pair of simple hairs situated at centre of lateral margin. Alitrunk dorsum with small curved narrowly clavate ground-pilosity. Dorsum of alitrunk in outline shallowly convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum slightly depressed below the anterior margin of the propodeum, the metanotal groove represented by a distinct impression. Anterior mesonotum without a distinct carina above the mesothoracic spiracle. Propodeal spines triangular, spongiform; propodeal lamella narrow. Alitrunk dorsum and sides reticulate-punctate, katepisternum smooth and shiny. Petiole node in dorsal view reticulate-punctate and approximately as long as broad. Postpetiole disc reticulate-punctate. Spongiform appendages of petiole and postpetiole absent, except for a spongiform collar on posterior margin of postpetiole. First gastral tergite and sternite densely punctate over anterior half or more of the sclerites; basigastral costulae short and obscured by the punctate sculpture. Dorsum of petiole with at least 3 pairs of standing hairs. Dorsal surfaces of postpetiole and gaster with stout standing hairs which are weakly swollen apically. Colour chocolate brown.

Holotype worker, Madagascar: 18 km. NW Betroka, 23°9'48''S, 45°58'7''E, 825 m., 24-29.xi.1994, savanna #.17216 (Ivie & Pollock) (MCZ).

Paratypes. 2 queens (alate and dealate) with same data as holotype but coded .15822, 16453 (BMNH, MCZ).

Among species of the *grandidieri*-group with a 2-dentate apical fork, *dora* is the only one that has the first gastral tergite and sternite densely punctate over the anterior halves or more of the sclerites, coupled with at least 3 pairs of hairs on the petiole dorsum.

*Strumigenys fanano* Fisher sp. n.

(Fig. 392)

HOLOTYPE WORKER. TL 3.0, HL 0.70, HW 0.59, CI 84, ML 0.40, MI 57, SL 0.48, SI 81, PW 0.35, AL 0.71. Characters of *dora*-complex. Mandibles almost straight and at full closure parallel. Apical fork of mandible with 2 spiniform teeth, without intercalary teeth or denticles. Mandible with 2 preapical teeth or denticles, situated in the apical third of the length; proximal preapical tooth long and spiniform, distal tooth a denticle. Upper scrobe margin ends, or at least becomes extremely indistinct, at about the level of the eye. Eye large, convex, and plainly visible in full-face view. Scape slender and subcylindrical, curved near base, the leading edge with a row of hairs which are slightly flattened or spoon-shaped apically. Cephalic dorsum with appressed remiform to narrowly clavate ground-pilosity; the upper scrobe margin fringed with a row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 4 simple standing hairs arranged in a transverse row close to the occipital margin. Dorsum of head reticulate-punctate. Pronotal humeri rounded, the humeral hair stiffly projecting. Anterior margin of mesonotum with a pair of stout filiform hairs. Ground-pilosity on alitrunk as on head but sparser. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly; the metanotal groove represented by a shallow impression. Anterior mesonotum without a carina above the mesothoracic spiracle. Propodeal spines narrowly triangular and almost spiniform; propodeal lamella absent. Alitrunk dorsum and sides reticulate-punctate. Petiole node in dorsal view reticulate-punctate and slightly broader than long. Postpetiole disc reticulate-punctate. Spongiform appendages of petiole and postpetiole extremely reduced to absent, spongiform collar present on disc of postpetiole. First gastral tergite and sternite densely punctate over anterior half or more of the sclerites; basigastral costulae absent. Dorsum of petiole with one pair of posterior projecting hairs. Dorsal surfaces of postpetiole and gaster with stout standing hairs which are weakly swollen apically. Colour orange brown.

PARATYPE WORKERS. TL 3.1, HL 0.71, HW 0.55, CI 78, ML 0.39, MI 56, SL 0.48, SI 86, PW 0.34, AL 0.69 (1 measured). As holotype.

Holotype worker, Madagascar: Res. Ankarana, 7 km. SE Matsaborimanga, 12°54'S, 49°07'E, 150 m., 28.xi.1990, sifted litter (leaf mold rotten wood), montane rainforest #11010-8 (*P.S. Ward*) (MCZ).  
Paratypes. 1 worker with same data as holotype (BMNH).

Among the *grandidieri*-group species with a 2-dentate apical fork, *fanano* is the only one that has the first gastral tergite and sternite densely punctate over the anterior halves or more of the sclerites, coupled with a single posterior projecting pair of hairs on the petiole dorsum. Its orange brown colour and the reticulate-punctate sculpture of the sides of the alitrunk also help identify this species.

### *Strumigenys grandidieri* Forel

(Figs 393, 414)

*Strumigenys grandidieri* Forel, 1892c: 517. Syntype worker, MADAGASCAR: Forêt d'Andrangoloaka (*Sikora*) (MCZ) [examined].

[*Strumigenys grandidieri*: Santschi, 1913a: 259; W.M. Wheeler, 1922a: 1034 and Emery, 1924: 320 (catalogues); Brown, 1954: 12 (redescription of worker); Bolton, 1995b: 397 (catalogue).]

WORKER. TL 4.8 - 5.8, HL 1.25 - 1.45, HW 0.97 - 1.14, CI 76 - 80, ML 0.67 - 0.76, MI 52 - 57, SL 0.87 - 1.03, SI 89 - 93, PW 0.52 - 0.57, AL 1.26 - 1.49 (9 measured). Characters of *grandidieri*- complex. Mandibles almost straight and at full closure parallel. Apical fork of mandible with 2 spiniform teeth, without intercalary teeth or denticles. Mandible with 2 preapical teeth of similar size, short and truncated, situated in the apical third of the length; proximal preapical tooth occasionally reduced on left mandible. Upper scrobe margin ends, or at least becomes extremely indistinct, at about the level of the eye. Eye large, convex, and plainly visible in full-face view. Scape slender and subcylindrical, more or less straight, the leading edge with a row of fine hairs which are slightly flattened or spoon-shaped apically. Cephalic dorsum with curved narrowly spatulate ground-pilosity; hairs on upper scrobe margin are the same shape and size as those on the dorsum. Cephalic dorsum with 6 simple standing hairs arranged in a transverse row close to the occipital margin and a more anteriorly situated pair on vertex. Dorsum of head reticulate-punctate with superimposed rugulation. Pronotal humeri rounded, humeral hair absent. Anterior margin of mesonotum with a pair of stout filiform hairs. Ground-pilosity on alitrunk as on head but sparser. Dorsum of alitrunk in outline convex anteriorly, posterior mesonotum forming a long slope down to the metanotal groove, propodeal dorsum more or less flat. Anterior mesonotum with a distinct narrow carina above the mesothoracic spiracle. Propodeal spines narrowly triangular and almost spiniform, divergent; propodeal lamella absent. Alitrunk dorsum and sides densely reticulate-punctate, central katapisternum occasionally smooth and shiny. Fine rugulose sculpture present on alitrunk dorsum, most distinct on anterior pronotal margin. Petiole node in dorsal view reticulate-punctate and slightly longer than broad. Postpetiole disc reticulate-punctate. Spongiform appendages of petiole and postpetiole extremely reduced, spongiform collar present on disc of postpetiole. Basigastral costulae short and distinct, remainder of gaster smooth and shiny when clean. Petiole dorsum without standing hairs. Dorsum of postpetiole with one pair of posterior projecting hairs. Dorsal surface of gaster with stout standing hairs. Colour yellowish brown to medium brown.

In this group *grandidieri* is the only species with truncated preapical mandibular teeth. Its large size and lack of a pronotal humeral hair also help identify the species.

#### MATERIAL EXAMINED

Madagascar: 25 km. NNE Ankazobe, 1500 m. (*P.S. Ward*); P.N. Mantadia 895 m. (*H.J. Ratsirarson*); Perinet (*W.L. Brown*); 7 km. W Ranomafana, 900 m. (*W.E. Steiner*); 7 km. W Ranomafana 1000 m. (*G.D. Alpert*); 8.0 km. E Ivohibe, R.S. Ivohibe 1200 m. (*S. Razafimandimby*); 13 km. NW Enakara, Res. Andohahela, 1250 m. (*B.L. Fisher*).

*koningsbergeri*-group

## DIAGNOSIS OF WORKER

Apical fork of mandible with 2 spiniform teeth; without intercalary dentition. In full-face view inner margin of distal one-fifth to one-quarter of mandible, immediately proximal of apicodorsal tooth, strongly concave with respect to its previous line. Mandible with a rounded tumulus or a minute denticle at proximal end of concave section of inner margin, but without strong preapical dentition. MI 42 - 50.

Anterior clypeal margin conspicuously and quite deeply broadly, evenly concave.

Scape elongate, subcylindrical, widest just proximal of the midlength. SI 61 - 75.

Eye small and convex, maximum diameter of eye slightly less than maximum width of the scape.

Ventrolateral margin of head in front of eye with a deep and strongly incised preocular notch; notch so strongly incised that anterior portion of eye is detached from side of head. With head in ventral view the preocular notch forms the apex of a transverse impression or trench in the ventral surface of the head capsule that extends toward the midline. This ventral preocular groove is posterior to, and separated from, the marked postbuccal groove.

Scrobe always well developed behind level of eye, with sharply defined dorsal margin and conspicuously deeply concave.

Spongiform appendages of petiole weakly developed, petiole with a narrow ventral curtain. Postpetiole with small but distinct lateral and ventral spongiform lobes.

Pilosity. All standing hairs short and stiff, simple to remiform; flagellate hairs always absent. Pronotal humeral hair absent. Dorsal (outer) surfaces of middle and hind basitarsi without long erect hairs. Ground-pilosity on dorsum of head spatulate to narrowly spoon-shaped, dilute and inconspicuous.

Sculpture. Dorsal surfaces of head, alitrunk and petiole reticulate-punctate; middorsum of head and pronotal dorsum frequently with longitudinal or oblique rugulae. Side of alitrunk with smooth patches on pleurae. Gaster unsculptured except for basigastral costulae.

Glands. Bullae of glands of scape, femur, tibia, calcar, and tarsomeres not visible. Mesopleural gland visible and set in a narrow circular notch.

A single Malagasy species, *dicomas*, is referred to the *koningsbergeri*-group. The group is large and mainly Malesian-Oriental, with 32 species in those regions. The diagnosis above is adapted to stress the characters of the Malagasy species. The strangely scooped-out shape of the inner mandibular margin just proximal of the apicodorsal tooth, coupled with the dentition, is immediately diagnostic of the *koningsbergeri*-group in Madagascar.

*Strumigenys dicomas* Fisher sp. n.

(Figs 394, 416)

HOLOTYPE WORKER. TL 3.6, HL 1.01, HW 0.93, CI 93, ML 0.48, MI 47, SL 0.63, SI 67, PW 0.42, AL 0.86. With the above characters and the following. Outer margins of mandibles shallowly convex in full-face view. Upper scrobe margin bordered by a conspicuous laminate rim or flange throughout its length; eyes partially visible in full-face view. Leading edge of scape with a row of slender hairs which are slightly flattened or spoon-shaped apically. Cephalic dorsum clothed with inconspicuous small curved spatulate to narrowly spoon-shaped ground-pilosity; the upper scrobe margin fringed with hairs which are similar in shape and size as those on the dorsum; apicoscrobial hair absent. Cephalic dorsum with 6 simple standing hairs arranged in a transverse row close to the occipital margin; many paratypes have a more anteriorly situated pair near the highest point of the vertex. Dorsum of head reticulate-punctate, middorsum rugulose in larger specimens. Mesonotum with a single pair of stout standing hairs situated on anterior margin. Propodeum without a pair of short, fine, posteriorly curved hairs immediately

anterior of propodeal spines. Ground-pilosity on alitrunk as on head but sparser. With the alitrunk in profile the posterior portion of the mesonotum sharply depressed, the metanotal groove represented by a shallow impression. Pronotal humeri rounded. Dorsolateral margin of posterior pronotum bluntly marginate. Anterior mesonotum with a distinct narrow carina above the mesothoracic spiracle. Propodeal spine long and slender, recurved, especially near the apex; propodeal lamella absent. Alitrunk dorsum reticulate-punctate; lateral margins of pronotum rugulose; pleurae more or less smooth centrally with peripheral reticulate-punctate sculpture. Petiole node in dorsal view finely reticulate-punctate, exposed area of cuticle slightly broader than long. Postpetiole superficially reticulate-punctate. Spongiform appendages of petiole weakly developed, with a narrow ventral curtain. Postpetiole with small but distinct lateral and ventral spongiform lobes. Basigastral costulae short and distinct; gaster smooth and shiny when clean. Dorsal surfaces of petiole, postpetiole, and gaster with stout standing hairs which are swollen apically. Colour dull yellow to light medium brown.

PARATYPE WORKERS. TL 3.6 - 4.2, HL 1.00 - 1.17, HW 0.91 - 1.11, CI 90 - 95, ML 0.48 - 0.55, MI 46 - 49, SL 0.62 - 0.70, SI 63 - 68, PW 0.41 - 0.49, AL 0.81 - 1.02 (9 measured). As holotype.

Holotype worker, Madagascar: 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°28'E, 1200 m., 9.xi.1994, sifted litter (leaf mold rotten wood), montane rainforest #1192 (12)-14 (*B.L. Fisher*) (MCZ). Paratypes. 9 workers and 2 queens (dealate) with same data as holotype but coded (3)-9, (23)-9, (24)-9, (24)-10, (29)-8, (36)-9, (40)-4, (50)-10, (L.O.)-10 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 10.8 km. 229° SW Antanambao, 400 m. (*B.L. Fisher*); R.S. Manongarivo, 12.8 km. 228° SW Antanambao, 780 m. (*B.L. Fisher*); R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1280 m. (*B.L. Fisher*); RNI Marojeji, 375 m.; 665 m. (*G.D. Alpert*); 55 km. S Antalaha, Nosy Ngontsy, 1 m. (*Alpert et al.*); 19 km. ESE Maroantsetra, 350 m. (*P.S. Ward*); 5.3 km. SSE Ambanizana, Andranobe, 425 m. (*B.L. Fisher*); 6.9 km. NE Ambanizana, 825 m. (*B.L. Fisher*); Nosy Mangabe, 20 m. (*P.S. Ward*); S.F. Tampolo, 10 m. (*B.L. Fisher*); Causse de Kelifely (*A. Peyrieras*); Route d'Andriamena (*A. Peyrieras*); Forêt d'Andranobe, Road to Andriamena 1200 m. (*J.-M. Betsch*); F.C. Sandranantitra 450 m. (*H.J. Ratsirarson*); F.C. Didy 960 m. (*H.J. Ratsirarson*); F.C. Andrianantely 530 m. (*H.J. Ratsirarson*); P.N. Mantadia 895 m. (*H.J. Ratsirarson*); Perinet (*W.L. Brown*); Andasibe, 870 m. (*Alpert et al.*); For. d'Ambatofitorahana 293-294 km. on route national no. 7, 1800 m. (*J.-M. Betsch*); 3 km. W Ranomafana, 950 m. (*P.S. Ward*); Ranomafana Nat. Park, Maharira Forest, 1130 m. (*E. Rajeriarison*); Ranomafana Nat. Park Andranobe, Vohiparara Forest, 1160 m. (*E. Rajeriarison*); 45 km. S Ambalavao, 785 m. (*B.L. Fisher*); 11 km. NW Enakara, Res. Andohahela, 800 m. (*B.L. Fisher*).

The non-paratypic material shows greater size variation than the type-series alone: HL 0.86 - 1.09, HW 0.75 - 1.04, CI 87 - 95, ML 0.41 - 0.52, MI 42 - 50, SL 0.53 - 0.68, SI 61 - 75 (12 measured), but otherwise matches all diagnostic characters.

*S. dicomas* is widely distributed but easily recognized. In the Malagasy region it is the only species with mandible shape and dentition as described in the diagnosis above.

### *rogeri*-group

#### DIAGNOSIS OF WORKER

Apical fork of mandible with 2 spiniform teeth, without intercalary teeth or denticles. Mandible with 1 or 2 stout preapical teeth which are situated in the apical third of the length; when 2 present then proximal slightly longer than distal. Mandible in full-face view almost straight and at full closure parallel (diverging apically in *vazimba*). MI 43 - 66.

Scape elongate and more or less cylindrical. SI 62 - 112.

Promesonotum flat to slightly convex dorsally and bluntly marginate laterally.

Ventrolateral margin of the head notched or indented immediately in front of the eye. With head in profile the preocular notch seen to continue vertically as a groove in the side of the head that extends towards the dorsal outline. Preocular notch extends onto the ventral surface of the head as a transverse preocular groove that runs toward but does not reach the midline. An extremely deep and sharply defined post-buccal groove also present, extending across entire width of head immediately posterior of

- buccal cavity; post-buccal groove sharply separated from ventral preocular groove. Spongiform appendages of petiole usually well developed into a ventral curtain, but occasionally very narrow or nearly absent. Postpetiole with lateral and ventral lobes. Lamella of propodeal declivity absent or very narrow.
- Pilosity.** Pronotal humeral hair either absent, or stiffly filiform, or rarely flagellate. Cephalic dorsum with a transverse row of 4 - 6 hairs near occipital margin and 1 pair near vertex. Upper scrobe margin posteriorly with 2 - 4 (usually 3) stiff erect hairs that are longer than hairs on leading edge of scape. Mesonotum usually with 1 pair of erect hairs, occasionally with two pairs.
- Sculpture.** Head and alitrunk reticulate-punctate, occasionally with longitudinal or oblique rugulae or costulae; pleurae usually smooth, rarely punctate. Gaster unsculptured except for basigastral costulae.
- Glands.** Scape gland absent (*admixta*, *ection*, *labaris*, *luca*, *milae*, *nambao*, *rogeri*, *sphaera*, *vazimba*) or visible as an elongate patch near apex of ventral or leading edge of scape (*carisa*, *fronto*, *hilaris*, *lysis*, *norax*). Femoral and tibial gland bullae entirely absent. Gland at base of calcar conspicuous. Tarsal gland bullae visible on at least first three tarsi, decreasing in size from basitarsus where it is elongate to the third tarsal segment where it is oval. Mesopleural gland usually set in a circular notch but less commonly in a concave impression (*carisa*, *hilaris*).

*S. rogeri*-group is immediately diagnosed by the following combination of characters: preocular and ventral preocular grooves present in head; scrobe and its dorsal margin extend posteriorly well beyond level of eye; mandible has 1 or 2 sharply defined acute preapical teeth or denticles. The group also contains 13 species in the Afrotropical region (see there).

Members of this group fall into 6 discrete complexes of related species in the Malagasy region, defined below. The first complex noted contains only *rogeri*, a cosmopolitan tramp-species discussed under the Afrotropical fauna, which is its region of origin. *S. rogeri* is easily isolated from other member of the group in Madagascar by its possession of a flagellate pronotal humeral hair. It also has a characteristically shaped preocular notch. In profile, the width of the notch just in front of eye is narrow, distinctly less than the maximum diameter of the eye.

- 1 *rogeri*-complex (*rogeri*). Left and right mandible each with 2 preapical teeth, the proximal spiniform and longer than the distal. Pronotal humeral hair flagellate. Head tending to be somewhat shorter and narrower than in *lysis*- and *hilaris*-complexes, HL 0.59 - 0.61, HW 0.44 - 0.47.
- 2 *lysis*-complex (*lysis*, *nambao*, *norax*). Left and right mandible each with 2 preapical teeth, the proximal spiniform and longer than the distal. Pronotal humeral hair erect and stiffly filiform. HL 0.63 - 0.74, HW 0.47 - 0.60.
- 3 *hilaris*-complex (*hilaris*, *luca*, *milae*). Left and right mandible each with 2 preapical teeth, the proximal spiniform and longer than the distal. Pronotal humeral hair absent. HL 0.63 - 0.75, HW 0.52 - 0.61.
- 4 *carisa*-complex (*carisa*, *fronto*). Left and right mandible each with 1 preapical tooth or denticle. Pronotal humeral hair long and filiform, stiffly projecting. HL 0.80 - 1.00, HW 0.63 - 0.76.
- 5 *sphaera*-complex (*admixta*, *ection*, *labaris*, *sphaera*). Left and right mandible each with 1 preapical tooth or denticle. Pronotal humeral hair absent. Head shorter and narrower than in *vazimba*-complex, HL 0.64 - 1.06, HW 0.51 - 0.88.
- 6 *vazimba*-complex (*vazimba*). Left and right mandible each with 1 preapical tooth or denticle. Pronotal humeral hair absent. Head longer and broader than in all other complexes, HL 1.32 - 1.66, HW 1.28 - 1.65.

*Strumigenys admixta* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.5, HL 0.65, HW 0.58, CI 90, ML 0.32, MI 49, SL 0.42, SI 72, PW 0.31, AL 0.62. Characters of *sphera*-complex. Each mandible with 1 preapical acute tooth which is situated in the apical third of the length. Upper scrobe margin with a projecting lamellate flange throughout its length, eyes not visible in full-face view. Eye small, convex, its maximum diameter less than maximum width of scape. Basal portion of scape swollen, apical third subcylindrical; hairs on leading edge fine, narrowly spatulate. Cephalic dorsum densely clothed with small appressed scale-like ground-pilosity; upper scrobe margin fringed with short curved narrowly spatulate to spoon-shaped hairs. Cephalic dorsum with 3 pairs of stout standing remiform to clavate hairs arranged in a transverse row close to the occipital margin, and 1 pair on vertex. Pronotal humeral hair absent, the humeral angles bluntly marginate. Mesonotum with 1 pair of stout standing clavate hairs, on anterior margin. Ground-pilosity on alitrunk dorsum sparse, consisting of short narrowly spatulate to broadly spatulate (almost scale-like) hairs. Dorsum of alitrunk in outline convex anteriorly, posterior portion more or less flat to gently sloping to declivity. Metanotal groove shallowly impressed. Propodeal spines narrowly triangular, diverging; lamella absent from declivity. Alitrunk dorsum densely reticulate-punctate. Pronotal dorsum with superimposed rugulose sculpture, most evident at lateral margins. Sides of pronotum striolate to costulate with punctate sculpture on apical margin, remainder more or less smooth. Pleurae smooth and shiny with punctures peripherally. Petiole node in dorsal view approximately as broad as long. Postpetiole disc reticulate-punctate, on some specimens faint longitudinally striolate sculpture present on lateral margins of disc. In profile ventral spongiform tissue of petiolar peduncle a narrow curtain along the base of the peduncle, depth of curtain approximately equal to maximum width of eye. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae short but distinct. Dorsal surface of petiole with one pair of erect stout clavate hairs; postpetiole and gaster with stout standing clavate hairs. Colour light to medium brown.

**PARATYPE WORKERS.** TL 2.6 - 2.7, HL 0.67 - 0.71, HW 0.58 - 0.62, CI 84 - 91, ML 0.33 - 0.36, MI 49 - 50, SL 0.44 - 0.46, SI 71 - 78, PW 0.32 - 0.34, AL 0.63 - 0.68 (6 measured). As holotype.

Holotype worker, Madagascar: 5.3 km. SSE Ambanizana, Andranobe, 15°40'S, 49°58'E, 425 m., 21.xi.1993, sifted litter (leaf mold, rotten wood), rainforest, #926 (1)-6 (*B.L. Fisher*) (MCZ). Paratypes. workers with same data as holotype but coded (10)-7, (27)-9, (28)-11, (35)-10, (40)-16. (BMNH, SAM).

**NON-PARATYPIC MATERIAL EXAMINED.** Madagascar: 5 km. SW Antalaha, 50 m. (*G.D. Alpert*); 19 km. ESE Maroantsetra, 350 m. (*P.S. Ward*); Fotodriana, Cap Masoala, 25 m. (*G.D. Alpert*); 6.3 km. S Ambanizana, Andranobe, 25 m. (*B.L. Fisher*); Nosy Mangabe, 150 m. (*P.S. Ward*); Nosy Mangabe (*J.-M. Betsch*); Baie d'Antongil, Ivontaka, 150 m. (*J.-M. Betsch*); 1 km. W Andampibe, Cap Masoala, 125 m. (*Alpert et al.*); 2 km. W Andampibe, Cap Masoala, 125 m. (*Alpert et al.*); 10 km. NNE Fenoarivo Atm., S.F. Tampolo, 10 m. (*B.L. Fisher*).

Measurements of this material extend the range shown by the type-series: HL 0.64 - 0.69, HW 0.55 - 0.61, CI 82 - 90, ML 0.31 - 0.34, MI 46 - 52, SL 0.40 - 0.44, SI 70 - 79 (7 measured).

*S. admixta* can be isolated from other members of the *sphera*-complex by the following characters:

- 1 Upper scrobe margin with a projecting lamellate flange throughout its length.
- 2 Basal half of scape distinctly and sharply swollen; in dorsal view maximum width of scape about twice its apical width.

*Strumigenys carisa* Fisher sp. n.

**HOLOTYPE WORKER.** TL 4.1, HL 0.98, HW 0.65, CI 66, ML 0.60, MI 61, SL 0.73, SI 112, PW 0.42, AL 1.04. Characters of *carisa*-complex. Each mandible with 1 preapical acute tooth, situated in the apical third of the length. Upper scrobe margin not bordered by

a projecting laminar rim or flange throughout its length, eyes clearly visible in full-face view. Eye small, convex, its maximum diameter slightly greater than maximum width of scape. Scape long and slender, subcylindrical and approximately straight; hairs on leading edge narrowly spatulate. Cephalic dorsum densely clothed with curved narrowly spatulate ground-pilosity; upper scrobe margin fringed with hairs that are similar in size and shape to those on the dorsum. Cephalic dorsum with 2 pairs of long stout standing remiform hairs arranged in a transverse row close to the occipital margin; paratype and non-paratype with 1 additional pair of erect hairs near vertex. Dorsum of head reticulate-punctate and also with longitudinally rugulose sculpture, more pronounced on occipital angles. Pronotal humeral hair long, stout and filiform; humeral angles rounded. Mesonotum with 1 pair of stout standing narrowly spatulate hairs, on anterior margin. Ground-pilosity on alitrunk dorsum as on head but sparser. Dorsum of alitrunk in outline convex anteriorly, posterior mesonotum sharply depressed, propodeum more or less flat. Metanotal groove represented by a transverse ridge or carina. Propodeal spines narrowly triangular, diverging, lamella absent from declivity. Alitrunk dorsum densely reticulate-punctate. Promesonotal dorsum with superimposed striolate and rugulose sculpture. Sides of pronotum striolate to reticulate-punctate. Pleurae mostly reticulate-punctate, katepisternum partially smooth and shiny. Petiolar peduncle long and slender. Petiole node in dorsal view longer than broad. Postpetiole disc longitudinally striolate with faint punctures present on lateral margin. On paratype specimen, central area of postpetiole disc more or less smooth and shiny. In profile ventral spongiform tissue of petiolar peduncle a very narrow, irregular strip that is not continuous along the base of the peduncle, maximum depth of strip distinctly less than the maximum width of eye. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae very short but distinct. Dorsal surface of petiole with one pair and postpetiole with 3 pairs of long, erect remiform to narrowly spatulate hairs, gaster with stout standing remiform to narrowly spatulate hairs. Colour light to medium brown.

PARATYPE WORKERS. TL 4.2, HL 1.00, HW 0.68, CI 68, ML 0.66, MI 66, SL 0.75, SI 110, PW 0.42, AL 1.07 (1 measured). As holotype.

Holotype worker, Madagascar: 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°28'E, 1200 m., 9.xi.1994, sifted litter (leaf mold rotten wood), montane rainforest #1192 (26)-6 (*B.L. Fisher*) (MCZ). Paratypes. 1 worker with same data as holotype but 5.xi.1994, 1280 m, #1158 (5)-5 (BMNH).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Rte d'Anosibe, Km. 33 (*A. Peyrieras*).

Measurements of this specimen extend the range shown by the type-series: HL 0.95, HW 0.63, CI 66, ML 0.60, MI 63, SL 0.73, SI 115, PW 0.41, AL 1.01 (1 measured) but otherwise as type-specimens.

*S. carisa* and *fronto* belongs to the *carisa*-complex and are diagnosed by left and right mandible having a single preapical tooth and the pronotal humeral hair being long, stiffly projecting and filiform.

*S. carisa* can be distinguished from *fronto* by the absence on the upper scrobe margin of stiff erect hairs that are longer than the hairs on leading edge of scape. In addition *carisa* possesses a longer and relatively narrower head (HL 0.95 - 1.00, CI < 70) than *fronto* (HL 0.80 - 0.88, CI > 80).

### *Strumigenys ection* Fisher sp. n.

HOLOTYPE WORKER. TL 4.0, HL 0.97, HW 0.82, CI 85, ML 0.50, MI 52, SL 0.67, SI 82, PW 0.44, AL 0.96. Characters of *sphera*-complex. Each mandible with 1 preapical tooth, situated in the apical third of the length. Upper scrobe margin not bordered by a projecting laminar rim throughout its length, eyes clearly visible in full-face view. Eye small, convex, its maximum diameter slightly greater than the maximum width of scape. Scape more or less subcylindrical, narrowed near base, approximately straight; hairs on leading edge narrowly spatulate. Cephalic dorsum densely clothed with curved narrowly spatulate ground-pilosity; upper scrobe margin fringed with hairs that are similar in size

and shape as those on the dorsum. Cephalic dorsum with 4 pairs of long stout standing remiform hairs arranged as follows: transverse row of 3 pairs close to the occipital margin and 1 pair of erect hairs on vertex. Dorsum of head reticulate-punctate with superimposed rugulose sculpture. Pronotal humeral hair absent. Promesonotal margin with 2 pairs of stout standing narrowly spatulate hairs, anterior pair located on central dorsum, posterior pair situated on lateral margin. Propodeum with two pairs of short, posteriorly curved narrowly spatulate hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk dorsum as on head but sparser. Dorsum of alitrunk in outline convex anteriorly, posterior mesonotum sharply depressed, propodeum more or less flat. Metanotal groove represented by a shallow impression. Humeral angles rounded, posterolateral margin of pronotum bluntly marginate and with a small raised welt. Propodeal spines narrowly triangular, margins spongiform, subtended by a narrow lamella dorsally; lamella absent near base. Alitrunk dorsum and sides of pronotum densely reticulate-punctate. Sides of pronotum with striolate sculpture anteriorly. Pleurae mostly smooth and shiny with reticulate-punctate sculpture peripherally. Petiole node in dorsal view approximately as long as broad. Postpetiole dorsum smooth centrally with lateral striolate sculpture. In profile ventral spongiform tissue of petiolar peduncle a broad curtain that is continuous along the base of the peduncle, depth of curtain is equal to or slightly greater than maximum width of eye. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae distinct, radiating on both sides of a narrow central clear area. Dorsal surface of petiole, postpetiole, and gaster with stout standing narrowly spatulate hairs. Colour medium brown.

Holotype worker, Madagascar: 38 km. S Ambalavao, Res. Andringitra, 22°12'S, 46°58'E, 1680 m., 23.x.1996, sifted litter (leaf mold, rotten wood), montane rainforest, #820 (36)-7 (B.L. Fisher) (MCZ).

*S. ection* is easily isolated from other members of the *sphera*-complex by the presence of 2 pairs of erect hairs on the mesonotum.

### *Strumigenys fronto* Fisher sp. n.

(Figs 397, 417)

HOLOTYPE WORKER. TL 3.5, HL 0.85, HW 0.73, CI 86, ML 0.46, MI 54, SL 0.56, SI 76, PW 0.39, AL 0.84. Characters of *carisa*-complex. Each mandible with 1 preapical tooth which is situated in the apical third; preapical tooth on left mandible usually smaller than tooth on right. Upper scrobe margin bordered by a very narrow laminar rim throughout its length, eyes partially visible in full-face view. Eye small, convex, its maximum diameter slightly greater than maximum width of scape. Eye located slightly inwards from margin and apex formed by the junction of the posterior preocular notch and ventral scrobe margin. Scape more or less subcylindrical, basal portion slightly expanded and approximately straight; hairs on leading edge narrowly spatulate. Cephalic dorsum densely clothed with curved narrowly spatulate ground-pilosity; upper scrobe margin fringed with hairs that are similar in size and shape to those on the dorsum. Cephalic dorsum with 7 pairs of long stout standing remiform hairs arranged as follows: transverse row of 3 pairs close to the occipital margin; dorsolateral margin posteriorly with 3 pairs of hairs that are longer than hairs on leading edge of scape; 1 pair on vertex. Pronotal humeral hair long and stout, filiform and projecting; humeral angles rounded. Mesonotum with 1 pair of stout standing narrowly spatulate hairs on anterior margin. Propodeum with two pairs of short, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk dorsum as on head but sparser. Dorsum of alitrunk in outline convex anteriorly, posterior alitrunk gradually sloping down to declivity, anterior propodeum slightly raised above posterior mesonotum. Metanotal groove represented by a shallow impression. Propodeal spines narrowly triangular, margins spongiform; propodeal lamella absent. Alitrunk dorsum and sides of pronotum densely reticulate-punctate. Pleurae mostly reticulate-punctate, katapisternum and central portion of metapleuron partially



smooth. Petiole node in dorsal view approximately as long as broad. Postpetiole disc reticulate-punctate. In profile ventral spongiform tissue of petiolar peduncle a narrow, irregular strip that is continuous along the base of the peduncle, maximum depth of strip slightly less than the maximum width of eye. Ventral spongiform tissue of postpetiole moderately developed. Basigastral costulae short, distinct and widely spaced. Dorsal surface of petiole, postpetiole, and gaster with stout standing remiform to narrowly spatulate hairs. Colour medium brown.

PARATYPE WORKERS. TL 3.3 - 3.7, HL 0.80 - 0.88, HW 0.68 - 0.76, CI 85 - 90, ML 0.44 - 0.49, MI 52 - 57, SL 0.53 - 0.56, SI 73 - 78, PW 0.37 - 0.41, AL 0.76 - 0.86 (8 measured). As holotype.

Holotype worker, Madagascar: Causse de Kelifely, 20-30.xi.1974, forest humus and litter, dry forest (*A. Peyrieras*) (MCZ).

Paratypes. 9 workers with same data as holotype (BMNH, SAM).

*S. fronto* can easily be isolated by the presence of only 1 preapical tooth on left and right mandibles, a long stiff projecting filiform hair on each pronotal humerus and the dorsolateral margin of the head posteriorly with 2 - 3 stiff erect hairs that are longer than hairs on leading edge of scape. See *carisa* for further discussion.

### *Strumigenys hilaris* Fisher sp. n.

(Fig. 396)

HOLOTYPE WORKER. TL 3.1, HL 0.75, HW 0.55, CI 74, ML 0.43, MI 57, SL 0.53, SI 96, PW 0.34, AL 0.77. Characters of *hilaris*-complex. Mandibles inserted close together and slightly diverging at full closure. Each mandible with 2 preapical teeth, situated in the apical third of the length; proximal preapical tooth longer than distal. Upper scrobe margin bordered by a narrow rim throughout its length. Eye small, convex, and plainly visible in full-face view; its maximum diameter more or less equal to maximum width of scape. Scape more or less straight, widest in the midsection; hairs on leading edge fine, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with curved to subappressed narrowly spatulate ground-pilosity; upper scrobe margin fringed with curved narrowly spatulate hairs. Cephalic dorsum with 4 simple standing hairs arranged in a transverse row close to the occipital margin and a more anteriorly situated pair on vertex. Pronotal humeral hair absent; humeral angles rounded. Anterior margin of mesonotum with a pair of stout filiform hairs. Propodeum with two pairs or occasionally one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines or at base of propodeal spines. Ground-pilosity on alitrunk as on head but sparser. Dorsum of alitrunk in outline convex anteriorly, more or less flat posteriorly. Anterior mesonotum without a distinct carina above the mesothoracic spiracle. Propodeal spines narrowly triangular, strongly elevated; propodeal lamella absent. Alitrunk dorsum and sides of pronotum densely reticulate-punctate, pleurae smooth and shiny with peripheral punctures. Fine longitudinally striolate sculpture present on pronotal dorsum; rugulose sculpture present on posterior lateral margins of pronotum. Petiole node in dorsal view about as broad as long. Postpetiole disc densely and finely reticulate-punctulate with longitudinally striolate sculpture. In profile ventral spongiform tissue of petiolar peduncle a very narrow, irregular strip that is deepest in posterior third of petiole, the deepest point of the tissue less than maximum width of eye. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae short and distinct. Petiole with a pair of stiff standing hairs. Dorsal surfaces postpetiole and gaster with stout standing hairs. Colour light yellowish brown to medium brown.

PARATYPE WORKERS. TL 3.0 - 3.1, HL 0.72 - 0.75, HW 0.52 - 0.55, CI 71 - 74, ML 0.42 - 0.43, MI 55 - 59, SL 0.50 - 0.54, SI 94 - 100, PW 0.32 - 0.34, AL 0.74 - 0.79 (6

measured). As holotype.

Holotype worker, Madagascar: Marojejy R.N.I #12, 14°26'43.2''S, 49°47'8.3''E, 375 m., 18.xi.1993, rainforest, winkler app. #44.11127 (*G.D. Alpert*) (MCZ).

Paratypes. 5 workers and 1 queen (dealate) with same data as holotype but dated 20.xi.1993 and coded 108.13991, 108.13987, 108.13990, 108.13988; 1 worker and 1 queen (dealate) with same data as holotype but 665 m., 20.xi.1993 (*Alpert et. al.*), #106.10822, and #106.10820 (BMNH, SAM).

*S. hilaris*, *luca* and *milae* constitute the *hilaris*-complex, characterized by 2 preapical teeth or denticles on the left mandible and the absence of a projecting pronotal humeral hair. Within this complex, *hilaris* can be identified by its relatively long scape, SI > 90.

### *Strumigenys labaris* Fisher sp. n.

HOLOTYPE WORKER. TL 3.4, HL 0.85, HW 0.75, CI 88, ML 0.43, MI 51, SL 0.56, SI 74, PW 0.41, AL 0.83. Characters of *sphera*-complex. Each mandible with 1 preapical tooth, distance from preapical tooth to apicodorsal tooth approximately equal to length of preapical tooth. Upper scrobe margin bordered by a projecting laminar rim or flange throughout its length, eyes partially visible in full-face view. Eye very small, convex, its maximum diameter distinctly less than maximum width scape. Scape narrowed near base, slightly expanded and flattened in basal third; hairs on leading edge narrowly spatulate. Cephalic dorsum clothed with curved narrowly spatulate ground-pilosity; upper scrobe margin with hairs that are similar in size and shape to those on the dorsum. Cephalic dorsum with 4 pairs of long standing narrowly remiform hairs arranged as follows: transverse row of 3 pairs close to the occipital margin and 1 pair of erect hairs on vertex. Pronotal humeral hair absent; humeral angles rounded, posterolateral margin of pronotum bluntly marginate. Anterior margin of mesonotum with 1 pair of stout standing hairs. Propodeal spines with 1 pair of fine short, posteriorly curved hairs near anterior base. Alitrunk dorsum with very short curved ground-pilosity and concentrated on promesonotum. Dorsum of alitrunk in outline convex anteriorly, posterior mesonotum sharply depressed, propodeum gradually sloping to declivity. Metanotal groove represented by a shallow impression. Propodeal spines short, triangular, posterior margin with a narrow spongiform strip; propodeal lamella absent. Alitrunk dorsum densely reticulate-punctate. Sides of pronotum with faint longitudinally striolate sculpture anteriorly. Pleurae mostly smooth and shiny with reticulate-punctate sculpture peripherally. Petiole node in dorsal view approximately as long as broad. Postpetiole disc with weak longitudinally striolate sculpture on a fine punctulate surface. In profile ventral spongiform tissue of petiolar peduncle a narrow curtain that is continuous along the base of the peduncle, depth of curtain is distinctly greater than maximum width of eye. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae short and sharply defined. Dorsal surface of petiole, postpetiole, and gaster with stout standing remiform to narrowly spatulate hairs which are slightly thickened apically. Colour medium brown.

PARATYPE WORKER TL 3.0 - 3.4, HL 0.78 - 0.86, HW 0.66 - 0.75, CI 84 - 89, ML 0.39 - 0.45, MI 49 - 54, SL 0.52 - 0.57, SI 74 - 80, PW 0.35 - 0.40, AL 0.73 - 0.84 (6 measured). As holotype.

Holotype worker, Madagascar: 11.0 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°27'E, 1565 m., 16.xi.1994, sifted litter (leaf mold, rotten wood), montane rainforest #1232 (4)-5. (*B.L. Fisher*) (MCZ).

Paratypes. 6 workers with same data as holotype but coded (31)-4, (40)-4 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*); Amboangy hill, 30 km. N Antalaha, 115 m. (*G.D. Alpert*); 6.5 km. SSW Befingotra, Res. Anjanaharibe-Sud, 875 m. (*B.L. Fisher*); 17 km. W Andapa, Res. Anjanaharibe-Sud, 875 m. (*G.D. Alpert*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1200 m. (*B.L. Fisher*); 6.9 km. NE Ambanizana, 825 m. (*B.L. Fisher*).

Measurements of this material extend the range shown by the type-series: HL 0.70 - 0.80, HW 0.58 - 0.67, CI 83, ML 0.37 - 0.42, MI 52 - 55, SL 0.46 - 0.54, SI 78 - 84 (3 measured).

*S. labaris* is most similar to *admixta* in the *sphera*-complex. In both species the upper scrobe margin has a distinct, broad lamellate rim or flange throughout its length. They are most easily distinguished by the shape of the postbuccal margin with head in ventral view. In *labaris*, the posterior and lateral margins of the postbuccal groove are rounded to bluntly marginate, and the posterolateral face of groove is more or less vertical or gently sloping, never concave. In *admixta*, the posterolateral and lateral margins of postbuccal groove have a lamellate rim and the posterolateral face of the groove is concave.

*Strumigenys luca* Fisher sp. n.

**HOLOTYPE WORKER.** TL 3.1, HL 0.69, HW 0.59, CI 85, ML 0.37, MI 53, SL 0.46, SI 78, PW 0.33, AL 0.74. Characters of *hilaris*-complex. Each mandible with 2 preapical teeth, situated in the apical third; proximal preapical tooth longer than distal. Upper scrobe margin distinct but not bordered by a projecting laminar rim or flange throughout its length. Eyes moderate in size, convex, and plainly visible in full-face view; maximum diameter of eye distinctly greater than maximum width of scape. Scape short, more or less straight, widest in the midsection; hairs on leading edge fine, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with curved narrowly spatulate to flattened spatulate ground-pilosity; upper scrobe margin fringed with curved narrowly spatulate hairs. Cephalic dorsum with 4 stout standing hairs arranged in a transverse row close to the occipital margin and a more anteriorly situated pair on vertex. Pronotal humeral hair absent; humeral angles rounded, posterior lateral margin of pronotum bluntly marginate. Anterior margin of mesonotum with a pair of stout filiform hairs. Propodeum with one pair of short, fine, posteriorly curved hairs at anterior base of propodeal spines. Ground-pilosity on alitrunk as on head but sparser. Dorsum of alitrunk in outline convex anteriorly, posterior mesonotum gradually sloping down to metanotal groove. Anterior propodeum slightly raised above mesonotum; propodeum not flat, gradually sloping down to declivity. Propodeal spines narrowly triangular, subtended by a narrow lamella on declivity. Alitrunk dorsum and side of pronotum densely reticulate-punctate, portions of central pleurae often smooth and shiny. Petiole node in dorsal view about as broad as long. Postpetiole disc densely and finely reticulate-punctulate. Spongiform appendages of petiole absent; weakly developed on postpetiole. Spongiform collar present only on posterior margin of postpetiole. Basigastral costulae short and distinct, with secondary and much longer fine striolate sculpture arising between the shorter costulae. Dorsal surfaces of petiole, postpetiole and gaster with stout standing narrowly remiform hairs. Colour light to medium brown.

**PARATYPE WORKERS.** TL 2.8 - 3.1, HL 0.63 - 0.70, HW 0.53 - 0.61, CI 83 - 91, ML 0.35 - 0.38, MI 52 - 58, SL 0.43 - 0.49, SI 75 - 84, PW 0.32 - 0.35, AL 0.68 - 0.74 (9 measured). As holotype.

Holotype worker, Madagascar: Prov. Toliara, southern Isoky-Vohimena Forest, 59 km. NE Sakaraha, 22°41'S, 44°50'E, 730 m., 21.i.1996, sifted litter (leaf mold, rotten wood), tropical dry forest #1312 (4)-3 (*S. Razafimandimby*) (MCZ).

Paratypes. 16 workers with same data as holotype but coded (1)-4, (2)-1, (3)-2, (5)-2, (7)-4, (8)-3, (18)-3, (25)-1, (28)-1, (30)-4, (36)-2, (46)-2, (BMNH, SAM).

**NON-PARATYPIC MATERIAL EXAMINED.** Madagascar: Tampoketsa d'Ankazobe, Ambohitantely, 1550 m. (*J.-M. Betsch*); 48 km. ENE Morondava, 30 m. (*D.M. Olson*); Col des Tapia, 1400 m. (*Bartolozzi, Tiati & Raharimina*); 59 km. NE Sakaraha, Vohibasia Forest 780 m. (*S. Razafimandimby*); 15 km. E Sakaraha, 760 m. (*P.S. Ward*); Res. Andohahela, parcel #1, versante W, 500-600 m. (*Bartolozzi, Tiati & Raharimina*).

Measurements of this material extend the range shown by the type-series: HL 0.63 - 0.73, HW 0.53 - 0.58, CI 79 - 85, ML 0.34 - 0.40, MI 52 - 59, SL 0.44 - 0.48, SI 82 - 85 (5 measured). This material shows variation in the outline of the posterior portion of the alitrunk. In some specimens, the anterior margin of the propodeum is not raised above the mesonotum, and the propodeum is more or less flat.

*S. luca* is most similar to *milae* in the *hilaris*-complex and can be easily distinguished from the latter species by the presence of a single pair of erect hairs on the mesonotum. See

*milae* for further discussion.

*Strumigenys lysis* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.9, HL 0.70, HW 0.57, CI 81, ML 0.39, MI 56, SL 0.47, SI 83, PW 0.34, AL 0.73. Characters of *lysis*-complex. Each mandible with 2 preapical teeth, situated in the apical third; proximal preapical tooth longer than distal. Upper scrobe margin bordered by a narrow laminar rim. Eyes small, convex and plainly visible in full-face view; maximum diameter of eye subequal to maximum width of scape. Scape short, curved near base, widest in the midsection; hairs on leading edge fine, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with short curved narrowly spatulate to flattened scale-like ground-pilosity; upper scrobe margin fringed with curved narrowly spatulate hairs. Cephalic dorsum with 4 stout standing hairs arranged in a transverse row close to the occipital margin and a more anteriorly situated pair on vertex. Dorsum of head reticulate-punctate with superimposed rugulose sculpture on middorsum and occipital angles. Pronotal humeral hair stiffly filiform; humeral angles rounded. Anterior margin of mesonotum with a pair of stout filiform hairs. Propodeum with one pair of short, fine, posteriorly curved hairs at anterior base of propodeal spines. Alitrunk dorsum with short curved filiform to narrowly spatulate ground-pilosity. Dorsum of alitrunk in outline convex anteriorly, posterior alitrunk more or less flat to gradually sloping down to declivity. Metanotal groove shallowly impressed. Anterior mesonotum without a distinct carina above the mesothoracic spiracle. Propodeal spines narrowly triangular, spongiform apex, subtended by a very narrow lamella on declivity. Pronotum densely punctate with longitudinally striolate to costulate sculpture. Remainder of dorsal alitrunk reticulate-punctate, but in some the striolate or costulate sculpture continues to the propodeum. Pleurae smooth and shiny with peripheral punctures. Petiole node in dorsal view about as broad as long. Postpetiole disc longitudinally striolate on a finely punctulate surface, but in some, the punctulate sculpture is absent or weak. In profile ventral spongiform tissue of petiolar peduncle a well developed strip along the base of the peduncle, depth of strip more or less equal to the width of the mandible blade when viewed in profile and slightly less than maximum width of eye. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae short and distinct. Dorsal surface of petiole with one pair of anteriorly projecting narrowly remiform hairs; postpetiole and gaster with stout standing narrowly remiform hairs. Colour light to medium brown.

**PARATYPE WORKERS.** TL 2.8 - 3.0, HL 0.68 - 0.73, HW 0.54 - 0.60, CI 77 - 88, ML 0.37 - 0.40, MI 53 - 58, SL 0.45 - 0.51, SI 82 - 87, PW 0.32 - 0.36, AL 0.69 - 0.80 (9 measured). As holotype.

Holotype worker, Madagascar: 6.5 km. SSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°30'E, 875 m., 19.x.1994, sifted litter (leaf mold rotten wood), rainforest #1070 (9)-14 (*B.L. Fisher*) (MCZ).

Paratypes. 9 workers and 1 queen (dealate) with same data as holotype but coded (3)-13, (6)-10, (8)-10, (10)-10, (29)-20, (37)-6. (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 17 km. W Andapa, Res. d'Anjanaharibe-Sud, 875 m. (*G.D. Alpert*).

Measurements of this material extend the range shown by the type-series: HL 0.67 - 0.74, HW 0.53 - 0.60, CI 79 - 81, ML 0.35 - 0.40, MI 53 - 54, SL 0.45 - 0.49, SI 82 - 85 (2 measured).

*S. lysis* is easily separated from other members of the *lysis*-complex by the presence of a projecting laminar rim on upper scrobe margin throughout its length, a single pair of erect hairs on mesonotum, and the dorsolateral margin of the head posteriorly without 2-4 stiff erect hairs that are longer than hairs on leading edge of scape.

*Strumigenys milae* Fisher sp. n.

**HOLOTYPE WORKER.** TL 3.2, HL 0.73, HW 0.60, CI 83, ML 0.42, MI 57, SL 0.50, SI 82, PW 0.36, AL 0.77. Characters of *hilaris*-complex. Each mandible with 2 preapical teeth, situated in the apical third; proximal preapical tooth longer than distal. Upper scrobe margin distinct, not bordered by a projecting laminar rim or flange throughout its length. Eyes moderate in size, convex and plainly visible in full-face view; maximum diameter of eye distinctly greater than maximum width of scape. Scape short, curved near base, widest in the midsection; hairs on leading edge fine, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with rows of curved narrow spatulate to spoon-shaped ground-pilosity; upper scrobe margin fringed with hairs which are the same size and shape as those on the dorsum. Cephalic dorsum with 4 stout standing hairs bordering occipital margin and a more anteriorly situated pair on vertex. Pronotal humeral hair absent; humeral angles rounded, posterolateral margin of pronotum bluntly marginate. Mesonotum with two pairs of stout filiform erect hairs; a pair on anterior margin and a shorter pair located posterior of mesonotal depression; one or two pairs of shorter hairs which curve toward the midline are present on anterior portion of mesonotum. Propodeum with one or two pairs of short, fine, posteriorly curved hairs at anterior base of propodeal spines or immediately anterior of propodeal spines. Ground-pilosity on alitrunk as on head, concentrated on the promesonotum. Dorsum of alitrunk in outline convex anteriorly, posterior mesonotum sharply depressed, posterior alitrunk more or less flat to gradually sloping to declivity. Propodeal spines narrowly triangular, spongiform, subtended by a narrow lamella on declivity. Alitrunk dorsum and sides of pronotum densely reticulate-punctate; pleurae smooth and shiny with peripheral punctures. Petiole node in dorsal view about as broad as long. Postpetiole reticulate-punctulate and with weak longitudinal striolate sculpture. In profile ventral spongiform tissue of petiolar peduncle an irregular, narrow strip along the base of the peduncle, its deepest point much less than maximum width of eye. Basigastral costulae short and distinct, with secondary and much longer superficial fine striolate sculpture arising between the shorter costulae. Dorsal surfaces of petiole, postpetiole and gaster with erect narrowly remiform hairs. Colour light to medium brown.

**PARATYPE WORKERS.** TL 2.9 - 3.1, HL 0.67 - 0.73, HW 0.54 - 0.58, CI 79 - 81, ML 0.38 - 0.41, MI 54 - 57, SL 0.46 - 0.48, SI 82 - 86, PW 0.33 - 0.37, AL 0.73 - 0.79 (3 measured). As holotype.

Holotype worker, Madagascar: Prov. Fianarantsoa, 28 km. SSW Ambositra, Ankazomivady, 20°46.5'S, 47°10.1'E, 1670 m., 14.i.1998, sifted litter (leaf mold, rotten wood), disturbed montane rainforest #1625-4 (*B.L. Fisher*) (MCZ).

Paratypes. 1 worker with same data as holotype; 2 workers with same data as holotype but 11.i.1998, #1620 (2)-2, #1620 (5)-1 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Perinet & vic. (*W.L. Brown*).

Measurements of this material extend the range shown by the type-series: HL 0.71, HW 0.59, CI 83, ML 0.41, MI 59, SL 0.47, SI 81 (1 measured) but otherwise match diagnostic characters of the type-specimens.

*S. milae* is most similar to *luca* in the *hilaris*-complex. They both have relatively short scapes (SI < 90). *S. milae* can be isolated from *luca* by the presence of two pairs of erect hairs on mesonotum, a shorter pair posterior to pair on anterior margin, the posterior portion of mesonotum sharply depressed behind the level of the anterior pair of hairs when viewed in profile. *S. luca* has a single pair of erect hairs on mesonotum. In addition, the petiole node of *milae* is evenly convex when viewed in profile while in *luca*, the petiole node is broadly triangular with a blunt apex. See *hilaris* for further discussion of the complex.

*Strumigenys nambao* Fisher sp. n.

(Fig. 395)

HOLOTYPE WORKER. TL 2.8, HL 0.69, HW 0.56, CI 82, ML 0.38, MI 55, SL 0.46, SI 81, PW 0.32, AL 0.71. Characters of *lysis*-complex. Each mandible with 2 preapical teeth, situated in the apical third; proximal preapical tooth much longer than distal. Upper scrobe margin without a projecting lamellate rim throughout its length; scrobe margin weakly marginate to rounded above vertical preocular groove on side of head. Eye small, convex and plainly visible in full-face view; maximum diameter of eye less than maximum width of scape. Scape short, more or less straight, widest in the midsection; hairs on leading edge fine, slightly thickened apically. Cephalic dorsum densely clothed with short curved narrowly clavate ground-pilosity; upper scrobe margin fringed with appressed clavate hairs. Cephalic dorsum with 6 stout standing hairs arranged in a transverse row close to the occipital margin; 3 (occasionally 2 or 4) pairs of stiff erect hairs posteriorly on dorsolateral margin, and 1 pair on vertex. Pronotal humeral hair filiform, stiffly projecting; humeral angles rounded. Anterior margin of mesonotum with 1 pair of stout filiform hairs, situated on anterior margin. Propodeum with one pair of short, fine, posteriorly curved hairs at anterior base of propodeal spines. Alitrunk dorsum with inconspicuous, short curved fine ground-pilosity. Dorsum of alitrunk in outline convex anteriorly, posterior alitrunk more or less flat to gradually sloping down to declivity. Metanotal groove not or minutely impressed. Anterior mesonotum without a minute carina above the mesothoracic spiracle. Propodeal spines narrowly triangular, almost spiniform; lamella on declivity a very narrow strip. Alitrunk dorsum reticulate punctate. Side of pronotum and pleurae partially smooth with peripheral punctulate sculpture. Petiole node in dorsal view about as broad as long. Postpetiole disc reticulate-punctate. In profile ventral spongiform tissue of petiolar peduncle a narrow strip along the base of the peduncle, depth of strip less than the width of the mandible blade when viewed in profile. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae short and distinct. Dorsal surface of petiole with one pair of anteriorly projecting stout, narrowly clavate hairs; postpetiole and gaster with stout standing hairs which are thickened apically. Colour light yellowish brown to medium brown.

PARATYPE WORKER TL 2.6 - 2.8, HL 0.64 - 0.68, HW 0.51 - 0.55, CI 79 - 81, ML 0.35 - 0.39, MI 55 - 57, SL 0.42 - 0.49, SI 81 - 90, PW 0.29 - 0.33, AL 0.64 - 0.70 (4 measured). As holotype.

Holotype worker, Madagascar: Prov. Antsiranana, R.S. Manongarivo, 10.8 km. 229° SW Antanambao, 400 m., 13°57.7'S, 48°26.0'E, 8.xi.1998, sifted litter (leaf mold, rotten wood), rainforest #1996 (1)-1 (*B.L. Fisher*) (MCZ).

Paratypes. 20 workers with same data as holotype but coded (2)-1, (8)-5, (14)-1, (30)-2, (44)-1, (44)-3, (44)-5, (46)-3, (50)-1, (50)-5; (56)-2, (75)-2 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 12.8 km. 228° SW Antanambao, 780 m. (*B.L. Fisher*).

Measurements of this material extend the range shown by the type-series: HL 0.63 - 0.69, HW 0.52 - 0.57, CI 81 - 83, ML 0.35 - 0.38, MI 55 - 56, SL 0.42 - 0.47, SI 81 - 84 (3 measured).

*S. nambao* forms a close species pair with *norax* within the *lysis*-complex. Characters isolating *nambao* are discussed under *norax*.

*Strumigenys norax* Fisher sp. n.

HOLOTYPE WORKER. TL 3.0, HL 0.71, HW 0.55, CI 77, ML 0.41, MI 58, SL 0.50, SI 92, PW 0.33, AL 0.78. Characters of *lysis*-complex. Each mandible with 2 preapical teeth, situated in the apical third; proximal preapical tooth much longer than distal, the latter often reduced to small denticles. Upper scrobe margin without a projecting lamellate

rim throughout its length; scrobe weakly marginate to rounded above vertical preocular groove on side of head. Eyes small, convex and plainly visible in full-face view; maximum diameter of eye subequal to maximum width of scape. Scape short, more or less straight, widest in the midsection; hairs on leading edge fine, slightly thickened apically. Cephalic dorsum densely clothed with short curved narrowly clavate ground-pilosity; upper scrobe margin fringed with hairs similar in size and shape as those on the dorsum. Cephalic dorsum with 6 stout standing hairs arranged in a transverse row close to the occipital margin; 3 (occasionally 2 or 4) pairs of stiff erect hairs on dorsolateral margin posteriorly, and 1 pair on vertex. Dorsum of head reticulate-punctate and often with superimposed rugulose sculpture on occipital angles. Pronotal humeral hair stiffly filiform and projecting; humeral angles rounded. Anterior margin of mesonotum with 2 pairs of stout filiform hairs: a pair on anterior margin and a more posteriorly situated pair. Propodeum with one pair of short, fine, posteriorly curved hairs at anterior base of propodeal spines. Alitrunk dorsum with inconspicuous, short curved fine ground-pilosity. Dorsum of alitrunk in outline convex anteriorly, posterior alitrunk more or less flat to gradually sloping down to declivity. Metanotal groove not or minutely impressed. Anterior mesonotum without a minute carina above the mesothoracic spiracle. Propodeal spines narrowly triangular, almost spiniform; lamella absent from declivity. Pronotal dorsum and sides longitudinally striolate to costulate on a smooth surface, posterior pronotal disc striolate-punctate to rugulose punctate. Remainder of dorsal alitrunk striolate-punctate. Pleurae smooth and shiny with peripheral fine punctulate sculpture. Petiole node in dorsal view about as broad as long. Postpetiole disc longitudinally striolate on a finely punctulate surface. Spongiform appendages of petiole weakly developed; in profile ventral spongiform tissue of petiolar peduncle a narrow irregular strip along the base of the peduncle, depth of strip less than the width of the mandible blade when viewed in profile. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae short and distinct. Dorsal surface of petiole with one pair of anteriorly projecting stout hairs; postpetiole and gaster with stout standing hairs which are slightly thickened apically. Colour light yellowish brown to medium brown.

PARATYPE WORKERS. TL 2.8 - 3.1, HL 0.68 - 0.72, HW 0.50 - 0.55, CI 74 - 77, ML 0.38 - 0.40, MI 56 - 58, SL 0.46 - 0.50, SI 86 - 94, PW 0.31 - 0.36, AL 0.71 - 0.80 (10 measured). As holotype.

Holotype worker, Madagascar: 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°28'E, 1200 m., 9.xi.1994, sifted litter (leaf mold rotten wood), montane rainforest #1192 (12)-13 (*B.L. Fisher*) (MCZ). Paratypes. 11 workers and 3 queens (dealate) with same data as holotype but coded (1)-5, (2)-8, (3)-10, (3)-11, (4)-4, (7)-7, (9)-10, (10)-9, (23)-10, (35)-9, (42)-5, (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Amboangy hill, 30 km. N Antalaha, 115 m. (*G.D. Alpert*); 11.0 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1565 m. (*B.L. Fisher*); 6.3 km. S Ambanizana, Andranobe, 25 m. (*B.L. Fisher*); 6.9 km. NE Ambanizana, 825 m. (*B.L. Fisher*); 2 km. W Andampibe, Cap Masoala, 125 m. (*Alpert et al.*); Fotodriana, Cap Masoala, 25 m. (*Alpert et al.*); 14 km. W Cap Est, Ambato, 100 m. (*Alpert et al.*); F.C. Sandranantitra 450 m. (*H.J. Ratsirarson*).

Measurements of this material extend the range shown by the type-series: HL 0.65 - 0.73, HW 0.47 - 0.53, CI 70 - 76, ML 0.38 - 0.41, MI 54 - 61, SL 0.45 - 0.49, SI 91 - 98 (7 measured).

*S. norax* and *nambao* are closely related and can be easily separated from other members of the *rogeri*-group by the following characters: left and right mandibles each with 2 preapical teeth; dorsolateral margin of head posteriorly with 2 - 4 stiff erect hairs that are longer than hairs on leading edge of scape; upper scrobe margin without a projecting lamellate rim above vertical preocular groove on side of head, scrobe weakly marginate to rounded. *S. norax* can be separated from *nambao* by the presence of two pairs of erect hairs on the mesonotum while *nambao* has only one pair of hairs.

*Strumigenys sphaera* Fisher sp. n.

(Figs 398, 418)

**HOLOTYPE WORKER.** TL 3.8, HL 0.95, HW 0.77, CI 82, ML 0.56, MI 60, SL 0.68, SI 88, PW 0.41, AL 0.95. Characters of *sphaera*-complex. Each mandible with 1 preapical tooth, situated in the apical third. Upper scrobe margin not bordered by a projecting laminar rim throughout its length, eyes clearly visible in full-face view. Eye small, convex, maximum diameter of eye equal to or slightly greater than maximum width of scape. Scape long and slender, subcylindrical, narrowed near base, approximately straight; hairs on leading edge narrowly spatulate. Cephalic dorsum clothed with curved spatulate to narrowly spoon-shaped ground-pilosity; upper scrobe margin with hairs that are similar in size and shape to those on the dorsum. Cephalic dorsum with a transverse row of 2 (rarely 3) pairs of stout filiform hairs close to the occipital margin and 1 pair of erect hairs on vertex. Dorsum of head reticulate-punctate with superimposed rugulose sculpture that extends to the apex of occipital corners. Pronotal humeral hair absent; humeral angles rounded, posterolateral margin of pronotum with a small raised welt. Anterior margin of mesonotum with 1 pair of stout standing hairs which are slightly thickened apically. Propodeum with 1 pair of short, posteriorly curved narrowly spatulate hairs immediately anterior or at base of propodeal spines. Midsection of the lateral margins of propodeal declivity with 1 or 2 pairs of fine projecting hairs. Ground-pilosity on alitrunk dorsum as on head, concentrated on promesonotum. Dorsum of alitrunk in outline convex anteriorly, posterior mesonotum sharply depressed, propodeum flat to gradually sloping to declivity. Metanotal groove represented by a shallow impression. Propodeal spines narrowly triangular, almost spiniform in some specimens, margins often spongiform; propodeal lamella absent or at most very narrow on apical portion of declivity. Alitrunk dorsum and sides of pronotum densely reticulate-punctate, dorsal promesonotum with faint rugulose sculpture. Pleurae mostly smooth and shiny with reticulate-punctate sculpture peripherally. Petiole node in dorsal view slightly longer than broad. Postpetiole disc with longitudinally striolate sculpture on a fine punctulate surface, portions of central disc more or less smooth in some type-material. In profile ventral spongiform tissue of petiolar peduncle a narrow curtain that is continuous along the base of the peduncle, depth of curtain is slightly less than the maximum width of eye. Ventral spongiform tissue of postpetiole moderately developed. Basigastral costulae sharply defined. Dorsal surface of petiole, postpetiole, and gaster with feebly to narrowly clavate hairs. Colour yellowish brown to medium brown.

**PARATYPE WORKERS.** TL 3.7 - 3.9, HL 0.92 - 0.99, HW 0.74 - 0.80, CI 78 - 82, ML 0.55 - 0.57, MI 56 - 59, SL 0.66 - 0.71, SI 86 - 93, PW 0.40 - 0.41, AL 0.93 - 0.98 (10 measured). As holotype.

Holotype worker, Madagascar: 40 km. S Ambalavao, Res. Andringitra, 22°13'S, 46°58'E, 1275 m., 15.x.1993, sifted litter (leaf mold rotten wood), montane rainforest #793 (38)-8 (*B.L. Fisher*) (MCZ). Paratypes. 11 workers and 2 queens (dealate) with same data as holotype but coded (1)-8, (2)-7, (3)-6, (4)-8, (16)-6, (20)-10, (19)-8, (38)-8 (BMNH, SAM).

**NON-PARATYPIC MATERIAL EXAMINED.** Madagascar: R.S. Manongarivo, 20.4 km. 219° SW Antanambao, 1860 m. (*B.L. Fisher*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1280 m. (*B.L. Fisher*); 11.0 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1565 m. (*B.L. Fisher*); Rte d'Anosibe, Km. 38 (*A. Peyrieras*); Andronobe, Route d'Andriamena (*A. Peyrieras*); Mahavelona, N Tamatave (*Bartolozzi et al.*); Tampoketsa d'Ankazobe, Ambohitantely, 1550 m. (*J.-M. Betsch*); Massif de l'Iremo, 1630 m. (*A. Peyrieras*); 29 km. SSW Amboisitra, Ankazomivady, 1700 m. (*B.L. Fisher*); 7 km. W Ranomafana Nat. Park, 900 m. (*W.E. Steiner*); Ranomafana Nat. Park, 1350 m. (*E. Rajeriarison*); 40 km. S Ambalavao, Res. Andringitra, 1275 m. (*B.L. Fisher*); 43 km. S Ambalavao, Res. Andringitra, 825 m. (*B.L. Fisher*); 45 km. S Ambalavao, 785 m. (*B.L. Fisher*); 38 km. S Ambalavao, Res. Andringitra 1680 m. (*B.L. Fisher*); 7.5 km. ENE Ivohibe, R.S. Ivohibe, 900 m. (*S. Razafimandimby*); 9.0 km. NE Ivohibe, 900 m. (*S. Razafimandimby*); 8.0 km. NE Ivohibe, 1200 m. (*S. Razafimandimby*); 6.5 km. ESE Ivohibe, R.S. Ivohibe, 1575 m. (*S. Razafimandimby*); 8.0 km. E Ivohibe, R.S. Ivohibe 1200 m. (*S. Razafimandimby*); 13 km. NW Enakara, Res. Andohahela, 1250 m. (*B.L. Fisher*); 3 km. E Mahamavo, Res. Andohahela, 1050 m. (*P.S. Ward*).

The non-paratypic material exhibits enormous size variation: HL 0.66 - 1.06, HW 0.51 - 0.88, CI 73 - 86, ML 0.36 - 0.63, MI 47 - 62, SL 0.45 - 0.77, SI 78 - 101 (72 measured).

The non-paratypic material exhibits variation in body size, eye size, hair shape, and depth



of ventral petiolar spongiform tissue. This variation is present within and between localities and is very suggestive that these specimens may represent a complex mosaic of several distinct sibling species. For example, within R.S. Andringitra, 3 forms are represented. At 785 m., specimens have the following characters that are distinct within Andringitra: in profile hairs on mesonotum, petiole, postpetiole and gaster coarsely remiform to thickly clavate. Eyes larger; with head in profile, maximum width of eye along horizontal axis greater than width of preocular groove immediately anterior of eye along same axis. At 1275 m. in Andringitra the type-specimens of *sphera* are found which have small eyes and narrowly clavate hairs (HL 0.92 - 0.99, HW 0.74 - 0.80); a third form is also found at 1275 m. that is identical to the type-specimens of *sphera* in all diagnostic characters except they are smaller (HL 0.70 - 0.80, HW 0.56 - 0.67). In addition, a fourth form was collected at Manongarivo and Anjanaharibe. These specimens have a reduced spongiform strip on the petiole. In profile the ventral petiolar spongiform tissue is not developed into an expanded curtain that extends the length of the peduncle. At most the ventral petiolar spongiform tissue forms an irregular, very narrow strip, maximum depth of spongiform tissue much less than half the maximum width of eye.

The problem with the geographic variation of *sphera* is that although the variation is discrete within R.S. Andringitra, the variation is continuous when other localities are included. Additional collections and new characters will have to be studied before we are confident of the boundaries of this species.

*S. sphera* is distinguished from other members of the *sphera*-complex by the following combination of characters:

- 1 Anterior margin of mesonotum with only a single pair of erect hairs, situated at anterior lateral margin of mesonotum.
- 2 Upper scrobe margin without a broad lamellate rim or flange throughout its length, lamellate rim when present limited to region above antennal insertion.
- 3 Basal half of scape never sharply swollen, scape more or less subcylindrical.

***Strumigenys vazimba* Fisher sp. n.**

(Figs 399, 419)

HOLOTYPE WORKER. TL 5.4, HL 1.51, HW 1.44, CI 95, ML 0.70, MI 46, SL 0.92, SI 64, PW 0.61, AL 1.29. Characters of *vazimba*-complex. Mandibles robust, almost straight, at full closure diverging apically. Each mandible with 1 preapical blunt tooth which is situated in the apical third of the length. Upper scrobe margin with a greatly expanded lamellate flange throughout its length, eyes not visible in full-face view. Eye small, convex, maximum diameter of eye less than maximum width of scape. Scape widest in midsection of basal half, curved in apical third; hairs on leading edge fine, narrowly spatulate. Cephalic dorsum with short curved narrowly spatulate to spoon-shaped ground-pilosity; upper scrobe margin fringed with hairs similar in size and shape as those on the dorsum. Cephalic dorsum with 3 pairs (some paratypes with 4 pairs) of stout standing narrowly spatulate hairs arranged in a transverse row close to the occipital margin, and 1 pair on vertex. Dorsum of head reticulate-punctate and with superimposed rugulose sculpture. Pronotal humeral hair absent; dorsal alitrunk without erect hairs. Humeral angles rounded, posterior lateral margin of pronotum marginate and often with a raised welt. Propodeum with two pairs of short, narrowly spatulate posteriorly curved hairs at anterior base of propodeal spines. Alitrunk dorsum with short curved spatulate ground-pilosity. Dorsum of alitrunk in outline convex anteriorly, posterior portion of mesonotum sharply depressed, posterior alitrunk more or less flat. Metanotal groove shallowly impressed. Anterior margin of mesonotum raised above pronotum, forming a transverse arched lip across dorsum. Anterior mesonotum with a narrow projecting rim above the mesothoracic spiracle. Propodeal spines narrow, almost spiniform, diverging, strongly elevated and recurved anteriorly; lamella absent from declivity. Pronotal dorsum striolate-punctate to

rugulose-punctate with anterior margin without punctures or with a fine punctulate surface. Sides of pronotum striolate to costulate with punctate sculpture on apical portion and more or less smooth or finely punctulate on basal half. Mesonotum and propodeum densely reticulate-punctate. Pleurae with reticulate-punctulate sculpture which is faint or effaced on central pleurae. Petiole node in dorsal view with superficial rugulose sculpture on a fine reticulate-punctulate surface, slightly broader than long. Postpetiole disc with faint longitudinally striolate sculpture on a finely punctulate surface. In profile ventral spongiform tissue of petiolar peduncle a well developed curtain along the base of the peduncle, depth of strip distinctly greater than maximum width of eye. Ventral spongiform lobe of postpetiole moderately developed. Basigastral costulae dense and distinct, interspersed with longer faint striolate sculpture. Dorsal surface of petiole with one pair of erect stout remiform hairs; postpetiole and gaster with stout standing remiform hairs. Colour light to medium brown.

PARATYPE WORKERS. TL 4.9 - 6.0, HL 1.37 - 1.66, HW 1.28 - 1.65, CI 93 - 101, ML 0.65 - 0.72, MI 43 - 48, SL 0.86 - 1.04, SI 62 - 68, PW 0.53 - 0.67, AL 1.13 - 1.44 (7 measured). As holotype.

Holotype worker, Madagascar: 6.3 km. S Ambanizana, Andranobe, 15°41'S, 49°57'E, 25 m., 14.xi.1993, sifted litter (leaf mold, rotten wood), rainforest, #886 (4)-11 (*B.L. Fisher*) (MCZ).

Paratypes. 7 workers with same data as holotype but coded (21)-14, (13)-12, (46)-11, (30)-7, (34)-10, (43)-7 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 6.5 km. SSW Befingotra, Res. Anjanaharibe-Sud, 875 m. (*B.L. Fisher*); 17 km. W Andapa, Res. Anjanaharibe-Sud, 875 m. (*G.D. Alpert*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1200 m. (*B.L. Fisher*); 5.3 km. S Ambanizana, Andranobe, 425 m. (*B.L. Fisher*); 6.9 km. NE Ambanizana, 825 m. (*B.L. Fisher*); Andranobe, Route d'Andriamena, (*A. Peyrieras*); F.C. Andrianantantely, 530 m. (*H.J. Ratsirarson*); F.C. Sandranantitra, 450 m. (*H.J. Ratsirarson*); 43 km. S Ambalavao, Res. Andringitra, 825 m. (*B.L. Fisher*); 45 km. S Ambalavao, 785 m. (*B.L. Fisher*); 9.0 km. NE Ivohibe, 900 m. (*S. Razafimandimby*); 8.0 km. E Ivohibe, R.S. Ivohibe 1200 m. (*S. Razafimandimby*); 10 km. NW Enakara, Res. Andohahela, 430 m. (*B.L. Fisher*).

Measurements of this material extend the range shown by the type-series: HL 1.32 - 1.45, HW 1.28 - 1.41, CI 95 - 101, ML 0.61 - 0.69, MI 46 - 50, SL 0.83 - 0.92, SI 64 - 69 (6 measured). In some specimens from Ivohibe, disc of postpetiole more or less smooth but otherwise match all characters of type-series.

*S. vazimba* is unmistakable. It is one of the largest known species of *Strumigenys* in the world (HW 1.28 - 1.65), approached only by larger individuals of the Malesian polymorphic species *loriae* (HW 1.60) and the Neotropical *godmani* (HW 1.24). In Madagascar is approached only by *grandidieri* (HW 0.97 - 1.14). The presence of only 1 preapical tooth and/or denticle on left mandible blade, the greatly expanded laminar flange along the length of the upper scrobe margin, divergent and recurved propodeal spines, and the alitrunk dorsum without erect hairs, also characterise this species.

#### *scotti*-group

#### DIAGNOSIS OF WORKER

Apical fork of mandible with 2 spiniform teeth; without intercalary dentition but rarely with 1 - 2 denticles located at the ventral base of the apicoventral tooth. Mandible with 2 stout or spiniform preapical teeth, situated in the apical third of the length; proximal preapical tooth slightly longer than the distal. Mandibles in full-face view and at full closure with outer margins shallowly and evenly convex to almost straight and parallel; in some species inner margin of mandible with a distinct lamella in (see species-complexes, below).

Scape elongate and cylindrical.

Ventrolateral margin of head without trace of a preocular notch, the margin continuous in front of the eye. Ventral surface of head without a preocular transverse groove but postbuccal groove is distinct.

Spongiform appendages of petiole usually developed into at least a narrow ventral curtain, rarely completely absent. Postpetiole usually with lateral and ventral lobes.

**Pilosity.** Pronotal humeral hair usually present, rarely absent. Upper scrobe margin with curved or appressed slender to clavate hairs (no hairs in *diux*). Cephalic dorsum usually with 6 standing hairs, arranged as a transverse row of 4 near occipital margin and a pair close to highest point of vertex. Mesonotum with at least one pair of standing hairs. Dorsal surface of postpetiole, and gaster with short filiform to narrowly clavate hairs.

**Sculpture.** Head reticulate-punctate, rarely with longitudinal or oblique rugulae or costulae; alitrunk usually reticulate-punctate but pronotal dorsum occasionally smooth and/or with longitudinal costulae; pleurae usually smooth, rarely entirely reticulate-punctate. Gaster unsculptured except for basigastral costulae.

**Glands.** Scape gland absent (*balux*, *bola*, *chroa*, *glycon*, *ipsea*, *langrandi*, *lura*, *odacon*, *tegar*), or visible as an elongate patch near apex or rarely entire length of ventral scape (*cabira*, *covina*, *deverra*, *diota*, *diux*, *doxa*, *epulo*, *europs*, *finator*, *inatos*, *lexex*, *livens*, *lucomo*, *origo*, *ravola*, *rubigus*, *scotti*). Femoral gland bulla usually absent but present in *cabira*, *covina*, *deverra*, *diota*, *epulo*, *inatos*. Tibial gland bulla usually absent but present on at least the hind tibia in *cabira*, *covina*, *deverra*, *epulo*, *langrandi*, *odacon*. Gland at base of calcar conspicuous (absent in *diota*). Tarsal gland bullae visible on at least first three tarsi of foreleg, decreasing in size from basitarsus where it is elongate to the third tarsal segment where it is oval. Mesopleural gland usually set in a circular notch, but in a concave impression in *ipsea*.

The absence of a preocular notch in the ventrolateral margin of the head and absence of a preocular transverse impression in the ventral surface of the head, combined with the presence of 2 stout preapical teeth on each mandible and elongate cylindrical to subcylindrical scapes, is immediately diagnostic of the *scotti*-group.

This group also contains 14 species in the Afrotropical region and two in the Malesian region. In the Malagasy region the group can be divided into 5 complexes, as follows.

- 1 *chroa*-complex (*balux*, *bola*, *cabira*, *chroa*, *covina*, *deverra*, *ipsea*, *tegar*). Mandibles in full-face view almost straight and at full closure parallel. Inner margin of mandible with a translucent lamina that extends from proximal preapical tooth, or close to tooth, to level of anterior clypeal margin (absent in *ipsea*). Flagellate hairs usually absent (present at pronotal humeri in *bola* and *deverra*). Dorsolateral margin of head posteriorly without stiff erect hairs that are longer than hairs on leading edge of scape.
- 2 *epulo*-complex (*epulo*). Mandibles in full-face view with outer margins shallowly convex. Inner margin of mandible without a translucent lamina extending from vicinity of proximal preapical tooth to level of anterior clypeal margin. Cephalic dorsum, pronotum, mesonotum, petiole and postpetiole with standing fine, flagellate hairs. Dorsolateral margin of head posteriorly without stiff erect hairs that are longer than hairs on leading edge of scape.
- 3 *diux*-complex (*diux*, *doxa*). Mandibles in full-face view with outer margins shallowly convex. Inner margin of mandible without a translucent lamina extending from vicinity of proximal preapical tooth to level of anterior clypeal margin. Flagellate hairs absent. Pronotal humeral hair stiff, filiform. Dorsolateral margin of head posteriorly with 1 or more stiff erect hairs that are longer than hairs on leading edge of scape.
- 4 *diota*-complex (*diota*). Mandibles in full-face view with outer margins very shallowly convex. Inner margin of mandible without a translucent lamina extending from vicinity of proximal preapical tooth to level of anterior clypeal margin. Flagellate hairs absent. Pronotal humeral hair absent. Dorsolateral margin of head posteriorly without stiff erect hairs that are longer than hairs on leading edge of scape.

5 *scotti*-complex (*europs*, *finator*, *glycon*, *inatos*, *langrandi*, *lexex*, *livens*, *lucomo*, *lura*, *odacon*, *origo*, *ravola*, *rubigus*, *scotti*). Mandibles in full-face view with outer margins shallowly convex. Inner margin of mandible without a translucent lamina extending from vicinity of proximal preapical tooth to level of anterior clypeal margin. Pronotal humeral hair flagellate. Dorsolateral margin of head posteriorly without stiff erect hairs that are longer than hairs on leading edge of scape.

*Strumigenys balux* Fisher sp. n.

HOLOTYPE WORKER. TL 2.5, HL 0.62, HW 0.47, CI 77, ML 0.32, MI 51, SL 0.40, SI 85, PW 0.29, AL 0.69. Characters of *chroa*-complex. Mandibles almost straight and at full closure parallel except near base. Ventral surface of apicoventral fork tooth with 1 or 2 basally located denticles. A narrow lamella present on inner margin of mandible from base to proximal preapical tooth; in full-face view inner margins of lamellae shallowly and evenly convex and more or less touching at full closure. Upper scrobe margin rounding into the sides of head near posterior margin of eye. Eye large, the maximum diameter distinctly greater than the maximum width of the scape. Hairs on leading edge of scape slender, slightly flattened or spoon-shaped apically. Cephalic dorsum with curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margins fringed with a row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 4 simple standing hairs arranged in a transverse row close to the occipital margin. Pronotal humeral hair absent. Anterior margin of mesonotum with a pair of erect clavate hairs. Ground-pilosity on alitrunk as on head. Posterior portion of mesonotum shallowly concave dorsally; propodeal dorsum sloping gradually to declivity. Propodeal teeth slender and acute; lamella on declivity narrow. Head, alitrunk dorsum and sides, petiole, and postpetiole disc in dorsal view reticulate-punctate. Ventral spongiform tissue on petiole moderately developed, lateral lobes small and vestigial. Postpetiole with distinct lateral and ventral spongiform lobes. Base of first gastral tergite with a continuous row of costulae. Dorsal surfaces of petiole, postpetiole and gaster with stout standing hairs which are thickened apically. Colour dull yellowish brown.

Holotype worker, Madagascar: 45 km. S Ambalavao, 22°13'S, 47°1'E, 785 m., 25.ix.1993, sifted litter (leaf mold, rotten wood) rainforest #696 (26)-10 (*B.L. Fisher*) (MCZ).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 5 km. S Sambava (*W.L. & D.E. Brown*); Station Forestihre Ampijoroa (*P.S. Ward*); 7 km. W Ranomafana (*W.E. Steiner*).

Measurements of non-paratypic material: TL 2.3 - 2.5, HL 0.57 - 0.61, HW 0.45 - 0.50, CI 77 - 82, ML 0.29 - 0.30, MI 49 - 51, SL 0.36 - 0.40, SI 75 - 86, PW 0.27 - 0.29, AL 0.62 - 0.67 (4 measured).

*S. balux* is distinguished from other species in the *chroa*-complex by lacking a pronotal humeral hair, having a single pair of clavate hairs on the anterior margin of the mesonotum, and having mandibular lamellae more or less touching at full closure. See under *cabira* for further discussion.

*Strumigenys bola* Fisher sp. n.

HOLOTYPE WORKER. TL 3.0, HL 0.71, HW 0.50, CI 70, ML 0.37, MI 52, SL 0.46, SI 93, PW 0.30, AL 0.78. Characters of *chroa*-complex. Mandibles almost straight and at full closure parallel except at base. Apicoventral fork tooth with a denticle basally on its ventral surface. A narrow lamella present on inner margin of mandible from base to proximal preapical tooth; in full-face view inner margin of lamella more or less straight. Upper scrobe margin rounding into the sides behind level of eye, bluntly marginate. Eye large, the maximum diameter distinctly greater than the maximum width of the scape. Hairs on leading edge of scape slender and filiform. Upper scrobe margin with similar shaped hairs as scape and terminating in an erect narrowly clavate apicoscrobial hair.

Cephalic dorsum with curved narrow spatulate to spoon-shaped ground-pilosity. Cephalic dorsum with 4 simple standing hairs arranged in a transverse row close to the occipital margin and a pair situated more anteriorly. Pronotal humeral hair flagellate. Anterior margin of mesonotum with a pair of filiform to narrowly clavate hairs. Ground-pilosity on alitrunk as on head but sparser. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly. Propodeal teeth slender and acute; lamella on declivity vestigial. Lateral margin of declivity with a small posteriorly projecting hair at level of the propodeal spiracle. Alitrunk dorsum reticulate-punctate; pleurae mostly smooth and shiny. Postpetiole disc finely longitudinally costulate laterally, smooth and shiny medially. Ventral spongiform tissue of petiole forming a narrow strip which decreases in depth anteriorly before forming a small acute anterior tooth; lateral spongiform lobe vestigial or absent. Postpetiole with distinct lateral and ventral spongiform lobes. Base of first gastral tergite with sparse costulae laterally. Dorsal surfaces of petiole, postpetiole and gaster with stout standing hairs which are thickened apically. Colour dull yellowish brown.

PARATYPE WORKERS. TL 3.0 - 3.2, HL 0.68 - 0.76, HW 0.46 - 0.52, CI 68 - 72, ML 0.33 - 0.37, MI 48 - 52, SL 0.43 - 0.47, SI 87 - 96, PW 0.30 - 0.33, AL 0.76 - 0.82 (8 measured). As holotype.

Holotype worker, Madagascar: 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°28'E, 1200 m., 10.xi.1994, canopy leaf litter, moss; montane rainforest #1206 (*B.L. Fisher*) (MCZ).

Paratypes. 1 worker and 1 queen (dealate) with same data as holotype; 3 workers and 1 queen with same data as holotype but coded #1203; 4 workers with same data as holotype but 1180 m., 7.xi.1994 and coded 1173; 3 workers with same data as holotype but labeled sifted litter (leaf mold, rotten wood) and coded 1192 (1)-6, (37)-10, (40)-5 (BMNH, SAM).

*S. bola* is distinguished from other species in the *chroa*-complex by having the upper scrobe margin bluntly marginate and gradually fading posterior of eyes, without a sharply defined rim, mesonotum with one pair of hairs, and pronotal humeral hair flagellate.

#### *Strumigenys cabira* Fisher sp. n.

HOLOTYPE WORKER. TL 2.8, HL 0.64, HW 0.48, CI 75, ML 0.28, MI 44, SL 0.43, SI 89, PW 0.31, AL 0.71. Characters of *chroa*-complex. Mandibles almost straight and at full closure parallel except at base. A narrow lamella present on inner margin of mandible that extends from base of mandible to proximal preapical tooth; in full-face view inner margin of lamella shallowly and evenly convex, tapering before reaching preapical tooth; width of gap between lamellae at clypeal margin approximately equal to width of mandible. Upper scrobe margin rounding into the sides of head near posterior margin of eye. Eye moderate, the maximum diameter approximately equal to maximum width of scape. Hairs on leading edge of scape short, spoon-shaped. Cephalic dorsum with curved spoon-shaped ground-pilosity, the upper scrobe margins fringed with a row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 4 clavate standing hairs arranged in a transverse row close to the occipital margin. Anterior margin of mesonotum with a pair of erect clavate hairs curved toward the midline. Ground-pilosity on alitrunk as on head. Posterior portion of mesonotum shallowly concave dorsally; propodeal dorsum sloping gradually to declivity. Propodeal teeth broadly triangular, lamellate, apex directed posteriorly; subtended by moderately developed lamellae. Dorsum of head, alitrunk, and petiole node reticulate-punctate with a granular appearance. Pleurae and sides of propodeum smooth except for peripheral punctures. Postpetiole disc shiny and faintly punctulate. In profile the petiole with a deep ventral spongiform strip and a small lateral lobe on the node. Ventral spongiform lobe on postpetiole a rounded, dorsally projecting triangle in profile, approximately equal to the exposed area of the postpetiole disc in profile. Lateral lobe of postpetiole large and lamellate. Base of first gastral tergite with fine costulae radiating on each side of a broad central clear area. Dorsal surfaces of petiole, postpetiole and gaster with stout standing clavate hairs. Colour dull yellowish brown.

PARATYPE WORKERS. TL 3.0, HL 0.66, HW 0.47, CI 71, ML 0.32, MI 48, SL 0.47, SI 101, PW 0.31, AL 0.81 (1 measured). As holotype.

Holotype worker, Madagascar: 11 km. NW Enakara, Ris. Andohahela, 24°34'S, 46°50'E, 800 m., 17.xi.1992, sifted litter (leaf mold, rotten wood, rainforest #492 (15)-14 (*B.L. Fisher*) (MCZ)).  
Paratypes. 1 worker, Madagascar: 13 km. NW Enakara, Ris. Andohahela, 24°33'S, 46°48'E, 1250 m., 30.xi.1992, sifted litter (leaf mold, rotten wood, montane rainforest #561 (23)-4 (*B.L. Fisher*) (SAM)).

*S. cabira*, *balux* and *tegar* are distinguished from other species in the *chroa*-complex by a short upper scrobe margin, absence of a pronotal humeral hair, and presence of a single pair of clavate hairs on the anterior margin of the mesonotum. *S. cabira* is separated from *balux* and *tegar* by the large gap between the bases of its mandibles; in dorsal view width of gap between mandibular lamellae at clypeal margin is approximately equal to width of mandible. In addition, the postpetiole disc is mostly shiny and only faintly punctulate, while in *balux* and *tegar* the postpetiole disc is distinctly reticulate-punctate. *S. balux* and *tegar* are best distinguished by size: HL 0.57 - 0.62 in *balux* and HL 0.75 in *tegar*.

### *Strumigenys chroa* Fisher sp. n.

(Figs 404, 420)

HOLOTYPE WORKER. TL 3.2, HL 0.80, HW 0.67, CI 84, ML 0.30, MI 38, SL 0.44, SI 66, PW 0.35, AL 0.81. Characters of *chroa*-complex. Mandibles almost straight and at full closure parallel except at base. Proximal preapical tooth on mandible confluent with lamella on inner margin that extends to base; in full-face view inner margin of lamella more or less straight. Upper scrobe margin a broad lamella, about as wide as scape. Eye small, with about 10 ommatidia in total. Hairs on leading edge of scape slender and filiform. Cephalic dorsum densely clothed with rows of curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margins fringed with a dense row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 6 simple standing hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair absent. Anterior margin of mesonotum with a pair of clavate to remiform hairs; posterior mesonotum with 2 additional pairs which are similar in shape to anterior pair but shorter. Ground-pilosity on alitrunk as on head. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum slightly depressed below the anterior margin of propodeum. Anterior mesonotum sharply marginate laterally, forming a convex lamellate extension above the mesothoracic spiracle. Propodeal tooth lamellate and confluent with the greatly expanded lamella for more than half its length. Alitrunk dorsum reticulate-punctate; pleurae mostly smooth and shiny, peripherally reticulate-punctate. Disc of postpetiole smooth and shiny, in dorsal view conspicuously broader than long. Ventral and lateral spongiform tissue of petiole and postpetiole greatly developed; ventral spongiform tissue of petiole marginate medially. Base of first gastral tergite with a continuous row of costulae. Dorsal surfaces of petiole, postpetiole and gaster with stout standing hairs which are thickened apically. Colour dull yellowish brown.

PARATYPE WORKERS. TL 3.1 - 3.3, HL 0.77 - 0.82, HW 0.68 - 0.70, CI 86 - 88, ML 0.29 - 0.31, MI 37 - 38, SL 0.41 - 0.46, SI 61 - 65, PW 0.33 - 0.37, AL 0.78 - 0.86 (3 measured). As holotype.

Holotype worker, Madagascar: Prov. Toliara, southern Isoky-Vohimena Forest, 22°41'S, 44°50'E, 730 m., 21.i.1996 (*S. Razafimandimby*) (MCZ).

Paratypes. 1 worker with same data as holotype; 2 workers with same data but labeled sifted litter (leaf mold, rotten wood), dry forest and coded #1312 (9)-3, and (6)-4 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Montagne d'Ambre N.P. Petit Lac, 1000 m. (*Alpert et al.*); Montagne d'Ambre (*Taiti & Bartolozzi*); R.S. Manongarivo, 12.8 km. 228° SW Antanambao, 780 m. (*B.L. Fisher*); R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*); Marojeiy R.N.I. #12 (*G.D. Alpert*); F.C. Didy, 960 m. (*H.J. Ratsirarson*); F.C. Andrianantely, 530 m. (*H.J. Ratsirarson*); 7 km. W Ranomafana (*W.E. Steiner*); Ranomafana Nat.

Park (*E. Rajeriarison*); 29 km. NNW Ranohira, Isalo N.P. (*Alpert et al.*); 28 km. NNW Ranohira, Isalo N.P. (*G.D. Alpert*).

This material included workers from higher elevations that were larger than the type-series: HL 0.80 - 0.93, HW 0.64 - 0.77, CI 80 - 84, ML 0.31 - 0.36, MI 36 - 41, SL 0.43 - 0.52, SI 66 - 72 (11 measured).

A widely distributed but easily recognized member of the *chroa*-complex, this species is recognized by its lamellate upper scrobe margin, absence of a pronotal humeral hair and marginate ventral spongiform tissue of petiole.

*Strumigenys covina* Fisher sp. n.

**HOLOTYPE WORKER.** TL 3.0, HL 0.74, HW 0.53, CI 72, ML 0.32, MI 43, SL 0.44, SI 82, PW 0.35, AL 0.77. Characters of *chroa*-complex. Mandibles almost straight and at full closure parallel except at base. Basal half of proximal preapical mandibular tooth confluent with a lamella on inner margin which extends to base of mandible; in full-face view inner margin of lamella more or less straight. Upper scrobe margin a narrow lamella that is about half as wide as scape. Maximum diameter of eye about equal to maximum width of scape. Hairs on leading edge of scape slender and filiform. Cephalic dorsum with rows of curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margins fringed with a dense row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 6 simple standing hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair filiform with a pointed apex. Anterior margin of mesonotum with a pair of stout filiform hairs; posterior mesonotum with 2 additional pairs which are similar in shape but shorter. Propodeum with a pair of narrow filiform hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk sparse and similar in size and shape as on head. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum slightly depressed below the anterior margin of propodeum. Anterior mesonotum with a lamellate extension above the mesothoracic spracle. Propodeal tooth broadly triangular, lamellate and pointed apically; propodeal lamella relatively broad. Alitrunk dorsum reticulate-punctate; pleurae mostly smooth and shiny, peripherally reticulate-punctate. Disc of postpetiole smooth and shiny; in dorsal view, exposed cuticle of postpetiole node conspicuously broader than long. Ventral and lateral spongiform tissue of petiole and postpetiole moderately developed. Base of first gastral tergite with short costulae radiating on each side of a broad central clear area. Dorsal surfaces of petiole, postpetiole and gaster with standing filiform hairs. Colour dull yellowish brown.

**PARATYPE WORKERS.** TL 3.0, HL 0.74, HW 0.53, CI 72, ML 0.31, MI 42, SL 0.43, SI 80, PW 0.35, AL 0.78. (1 measured). As holotype.

Holotype worker, Madagascar: 5.3 km. SSE Ambanizana, Andranobe, 15°40'S, 49°58'E, 425 m., 21. xi. 1993, sifted litter (leaf mold, rotten wood), rainforest, #926 (32)-11 (*B.L. Fisher*) (MCZ).

Paratype. 1 worker with same data as holotype but coded (33)-9 (BMNH).

**NON-PARATYPIC MATERIAL EXAMINED.** Madagascar: R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*).

Measurements of this specimen extend the range shown by the type-series: HL 0.73, HW 0.56, CI 76, ML 0.31, MI 42, SL 0.46, SI 83.

*S. covina* is distinguished from other species in the *chroa*-complex by a lamellate upper scrobe margin and filiform hairs on pronotal humerus, petiole, postpetiole and first gastral tergite.

*Strumigenys deverra* Fisher sp. n.

**HOLOTYPE WORKER.** TL 3.1, HL 0.74, HW 0.56, CI 76, ML 0.30, MI 41, SL 0.44,

SI 78, PW 0.35, AL 0.80. Characters of *chroa*-complex. Mandibles almost straight and at full closure parallel except at base. Basal half of proximal preapical mandibular tooth confluent with lamella on inner margin which extends to base of mandible; in full-face view inner margin of lamella more or less straight. Upper scrobe margin a narrow lamella, about half as wide as scape. Maximum diameter of eye about equal to or slightly smaller than maximum width of scape. Hairs on leading edge of scape spatulate. Cephalic dorsum with rows of curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margins fringed with a dense row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 6 standing remiform to clavate hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate. Anterior margin of mesonotum with a pair of stout remiform hairs; posterior mesonotum with 2 additional pairs which are similar in shape but shorter. Propodeum with a pair of narrow remiform hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk sparse and similar in size and shape as on head. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum slightly depressed below the anterior margin of propodeum. Humeral angle centrally marginate. Anterior mesonotum with a lamellate extension above a deeply impressed mesothoracic spiracle. Propodeal tooth broadly triangular, lamellate, pointed apically; subtended by a greatly expanded lamella. Alitrunk dorsum densely reticulate-punctate; pleurae mostly smooth and shiny, peripherally reticulate-punctate. Disc of postpetiole conspicuously broader than long, smooth and shiny with superficial longitudinal carinate sculpture laterally. Ventral and lateral spongiform tissue of petiole and postpetiole moderately developed. Base of first gastral tergite with short costulae radiating on each side of a narrow central clear area. Dorsal surfaces of petiole, postpetiole and gaster with standing remiform to broadly clavate hairs. Colour dull yellowish brown.

PARATYPE WORKERS. TL 2.9 - 3.2, HL 0.71 - 0.79, HW 0.53 - 0.60, CI 74 - 77, ML 0.29 - 0.31, MI 39 - 43, SL 0.42 - 0.46, SI 77 - 81, PW 0.32 - 0.37, AL 0.75 - 0.83 (5 measured). As holotype except that they showed variation in the strength of the development of the lamella on the propodeal declivity.

Holotype worker, Madagascar: 45 km. S Ambalavao, 22°13'S, 47°01'E, 785 m., 25.ix.1993, sifted litter (leaf mold rotten wood), rainforest #696 (35)-12 (*B.L. Fisher*) (MCZ).

Paratypes. 1 worker with same data as holotype; 4 workers with same data but coded (18)-13, (11)-15 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 45 km. S Ambalavao (*B.L. Fisher*); Res. Andohahela 420 m. (*B.L. Fisher*); 2.7 km. WNW 302° Ste Luce, 20 m. (*B.L. Fisher*).

Members of these series slightly extend the range shown by the type-series: HL 0.70 - 0.76, HW 0.52 - 0.57, CI 74 - 77, ML 0.29 - 0.31, MI 41 - 42, SL 0.40 - 0.44, SI 76 - 79 (3 measured).

*S. deverra* is distinguished from other species in the *chroa*-complex by having a lamellate upper scrobe margin, pronotal humerus with a flagellate hair, and remiform to broadly clavate hairs on petiole, postpetiole and first gastral tergite.

### *Strumigenys diota* Fisher sp. n.

(Fig. 400)

HOLOTYPE WORKER. TL 2.9, HL 0.67, HW 0.45, CI 67, ML 0.38, MI 57, SL 0.52, SI 115, PW 0.28, AL 0.76. Characters of *diota*-complex. Mandibles in full-face view with outer margins shallowly and evenly convex, width approximately constant from the level of the proximal preapical tooth to near the base. Upper scrobe margins evenly diverging posteriorly, shallowly convex, not bordered by a rim or flange, the eyes clearly visible in full-face view. Maximum diameter of eye about equal to or slightly greater than maximum width of scape, with 4 - 5 ommatidia in longest row. Scape long, slender and



subcylindrical, only very feebly curved near base; hairs on leading edge small and slender, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with short broad flattened hairs which appear scale-like to spatulate in full-face view. The upper scrobe margin fringed with a row of hairs which are the same as those on the dorsum and about equal in size to those on the leading edge of the scape. Cephalic dorsum with 6 standing remiform to clavate hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair absent; humeral angles rounded. Anterior margin of mesonotum with a pair of stout clavate hairs. Propodeum with a pair of narrow spatulate hairs immediately anterior of propodeal spines. Ground-pilosity of dorsal alitrunk of short curved broadly spatulate hairs which decrease in density posteriorly on the propodeum. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum slightly depressed below the anterior margin of propodeum. Anterior mesonotum with a narrow carina above the mesothoracic spiracle. Propodeal tooth broadly triangular and pointed apically; lamella on declivity narrow. Alitrunk dorsum and sides reticulate-punctate. Disc of postpetiole conspicuously broader than long, shiny with longitudinally carinate sculpture. Ventral spongiform tissue of petiole and postpetiole moderately developed. Petiole with a weakly developed lateral lobe. Lateral lobe of postpetiole, in dorsal view, only very slightly projecting beyond the lateral outline of the disc. Base of first gastral tergite with sharply defined costulae radiating on each side of a broad central clear area. Dorsal surfaces of petiole, postpetiole and gaster with standing remiform to broadly clavate hairs which are thickened apically. Colour dull yellowish brown.

PARATYPE WORKERS. TL 2.5, HL 0.57, HW 0.39, CI 68, ML 0.31, MI 55, SL 0.43, SI 111, PW 0.24, AL 0.62 (1 measured). As holotype.

Holotype worker, Madagascar: 6.5 km. SSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°30'E, 875 m., 19.x.1994, sifted litter (leaf mold rotten wood), rainforest #1070 (42)-20 (B.L. Fisher) (MCZ). Paratype. 1 worker with same data as holotype but coded (4)-9 (BMNH).

*S. diota* is distinguished from other Malagasy species of the *scotti*-group by having the pronotal humeral hair absent and the inner margin of mandible without a translucent lamina. The narrow and relatively long mandibles and long scapes also help identify this species.

### *Strumigenys diux* Fisher sp. n.

HOLOTYPE WORKER. TL 2.3, HL 0.57, HW 0.40, CI 69, ML 0.27, MI 48, SL 0.33, SI 82, PW 0.26, AL 0.60. Characters of *diux*-complex. Mandibles in full-face view with outer margins shallowly and evenly convex, width of mandible approximately constant from the level of the proximal preapical tooth to near the base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes clearly visible; apices of the upper scrobe margins confluent with the sides of the occipital lobes through an even curve, without an angle separating the two. Maximum diameter of eye slightly greater than maximum width of scape, with 5 - 6 ommatidia in longest row. Scape short and stout, shallowly and gently curved; hairs on leading edge narrow, slightly flattened or spoon-shaped apically. Ground-pilosity of cephalic dorsum sparse and inconspicuous narrowly spoon-shaped hairs, the upper scrobe margin without a fringe of hairs. Cephalic dorsum with 8 standing filiform hairs arranged in a transverse row of 4 close to the occipital margin, an erect pair close to highest point of vertex, and a laterodorsally projecting pair in apicoscrobial position. Pronotal humeral hair stiffly filiform; humeral angles rounded. Anterior margin of mesonotum with a pair of stiff filiform hairs. Propodeum with a pair of fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk without conspicuous ground-pilosity. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum only slightly depressed below the anterior margin of propodeum. Anterior

mesonotum without a conspicuous ridge or narrow carina above the mesothoracic spiracle. Propodeal tooth broadly triangular and pointed apically; without a lamella on declivity. Alitrunk dorsum, petiole, and postpetiole disc densely and shallowly reticulate-punctate. Side of alitrunk smooth with only peripheral punctation present. Spongiform appendages of petiole consisting of a narrow ventral strip and a narrow posterior collar. Postpetiole in profile with the lateral lobe much reduced, obviously smaller than the ventral spongiform lobe, and the latter smaller than the exposed area of the postpetiole disc in profile. Lateral lobe of postpetiole, in dorsal view, only very slightly projecting beyond the lateral outline of the disc. Base of first gastral tergite with sharply defined short costulae with a narrow central clear area. Dorsal surfaces of petiole, postpetiole and gaster with standing filiform hairs. Colour dull brownish yellow.

PARATYPE WORKERS. TL 2.3 - 2.4, HL 0.55 - 0.59, HW 0.38 - 0.41, CI 67 - 72, ML 0.27 - 0.29, MI 47 - 50, SL 0.33 - 0.34, SI 80 - 86, PW 0.25 - 0.27, AL 0.59 - 0.63 (4 measured). As holotype.

Holotype worker, Madagascar: 6.9 km. NE Ambanizana, 15°34'S, 50°00'E, 825 m., 2.xii.1993, sifted litter (leaf mold, rotten wood), rainforest, #976 (28)-15 (*B.L. Fisher*) (MCZ).

Paratypes. 5 workers and 2 queens (dealate) with same data as holotype but coded (34)-14, (43)-10, (48)-15, (48)-17, (49)-11 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Res. Anjanaharibe-Sud, 875 m. (*B.L. Fisher*); 6.3 km. S Ambanizana, Andranobe, 25 m. (*B.L. Fisher*); 5.3 km. SSE Ambanizana, Andranobe, 425 m. (*B.L. Fisher*); Fotodriana, Cap Masoala, 25 m. (*Alpert et al.*); 1 km. W Andampibe, Cap Masoala, 125 m. (*Alpert et al.*); 14 km. W Cap Est. Ambato, 100 m. (*G.D. Alpert*).

Measurements of this material extend the range shown by the type-series: ML 0.25 - 0.27, SL 0.29 - 0.33 (9 measured). This material differs slightly in the diagnostic characters of the type-material. In specimens from Cap Masoala and Ambato, the ventral spongiform lobe of the postpetiole is often larger than the exposed area of the postpetiole disc in profile.

*S. diux* and *doxa* comprise the *diux*-complex, characterised by the presence of stiff filiform humeral hairs and the presence of one or more erect hairs at the apex of the scrobe. *S. diux* is easily distinguished from *doxa* and other species in the *scotti*-group by the absence of a fringe of curved hairs along the upper scrobe margin and the presence of a single stiff erect apicoscrobial hair. In addition, the pronotum is without hairs except for the humeral pair.

### *Strumigenys doxa* Fisher sp. n.

(Fig. 401)

HOLOTYPE WORKER. TL 3.3, HL 0.83, HW 0.66, CI 80, ML 0.34, MI 41, SL 0.43, SI 66, PW 0.40, AL 0.92. Characters of *diux*-complex. Mandibles in full-face view with outer margins shallowly and evenly convex, the width gradually decreasing from near the base to the apicodorsal tooth. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible and the apices of the upper scrobe margins confluent with the sides of the occipital lobes through an even curve, without an angle separating the two. Maximum diameter of eye slightly greater than maximum width of scape, with 6 - 7 ommatidia in longest row. Scape short and stout, shallowly and gently curved; hairs on leading edge narrow, flattened or spoon-shaped apically. Cephalic dorsum densely clothed with curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margin fringed with hairs which are the same shape and size as those on the dorsum. Posterior third of cephalic dorsum with standing remiform hairs arranged in transverse rows; dorsolateral margin of occipital lobe with projecting hairs, the anteriormost in apicoscrobial position. Pronotal humeral hair stiffly filiform and thickened apically. Promesonotum with numerous standing stiff remiform hairs. Propodeum with a pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with ground-pilosity as on head, concentrated on anterior portion of pronotum. Dorsum of alitrunk in outline convex anteriorly and more or less flat

posteriorly; posterior portion of mesonotum only slightly depressed below the anterior margin of propodeum. Anterior mesonotum with a narrow carina above the mesothoracic spiracle. Propodeal tooth broadly triangular and pointed apically, declivity without a distinct lamella. Alitrunk dorsum, petiole, and postpetiole densely reticulate-punctate. Sides of pronotum with punctate sculpture dorsally, remainder smooth. Pleurae and sides of propodeum mostly smooth and shiny except for peripheral fine punctures. Petiole in profile with a straight ventral spongiform strip that is similar in width to antennal scape; ventral spongiform lobe of postpetiole slightly larger than the exposed area of the postpetiole disc in profile. Basigastral costulae short and widely spaced, but sharply defined. Dorsal surfaces of petiole, postpetiole and gaster with standing remiform hairs. Colour medium to dark brown.

Holotype worker, Madagascar: 11.0 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°27'E, 1565 m., 16.xi.1994, sifted litter (leaf mold rotten wood), montane rainforest #1232 (17)-6 (B.L. Fisher) (MCZ).

Paratype. 1 queen (dealate) with same data as holotype but 1550 m., 18.xi.1994, ex rotting tree stump, montane rainforest #1240-1 (SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Marojejy Mts, 1300 m. (*J.-M. Betsch*).

Measurements of this material extend the range shown by the type-series: HL 0.83, HW 0.63, CI 76, ML 0.35, MI 42, SL 0.47, SI 74.

*S. doxa* is easily distinguished from *diux*, the only other species in the complex, by having the pronotum with numerous standing remiform hairs in addition to those at the humeral angles. Also, the cephalic dorsolateral margin posteriorly has 2 or more stiff erect hairs that are longer than hairs on leading edge of scape, see also under *diux*.

### *Strumigenys epulo* Fisher sp. n.

(Fig. 402)

HOLOTYPE WORKER. TL 2.4, HL 0.55, HW 0.37, CI 67, ML 0.26, MI 48, SL 0.34, SI 93, PW 0.25, AL 0.63. Characters of *epulo*-complex. Mandibles in full-face view with outer margins shallowly and evenly convex, the width approximately constant from the level of the proximal preapical tooth to near the base. In full-face view, upper scrobe margin narrowly concave (pinched in) immediately behind frontal lobes. Behind this, upper scrobe margin divergent and shallowly convex, not bordered by a rim or flange except for a thin lamella immediately behind frontal lobes, the eyes clearly visible. Apices of the upper scrobe margins confluent with the sides of the occipital lobes through an even curve, without an angle separating the two. Maximum diameter of eye slightly larger than maximum width of scape, with 4 - 5 ommatidia in longest row. Scape narrow and subcylindrical, shallowly and gently curved; hairs on leading edge narrow, flattened or spoon-shaped apically. Cephalic dorsum clothed with inconspicuous, curved, narrow, filiform ground-pilosity, the upper scrobe margin fringed with hairs which are the same shape and size as those on the dorsum. Upper scrobe margin with two laterally projecting flagellate hairs, one just posterior to eye, the other apicoscrobial. Cephalic dorsum with 2 pairs of standing fine, flagellate hairs close to the occipital margin and a more anteriorly situated flagellate pair. A shorter filiform hair is located at the apex of the occipital lobe. Pronotal humeral hair long, flagellate. Mesonotum with two pairs of standing hairs, a flagellate pair on the anterior margin and a filiform pair immediately behind them that curve gently toward the midline. Dorsal alitrunk without ground-pilosity. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum only slightly depressed below the anterior margin of propodeum. Anterior mesonotum with a narrow flange above the mesothoracic spiracle. Propodeal tooth broadly triangular and directed posteriorly, without a distinct lamella on declivity. Dorsal surfaces of alitrunk, petiole node and postpetiole disc more or less smooth and shiny, declivity of promesonotum with fine punctures which appear almost effaced. Sides of alitrunk smooth.

In dorsal view petiole node longer than broad, dorsolateral margin of peduncle with a lamellate flange that extends to the petiolar disc. In profile the petiole with a well developed ventral spongiform curtain that is deeper than the peduncle of the petiole. In dorsal view disc of postpetiole completely surrounded by spongiform tissue. Basigastral costulae very short, more or less restricted to limbus. Dorsal surfaces of petiole, postpetiole and gaster with filiform and flagellate hairs. Colour brownish yellow.

PARATYPE WORKERS. TL 2.2 - 2.4, HL 0.51 - 0.56, HW 0.35 - 0.38, CI 67 - 71, ML 0.26 - 0.28, MI 46 - 53, SL 0.31 - 34, SI 85 - 90, PW 0.22 - 0.25, AL 0.57 - 0.64 (8 measured). As holotype.

Holotype worker, Madagascar: 6.3 km. S Ambanizana, Andranobe, 15°41'S, 49°57'E, 25 m., 14.xi.1993, sifted litter (leaf mold, rotten wood), rainforest, #886 (10)-4 (*B.L. Fisher*) (MCZ).

Paratypes. 8 workers and 1 queen (dealate) with same data as holotype but coded (12)-12, (41)-13 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 5.3 km. SSE Ambanizana, Andranobe, 425 m. (*B.L. Fisher*); 19 km. SSE Maroantsetra, 350 m. (*P.S. Ward*).

Measurements of this material extend the range shown by the type-series: HL 0.52 - 0.59, HW 0.35 - 0.39, CI 65 - 70, ML 0.26 - 0.32, MI 50 - 54, SL 0.33 - 0.36, SI 90 - 94 (6 measured). The material for 19 km. SSE Maroantsetra differs from the type-material by having additional pairs of short filiform hairs on the posterior half of the cephalic dorsum.

*S. epulo* is easily distinguished from other species in the *scotti*-group by the presence of flagellate hairs on the cephalic dorsum, pronotal humerus and anterior margin of mesonotum. The mostly smooth and shiny alitrunk dorsum, petiole and postpetiole also help distinguish this species.

#### *Strumigenys europs* Fisher sp. n.

HOLOTYPE WORKER. TL 3.5, HL 0.85, HW 0.59, CI 69, ML 0.45, MI 53, SL 0.57, SI 96, PW 0.36, AL 0.95. Characters of *scotti*-complex. Mandibles in full-face view with outer margins very shallowly and evenly convex, the width approximately constant from the level of the proximal preapical tooth to near the base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible, the apices of the upper scrobe margins confluent with the sides of the occipital lobes through an even curve, without an angle separating the two. Maximum diameter of eye slightly greater than maximum width of scape, with 5 - 6 ommatidia in longest row. Scape narrow and subcylindrical, shallowly and gently curved; hairs on leading edge narrow and decumbent, sharply bent at basal third and flattened or spoon-shaped apically. Cephalic dorsum densely clothed with rows of appressed, narrow, spatulate or spoon-shaped ground-pilosity, the upper scrobe margin fringed with hairs which are longer but similar in shape as those on the dorsum. Cephalic dorsum with 6 stout standing hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate; humeral angles rounded, lateral margin of posterior pronotum with a marginate projection. Mesonotum with a pairs of stout filiform hairs on the anterior margin. Propodeum with two pairs of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with sparse ground-pilosity that is similar in shape to pilosity on head. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly. Metanotal groove represented by a raised transverse ridge across the dorsum. Anterior mesonotum with a narrow flange above the mesothoracic spiracle; mesopleural hair organ set in a large circular notch. Propodeal tooth broadly triangular, spongiform, lamellate, pointed apically, subtended by a moderate lamella on declivity. Pronotal dorsum shiny, longitudinally rugulose with superficial punctures laterally. Mesonotal and propodeal dorsum densely reticulate-punctate. Sides of alitrunk smooth, reticulate-punctate peripherally and along vertical groove above mesopleural gland. Dorsum of petiole node smooth with faint punctate sculpture that appears almost

effaced; postpetiole disc smooth and shiny. Spongiform appendages of waist segments greatly expanded, petiole with a well developed ventral strip. Basigastral costulae sharply defined, radiating on each side of a central clear area. Dorsal surface of petiole without standing hairs. postpetiole disc with a pair of filiform hairs on posterior margin only. Dorsal gaster with standing filiform hairs. Colour light brown.

PARATYPE WORKERS. TL 3.4 - 3.6, HL 0.79 - 0.85, HW 0.53 - 0.56, CI 65 - 67, ML 0.42 - 0.45, MI 52 - 55, SL 0.53 - 0.58, SI 100 - 108, PW 0.34 - 0.36, AL 0.88 - 0.94 (3 measured). One specimen with a less developed propodeal lamella, otherwise as holotype.

Holotype worker, Madagascar: 38 km. S Ambalavao, Res. Andringitra, 22°12'S, 46°58'E, 1680 m., 23.x.1996, sifted litter (leaf mold, rotten wood), montane rainforest, #820 (29)-6 (*B.L. Fisher*) (MCZ). Paratypes. 3 workers with same data as holotype but coded (21)-4, (35)-4, (48)-5 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Massif de l'Itremo, 1630 m. (*J.-M. Betsch*); Res. Andringitra 1990 m. (*S. Razafimandimby*); Massif d'Andringitra, Anjavidilava, 2060 m. (*J.-M. Betsch*).

Measurements of this material extend the range shown by the type-series: HL 0.78 - 0.86, HW 0.52 - 0.57, CI 62 - 68, ML 0.40 - 0.45, MI 51 - 55, SL 0.51 - 0.57 (8 measured). One of the three specimens from Itremo differed from the type-material by having a pair of standing hairs on the petiolar disc.

*S. europs* is most similar to *finator* and both can be distinguished from other species in the *scotti*-complex by having the mesonotum with one pair of stiff hairs and dorsum of petiole more or less smooth and shiny. *S. europs* and *finator* differ as follows.

#### *S. europs*

- 1 Postpetiole disc with a pair of hairs on posterior margin only.
- 2 Dorsum of petiole usually without hairs.
- 3 In full-face view hairs on upper scrobe margin decumbent and sharply bent at basal third.
- 4 Propodeal lamella well developed, widest section usually distinctly greater in width than eye.
- 5 Head longer and broader, HL 0.78 - 0.86, HW 0.52 - 0.59.

#### *S. finator*

- 1 Postpetiole disc with three pairs of filiform hairs.
- 2 Dorsum of petiole always with a pair of hairs.
- 3 In full-face view hairs on upper scrobe margin subdecumbent to suberect, curved through entire length.
- 4 Propodeal lamella represented by an inconspicuous, very narrow lamellate ridge.
- 5 Head shorter and narrower, HL 0.57 - 0.64, HW 0.44 - 0.50.

### *Strumigenys finator* Fisher sp. n.

HOLOTYPE WORKER. TL 2.8, HL 0.64, HW 0.50, CI 77, ML 0.29, MI 45, SL 0.37, SI 75, PW 0.30, AL 0.72. Characters of *scotti*-complex. Mandibles in full-face view with outer margins very shallowly and evenly convex, the width approximately constant from the level of the proximal preapical tooth to near the base. Apicoventral tooth of fork of mandible with a denticle located on its ventral surface near the base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange except immediately behind the frontal lobes, the eyes visible, the apices of the upper scrobe margins confluent with the sides of the occipital lobes through an even curve, without an angle separating the two. Maximum diameter of eye slightly greater than maximum width of scape, with 4 - 5 ommatidia in longest row. Scape narrow and subcylindrical, shallowly and gently curved; hairs on leading edge narrow, subdecumbent to suberect, curved through entire length and thickened apically. Cephalic dorsum densely clothed with appressed, narrow filiform ground-pilosity, the upper scrobe margin fringed with hairs which are similar in shape and size to those on the leading edge of the scape. Cephalic dorsum with 6 stout standing narrowly clavate hairs arranged in a transverse row of 4 close

to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair long-flagellate; humeral angles rounded, lateral margin of posterior pronotum with a marginate projection. Mesonotum with a pairs of stout narrowly remiform hairs on the anterior margin. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with sparse ground-pilosity that is similar in shape to pilosity on head. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly, the metanotal groove weakly impressed. Anterior mesonotum with a narrow flange above the mesothoracic spiracle; mesopleural gland set in a large circular notch. Propodeal tooth small, triangular, pointed apically, and subtended by an inconspicuous, very narrow lamellate ridge. Pronotal dorsum shiny, superficially longitudinally striolate. Mesonotal dorsum with striolate and punctate sculpture that appears almost effaced. Propodeal dorsum smooth and shiny. Sides of alitrunk glassy smooth, punctate peripherally. Dorsum of petiole node and postpetiole disc smooth and shiny. Spongiform appendages of waist segments greatly expanded; in profile the petiole with a well developed ventral strip. Basigastral costulae sharply defined, radiating on each side of a central clear area. Dorsal surface of petiole with a pair of standing hairs. postpetiole disc with three pairs of filiform hairs. Dorsal gaster with standing filiform hairs. Colour light brown.

PARATYPE WORKERS. TL 2.5 - 2.7, HL 0.57 - 0.64, HW 0.44 - 0.46, CI 72 - 77, ML 0.28 - 0.30, MI 46 - 49, SL 0.36 - 0.37, SI 81 - 83, PW 0.26 - 0.27, AL 0.65 - 0.69 (2 measured). As holotype.

Holotype worker, Madagascar: 12.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°28'E, 1985 m., 25.xi.1994, sifted litter (leaf mold rotten wood), montane rainforest #1272 (23)-2 (*B.L. Fisher*) (MCZ).

Paratypes. 3 workers and 2 queens (dealate) with same data as holotype but coded (40)-2, (42)-2, (43)-2, (48)-2 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 20.4 km. 219° SW Antanambao, 1860 m. (*B.L. Fisher*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1280 m. (*B.L. Fisher*); 11.0 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1565 m. (*B.L. Fisher*).

Measurements of this material extend the range shown by the type-series: HL 0.51 - 0.58, HW 0.38 - 0.44, CI 74 - 76, ML 0.23 - 0.28, MI 46 - 49, SL 0.30 - 0.37, SI 80 - 84 (3 measured).

See notes under *europis*.

### *Strumigenys glycon* Fisher sp. n.

HOLOTYPE WORKER. TL 1.9, HL 0.45, HW 0.34, CI 75, ML 0.22, MI 48, SL 0.28, SI 83, PW 0.23, AL 0.48. Characters of *scotti*-complex. Mandibles in full-face view evenly bowed outwards, the width approximately constant from the level of the proximal preapical tooth to near the base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange except immediately behind the frontal lobes, the eyes visible, the apices of the upper scrobe margins confluent with the sides of the occipital lobes through an even curve, without an angle separating the two. Eye small, maximum diameter slightly less than maximum width of scape, with 3 - 4 ommatidia in longest row. Scape narrow and subcylindrical, curved near the base, leading edge slightly expanded behind curve; hairs on leading edge filiform to narrowly spatulate. Cephalic dorsum clothed with inconspicuous narrow filiform ground-pilosity, the upper scrobe margin fringed with hairs which are similar in shape and size as those on the leading edge of the scape. Cephalic dorsum with 6 standing narrow filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair fine and flagellate; central pronotum with a pair of fine, short hairs that are curved towards the midline; humeral angles rounded, lateral margin of posterior pronotum bluntly marginate. Anterior margin of mesonotum with a pair of standing filiform hairs that are thickened apically, lateral margins of mesonotum posterior of the standing hairs with

shorter decumbent hairs that curve toward the midline. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with sparse inconspicuous fine appressed ground-pilosity. Dorsum of alitrunk in outline convex anteriorly and posteriorly gently sloping to the declivity. Anterior mesonotum with a thin carina above the mesothoracic spiracle; mesopleural gland set in a small circular notch. Propodeal tooth small, triangular, lamellate, pointed apically, and subtended by an inconspicuous very narrow lamella. Pronotal dorsum and sides longitudinally striolate with a longitudinal carina along dorsal midline. Mesonotal dorsum rugose with punctulate sculpture. Propodeal dorsum shiny and superficially areolate. Pleurae and sides of propodeum glassy smooth except for punctures along the vertical groove above mesopleural gland. Postpetiole disc smooth and shiny. Spongiform appendages of pedicel segments greatly expanded; in profile ventral spongiform curtain of petiolar peduncle well developed, its deepest point at least equal to height of base of peduncle. Basigastral costulae sharply defined, radiating on each side of a broad central clear area. Dorsal surface of petiole, postpetiole and gaster with standing filiform hairs. Colour light brown.

PARATYPE WORKERS. TL 1.9 - 2.0, HL 0.42 - 0.46, HW 0.34 - 0.35, CI 74 - 80, ML 0.22 - 0.23, MI 48 - 55, SL 0.27 - 0.29, SI 77 - 83, PW 0.21 - 0.22, AL 0.47 - 0.49. (4 measured). As holotype.

Holotype worker, Madagascar: 6.9 km. NE Ambanizana, 15°34'S, 50°00'E, 825 m., 2.xii.1993, sifted litter (leaf mold, rotten wood), rainforest, #976 (48)-16 (*B.L. Fisher*) (MCZ). Paratypes. 4 workers and 1 ergatogyne with same data as holotype but coded (15)-12, (28)-14, (45)-14, (46)-15, (49)-13 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*); R.S. Manongarivo, 17.3 km. 218° SW Antanambao, 1580 m. (*B.L. Fisher*).

Measurements of this material extend the range shown by the type-series: HL 0.45 - 0.48, HW 0.35 - 0.38, CI 77 - 82, ML 0.24, MI 49 - 53, SL 0.27 - 0.33, SI 78 - 86 (4 measured). Specimens from R.S. Manongarivo lack a pair of fine, short hairs that are curved towards the midline on the central pronotum.

*S. glycon* is distinguished from other species in the *scotti*-complex by having the mesonotum with only a single pair of erect hairs located at anterior margin, dorsum of petiole node reticulate-punctate, spongiform curtain of petiolar peduncle well developed, and cephalic dorsum with inconspicuous narrow filiform ground-pilosity.

*S. glycon* is part of closely related group of the eight smallest species in the *scotti*-complex with the dorsum of petiole node reticulate-punctate (all or at least some specimens of each species with HL > 0.54). The following matrix summarizes the key characters that help separate the members of this group. See discussion under *lexex* for characters that distinguish it from *livens*.

**Character 1:** number of pairs of hairs on mesonotum.

**Character 2:** number of pairs of hairs on pronotum, excluding the flagellate humeral hairs.

**Character 3:** Depth of spongiform curtain on ventral surface of petiolar peduncle.

	1	Character 2	3
<i>glycon</i>	1	0 or 1	deep
<i>inatos</i>	1	0	narrow
<i>livens</i>	2	0	narrow
<i>odacon</i>	2	0	deep
<i>lura</i>	2 or 3	2	narrow
<i>lexex</i>	2 or 3	0	narrow
<i>lucomo</i>	3	2	narrow
<i>origo</i>	3	1	deep

*Strumigenys inatos* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.3, HL 0.55, HW 0.43, CI 79, ML 0.28, MI 52, SL 0.37, SI 85, PW 0.26, AL 0.60. Characters of *scotti*-complex. Mandibles in full-face view with outer margins very shallowly and evenly convex, the width of the basal half approximately constant except near the base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible, the apices of the upper scrobe margins confluent with the sides of the occipital lobes through an even curve, without an angle separating the two. Maximum diameter of eye slightly greater than maximum width of scape, 4 - 5 ommatidia in longest row. Scape narrow and subcylindrical, curved near the base; hairs on leading edge slender, slightly flattened or narrowly spatulate apically. Cephalic dorsum clothed with curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margin fringed with hairs which are similar in shape and size as those on the dorsum. Cephalic dorsum with 6 standing narrow filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. In addition a short erect apicoscrobial hair is present in the holotype and in some of the paratypes. Pronotal humeral hair flagellate. Anterior margin of mesonotum with a pair of standing remiform to clavate hairs. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with sparse ground-pilosity that is similar in size and shape as on cephalic dorsum. Dorsum of alitrunk in outline convex anteriorly and posteriorly gently sloping to the declivity. Metanotal groove shallowly impressed. Anterior mesonotum with a thin carina above the mesothoracic spiracle; mesopleural gland set in a small circular notch. Propodeal tooth triangular, pointed apically and subtended by an inconspicuous, very narrow lamella. Pronotal dorsum longitudinally feebly striolate-rugulose and punctate with a longitudinal carina along dorsal midline. Remainder of dorsal alitrunk reticulate-punctate. Sides of pronotum longitudinally feebly striolate. Pleurae and sides of propodeum smooth, punctate peripherally. Postpetiole disc longitudinally striolate and feebly punctate on lateral margins. In profile ventral spongiform tissue of petiolar peduncle an irregular, narrow strip along the base of the peduncle, at deepest less than maximum width of eye. Ventral spongiform tissue of postpetiole moderately developed. Basigastral costulae sharply defined, radiating on each side of a broad central clear area. Dorsal surface of petiole, postpetiole and gaster with standing filiform to remiform hairs. Colour light brown.

**PARATYPE WORKERS.** TL 2.2 - 2.5, HL 0.53 - 0.62, HW 0.40 - 0.45, CI 70 - 78, ML 0.27 - 0.30, MI 44 - 51, SL 0.34 - 0.38, SI 78 - 89, PW 0.26 - 0.29, AL 0.58 - 0.64 (8 measured). Most of the paratype material did not have a standing hair located near the apex of the upper scrobe margin, otherwise the paratype material matched the holotype.

Holotype worker, Madagascar: 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 14°45'S, 49°28'E, 1200 m., 9.xi.1994, sifted litter (leaf mold rotten wood), montane rainforest #1192 (36)-8 (*B.L. Fisher*) (MCZ). Paratypes. 8 workers and 1 queen (dealate) with same data as holotype but coded (2)-7, (10)-10, (13)-6, (29)-6, (9)-9, (25)-5, (40)-6, (41)-6 (BMNH, SAM).

**NON-PARATYPIC MATERIAL EXAMINED.** Madagascar: Mont. d'Ambre 1000-1100 m. (*W.L. & D.E. Brown*); R.S. Manongarivo, 12.8 km. 228° SW Antanambao, 780 m. (*B.L. Fisher*); R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*); R.S. Manongarivo, 17.3 km. 218° SW Antanambao, 1580 m. (*B.L. Fisher*); R.S. Manongarivo, 20.4 km. 219° SW Antanambao, 1860 m. (*B.L. Fisher*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud 1200 m. (*B.L. Fisher*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud 1280 m. (*B.L. Fisher*); 11.0 km. WSW Befingotra, Res. Anjanaharibe-Sud 1565 m. (*B.L. Fisher*); Bemanevika (*A. Peyrieras*); 6.9 km. NE Ambanizana, 825 m. (*B.L. Fisher*); 6.3 km. S Ambanizana, Andranobe, 25 m. (*B.L. Fisher*); 5.3 km. SSE Ambanizana, Andranobe, 425 m. (*B.L. Fisher*); 1 km. W Andampibe, Cap Masoala 125 m. (*Alpert et al.*); 25 km. NNE Ankazobe 1500 m. (*P.S. Ward*); Perinet & vic. (*W.L. Brown*); 8 km. E Ivohibe, R.S. Ivohibe 1200 m. (*S. Razafimandimby*); 6.5 km. ESE Ivohibe, R.S. Ivohibe, 1575 m. (*S. Razafimandimby*); 8.0 km. NE Ivohibe, 1200 m. (*S. Razafimandimby*); 40 km. S Ambalavao, Res. Andringitra, 1275 m. (*B.L. Fisher*); Vohibasia, 780 m. (*S. Razafimandimby*).

Measurements of this material extend the range shown by the type-series: HL 0.55 - 0.70, HW 0.40 - 0.53, ML 0.27 - 0.35, MI 48 - 52, SL 0.36 - 0.45 SI 79 - 95 (25 measured). As with many of the paratype specimens, these samples lacked a stiff erect apicoscrobial hair. These samples differ in two aspects from the type material. The specimens from Andranobe and Cap Masoala have erect hairs on mesonotum, petiole, postpetiole and gaster that are distinctly remiform to clavate. In contrast, type-material and other non-paratypic workers had filiform to narrowly clavate hairs. Workers and queens from Ivohibe, were slightly



larger than other workers and queens from other localities examined. Perhaps new collections will eventually demonstrate that this widespread species includes distinct localized species, but for the present, I consider it best to regard them as a single species.

Of the *scotti*-complex species having the dorsum of petiole node reticulate-punctate *inatos* is distinguished by having:

- 1 Mesonotum with only a single pair of erect hairs, located at anterior margin.
- 2 Ventral spongiform tissue of petiolar peduncle in profile an irregular, narrow strip along the base of the peduncle, its deepest point less than maximum width of eye.
- 3 Postpetiole disc not entirely smooth and shiny; disc longitudinally striolate and usually feebly punctate on lateral margins.
- 4 Anterior half of fist gastral sternite without hairs.

See under *glycon* for further discussion.

### *Strumigenys ipsea* Fisher sp. n.

**HOLOTYPE WORKER.** TL 3.4, HL 0.80, HW 0.52, CI 65, ML 0.44, MI 55, SL 0.58, SI 111, PW 0.31, AL 0.86. Characters of *chroa*-complex. Mandibles almost straight and at full closure parallel except at base; proximal preapical tooth slightly longer than the distal. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible. Maximum diameter of eye distinctly greater than maximum width of scape, with 5 - 6 ommatidia in longest row. Scape long and slender, subcylindrical and only very feebly curved near the base; hairs on leading edge small and slender, slightly flattened or spoon-shaped apically. Cephalic dorsum clothed with curved narrow spatulate to spoon-shaped ground-pilosity, concentrated on anterior half of head; the upper scrobe margins fringed with a dense row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 6 simple standing hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate. Mesonotum with a single pair of standing hairs. Propodeum with one pair of short, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk as on head but the hairs smaller and sparser. Promesonotum convex; posterior portion of mesonotum shallowly depressed behind the level of the standing hairs. Anterior mesonotum with a narrow carina above the mesothoracic spiracle. Mesopleural gland set in a broad concave impression extending along half of the anterior margin of the katapisternum; in profile, maximum width of concave impression approximately equal to width of fore coxa. Propodeal tooth triangular, lamellate, pointed apically; lamella absent from declivity. Dorsal alitrunk reticulate-punctate. Sides of alitrunk superficially punctulate peripherally, the pleurae mostly smooth. Petiole node at least as long as broad, often longer than broad. Postpetiole disc mostly smooth, lateral margins longitudinally striolate and feebly punctate. Spongiform appendages of petiole nearly absent, with only a very narrow superficial ventral strip. Postpetiole with small ventral spongiform lobes. Basigastral costulae sparse and short. Dorsal surfaces of petiole, postpetiole and gaster with standing hairs which are simple or very slightly thickened apically. Colour yellowish brown to medium brown.

**PARATYPE WORKER** TL 3.4 - 3.5, HL 0.79 - 0.83, HW 0.54 - 0.57, CI 66 - 72, ML 0.42 - 0.43, MI 52 - 54, SL 0.57 - 0.62, SI 99 - 112, PW 0.34 - 0.37, AL 0.88 - 0.93 (5 measured). As holotype.

Holotype worker, **Madagascar**: Prov. Diego Suarez, Marojejy Mts, 29.xi.1972, 2060 m., dense forest #4052 (*J.-M. Betsch*) (MCZ).

Paratypes. 5 workers with same data as holotype (BMNH, SAM).

*S. ipsea* is the only member of the *chroa*-complex that lacks a mandibular lamella, but is still easily recognized as belonging to this complex by the more or less straight mandibles.

*S. ipsea* is distinguished from other species in the *chroa*-complex by having the mesopleural gland set in a broad concave impression that extends along half of the anterior margin of the katapisternum and its large size, HL 0.79 - 0.83, HW 0.54 - 0.57. In addition, the following characters help identify this species: pronotal humeral hair flagellate or looped; mesonotum with only a single pair of erect hairs; spongiform appendages of petiole nearly absent.

*Strumigenys langrandi* Fisher sp. n.

HOLOTYPE WORKER. TL 2.4, HL 0.58, HW 0.44, CI 76, ML 0.27, MI 47, SL 0.33, SI 76, PW 0.29, AL 0.59. Characters of *scotti*-complex. Mandibles in full-face view short, with outer margins shallowly and evenly convex and sharply narrowed at base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible. Maximum diameter of eye slightly greater than maximum width of scape, with 4 - 5 ommatidia in longest row. Scape subcylindrical, curved and narrowed near base; hairs on leading edge slender filiform to narrowly spatulate. Cephalic dorsum densely clothed with erect to suberect filiform ground-pilosity. Upper scrobe margins fringed with spatulate hairs; in full-face view hairs on upper scrobe margin decumbent and sharply bent at basal third, not projecting well beyond the scrobe margin. Cephalic dorsum with 6 standing filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate. Mesonotum with two pairs of standing filiform to narrowly remiform hairs: a pair on anterior margin, and a second pair situated on central lateral margin. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity on dorsal alitrunk inconspicuous and more or less absent, consisting of short suberect to decumbent fine filiform hairs. Dorsum of alitrunk in outline convex anteriorly and more or less flat to shallowly convex posteriorly. Metanotal groove without a conspicuous impression. Anterior mesonotum with a narrow carina above the mesothoracic spiracle; mesopleural gland set in a conspicuous circular notch. Propodeal tooth triangular, lamellate, pointed apically, and subtended by a narrow lamella. Pronotal dorsum longitudinally striolate; mesonotal and propodeal dorsa reticulate-punctate. Sides of pronotum superficially longitudinally striolate. Pleurae and side of propodeum glassy smooth and peripherally punctulate. Postpetiole disc more or less smooth. In profile ventral spongiform tissue of petiolar peduncle a well developed curtain that is continuous along the base of the peduncle. Ventral spongiform tissue of postpetiole well developed. Basigastral costulae well developed and sharply defined, radiating on each side of a broad central clear area. Dorsal surface of petiole, postpetiole, and gaster with standing filiform hairs which are slightly thickened apically. Anterior half of first gastral sternite without erect hairs. Colour light brown.

PARATYPE WORKER TL 2.4 - 2.6, HL 0.56 - 0.59, HW 0.44 - 0.45, CI 76 - 80, ML 0.27 - 0.28, MI 46 - 49, SL 0.34 - 0.35, SI 77 - 78, PW 0.28 - 0.30, AL 0.60 - 0.64 (3 measured). One paratype without proximal preapical tooth on left mandible, otherwise as holotype.

Holotype worker, Madagascar: Stn Forestière Manjakatempo, 19°21'S, 47°10'E, 1600 m., 20.ii.1993, sifted litter (leaf mold, rotten wood), montane rainforest, #11971-11 (*P.S. Ward*) (MCZ). Paratypes. 3 worker and 1 queen (alate) with same data as holotype (BMNH, SAM).

*S. langrandi*, *odacon* and *ravola* are distinguished from other species in *scotti*-complex by having mesonotum with two pairs of erect hairs, and ventral spongiform tissue of petiolar peduncle a well developed curtain that is continuous along the base of the peduncle. *S. langrandi* is separated from the other two by the absence of short hairs on the anterior half of first gastral sternite. *S. ravola* is distinguished by the presence of dense reticulate-punctate sculpture on pronotum, while in *odacon* and *ravola*, the pronotal dorsum is longitudinally striolate on a smooth surface or with superficial punctulate sculpture.

*Strumigenys lexex* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.1, HL 0.47, HW 0.34, CI 73, ML 0.25, MI 53, SL 0.31, SI 89, PW 0.24, AL 0.51. Characters of *scotti*-complex. Mandibles short and in full-face view bowed outwards, outer margins evenly convex and width greatest at midlength. Upper scrobe margin shallowly concave immediately behind the frontal lobe; posteriorly evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible. Maximum diameter of eye approximately equal to maximum width of scape, with 3 - 4 ommatidia in longest row. Scape subcylindrical, curved and narrowed near the base; hairs on leading edge appressed, fine filiform. Cephalic dorsum densely clothed with curved narrow filiform ground-pilosity that is longer and more conspicuous than hairs on leading edge of scape. Upper scrobe margin fringed with hairs which are similar in shape and size as those on the dorsum. Cephalic dorsum with 6 standing narrow filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate. Mesonotum with a pair of standing narrow remiform hairs on anterior margin and a shorter more posteriorly situated pair of erect filiform hairs (some paratypes with 2 posterior pairs). Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal promesonotum with ground-pilosity that is similar in size and shape as on cephalic dorsum. Dorsum of alitrunk in outline convex anteriorly and posteriorly gently sloping to the declivity. Metanotal groove shallowly impressed. Anterior mesonotum with a thin carina above the mesothoracic spiracle; mesopleural gland set in a small circular notch. Propodeal tooth triangular, pointed apically and subtended by an inconspicuous, very narrow lamella. Promesonotal dorsum rugulose to reticulate-punctate. Propodeal dorsum superficially areolate. Sides of pronotum punctuate to faintly punctulate. Pleurae and sides of propodeum glassy smooth, punctate peripherally. Postpetiole disc with faint fine punctulate sculpture. In profile ventral spongiform tissue of petiolar peduncle an irregular, narrow strip along base of the peduncle, its deepest point less than maximum width of eye. Ventral spongiform tissue of postpetiole moderately developed. Basigastral costulae long and sharply defined, radiating on each side of a broad central clear area. Dorsal surface of petiole, postpetiole and gaster with numerous standing filiform hairs which are slightly thickened apically. Lateral margins of first gastral tergite with appressed fine hairs. Colour light brown.

**PARATYPE WORKERS.** TL 1.9 - 2.1, HL 0.44 - 0.48, HW 0.34 - 0.36, CI 73 - 81, ML 0.25 - 0.27, MI 53 - 58, SL 0.29 - 0.31, SI 81 - 90, PW 0.22 - 0.25, AL 0.48 - 0.51 (7 measured). As holotype.

Holotype worker, Madagascar: 6.9 km. NE Ambanizana, 15°34'S, 50°00'E, 825 m., 2.xii.1993, sifted litter (leaf mold, rotten wood), rainforest, #976 (15)-11 (*B.L. Fisher*) (MCZ).

Paratypes. 1 worker with same data as holotype; 6 workers with same data as holotype but coded (10)-9, (21)-14, (25)-12, (31)-12 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Beforona 500 m. (*A. Peyrieras*).

Measurements of the non-paratypic specimen slightly extend the range of the types-series, HW 0.33, CI 72, but otherwise match the types in all diagnostic characters.

*S. lexex* and *livens* are distinguished from other members of the *scotti*-complex by having: pronotum without erect hairs except for flagellate humeral hairs, mesonotum with 2 or 3 pairs of erect hairs, and the ventral spongiform tissue of petiolar peduncle in profile an irregular, narrow strip along the base of the peduncle.

*S. lexex* is distinguished from *livens* and from other members of the *scotti*-complex by the presence of appressed fine hairs on the lateral margins of first gastral tergite. In addition, the postpetiole has numerous hairs of variable length in *lexex* while *livens* has three pairs of erects hairs of similar length. See also under *glycon* for further discussion.

*Strumigenys livens* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.4, HL 0.57, HW 0.45, CI 79, ML 0.31, MI 54, SL 0.37, SI 83, PW 0.27, AL 0.60. Characters of *scotti*-complex. Mandibles in full-face view with outer margins very shallowly and evenly convex, width approximately constant from the level of the proximal preapical tooth to near the base. Upper scrobe margin shallowly concave immediately behind the frontal lobe, posteriorly evenly and shallowly convex in full-face view, not bordered by a rim or flange except immediately behind the frontal lobes, the eyes visible. Maximum diameter of eye approximately equal to or slightly greater than maximum width of scape, with 5 - 6 ommatidia in longest row. Scape subcylindrical, curved and narrowed near the base; hairs on leading edge of scape slender, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with short, slender filiform ground-pilosity. The upper scrobe margin fringed with hairs which are more sharply curved but otherwise similar in shape and size as those on the leading edge of the scape. Cephalic dorsum with 6 standing filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate; humeral angles bluntly marginate. Mesonotum with a pair of standing filiform to narrowly remiform hairs on anterior margin, a shorter more posteriorly situated pair of erect filiform hairs, and with an even shorter pair of erect fine hairs on posterior margin. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with inconspicuous, sparse, appressed fine ground-pilosity. Dorsum of alitrunk in outline convex anteriorly and posteriorly gently sloping to the declivity. Metanotal groove shallowly impressed. Anterior mesonotum with a thin carina above a narrow mesothoracic spiracle; mesopleural gland set in a small circular notch. Propodeal tooth triangular, pointed apically, and subtended by a very narrow lamella. Pronotal dorsum longitudinally rugulose-striolate; mesonotal and propodeal dorsa reticulate-punctate. Sides of alitrunk glassy smooth. Postpetiole disc more or less smooth, faintly longitudinally striolate. In profile ventral spongiform tissue of petiolar peduncle a narrow irregular strip along the base of the peduncle, usually widest in the posterior third, the deepest point in the anterior two-thirds less than or approximately equal to the maximum width of eye. Ventral spongiform tissue of postpetiole moderately developed. Basigastral costulae short and sharply defined, radiating on each side of a broad central clear area. Petiolar disc with two pairs of filiform hairs, postpetiole with three pairs of erect hairs of similar length, dorsal surface of gaster with standing filiform hairs which are slightly thickened apically. Colour light brown.

**PARATYPE WORKERS.** TL 2.2 - 2.6, HL 0.51 - 0.60, HW 0.42 - 0.47, CI 77 - 82, ML 0.28 - 0.33, MI 53 - 56, SL 0.35 - 0.40, SI 82 - 86, PW 0.23 - 0.30, AL 0.56 - 0.65 (6 measured). As holotype.

Holotype worker, Madagascar: 40 km. S Ambalavao, Res. Andringitra, 22°13'S, 46°58'E, 1275 m., 15.x.1993, sifted litter (leaf mold rotten wood), montane rainforest #793 (4)-9 (*B.L. Fisher*) (MCZ).

Paratypes. 7 workers and 2 queens (dealate) with same data as holotype but coded (7)-7, (8)-10, (9)-10, (10)-11, (20)-9, (34)-9 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: 40 km. S Ambalavao, Res. Andringitra 1275 m. (*B.L. Fisher*); 8.0 km. NE Ivohibe, 1200 m. (*S. Razafimandimby*); 6.5 km. ESE Ivohibe, R.S. Ivohibe, 1575 m. (*S. Razafimandimby*).

*S. livens* is closely related to *lexis*; see under the latter for discussion of distinguishing characters.

*Strumigenys luomo* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.3, HL 0.52, HW 0.43, CI 83, ML 0.22, MI 42, SL 0.29, SI 67, PW 0.27, AL 0.56. Characters of *scotti*-complex. Mandibles in full-face view short, outer margins shallowly and evenly convex, sharply narrowed at base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the

eyes visible. Maximum diameter of eye approximately equal to maximum width of scape, with 3 - 4 ommatidia in longest row. Scape subcylindrical, curved and narrowed near base; hairs on leading edge slender, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with short, slender filiform ground-pilosity which are thickened apically. The upper scrobe margin fringed with sharply curved hairs which are flattened or spoon-shaped apically and are similar in size to those on the leading edge of the scape. Cephalic dorsum with 6 standing filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate, dorsum also with one or more pairs of short suberect or erect hairs. Mesonotum with three pairs of hairs: a pair of standing filiform to narrowly remiform hairs on anterior margin, a shorter more posteriorly situated pair of erect filiform hairs, and an even shorter pair of erect fine hairs on posterior margin. Hairs on promesonotal dorsum appear easily abraded and are broken or missing in many of the paratypes. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity as on head but the hairs are sparser. Dorsum of alitrunk in outline convex anteriorly and posteriorly shallowly convex and gently sloping to the declivity. Metanotal groove shallowly impressed. Anterior mesonotum without a conspicuous carina above the mesothoracic spiracle; mesopleural gland set in a small circular notch. Propodeal tooth triangular, lamellate, pointed apically, and subtended by a narrow lamella that is continuous down the declivity. Pronotal dorsum and sides longitudinally rugulose-striolate; mesonotal and propodeal dorsa reticulate-punctate. Sides of pleurae and propodeum smooth and peripherally punctulate. Postpetiole disc more or less smooth, faintly longitudinally striolate laterally. In profile ventral spongiform tissue of petiolar peduncle a narrow irregular strip along the base of the peduncle and with a ventrally directed narrow triangular spiniform tooth at anterior end, the deepest point of the curtain (excluding tooth) less than the maximum width of eye. Ventral spongiform tissue of postpetiole moderately developed. Basigastral costulae well developed and sharply defined, radiating on each side of a central area that includes shorter less developed costulae. Dorsal surface of petiole, postpetiole, and gaster with standing filiform hairs which are slightly thickened apically. Colour light brown.

PARATYPE WORKERS. TL 2.0 - 2.3, HL 0.49 - 0.52, HW 0.38 - 0.43, CI 75 - 85, ML 0.22 - 0.23, MI 43 - 45, SL 0.27 - 0.29, SI 66 - 75, PW 0.24 - 0.29, AL 0.50 - 0.58 (8 measured). As holotype.

Holotype worker, Madagascar: Prov. Toliara, southern Isoky-Vohimena Forest, 59 km. NE Sakaraha, 22°41'S, 44°50'E, 730 m., 21.i.1996, sifted litter (leaf mold, rotten wood) tropical dry forest #1312 (50)-1 (*S. Razafimandimby & B.L. Fisher*) (MCZ).

Paratypes. 17 workers and 1 queen (dealate) with same data as holotype but coded (1)-5, (2)-2, (3)-3, (4)-4, (5)-4, (6)-5, (18)-4, (22)-2, (24)-3, (26)-2, (29)-2, (35)-4, (36)-3, (40)-1, (48)-2 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: Res. Ankarana, 150 m. (*P.S. Ward*); Nosy Be, Lokobe Forest, 500 m. (*Alpert et al.*); R.S. Manongarivo, 10.8 km. 229° SW Antanambao, 400 m. (*B.L. Fisher*); Cause de Kelifely (*A. Peyrieras*); 48 km. ENE Morondava, 30 m. (*D.M. Olson*); southern Isoky-Vohimena Forest, 730 m. (*S. Razafimandimby*).

Measurements of these specimens extend the range shown by the types-series: HL 0.46 - 0.49, HW 0.37 - 0.40, ML 0.21 - 0.24, MI 45 - 49, SL 0.26 - 0.31, SI 68 - 82 (7 measured). Specimens examined from localities other than Isoky-Vohimena lack the central short costulae at the base of the first gastral tergite and have a central clear area. In addition, specimens from Ankarana and Lokobe differ in having slightly thinner mandibles in profile and having only 2 pairs of hairs on the mesonotum but otherwise are similar to the type material. Their placement in *lucomo* is tentative and must be reassessed when additional collections from the west of Madagascar are made available.

*S. lucomo* and *lura* form a pair of closely related species within the *scotti*-complex. They both have the dorsum of pronotum with one or more pairs of erect hairs in addition to a flagellate pair at humeral angles, mesonotum with 2 or 3 pairs of erect hairs, and the ventral spongiform tissue of petiolar peduncle in profile an irregular, narrow strip along the base of the peduncle.

*S. lucomo* can be distinguished from *lura* by the presence of a ventrally directed triangular tooth at the anterior end of the ventral spongiform lamella of petiolar peduncle

when viewed in profile. In profile anterior end of ventral spongiform lamella of petiolar peduncle of *lura* is at most small and rounded. In addition, the lamella on the propodeal declivity of *lucom* is narrow but conspicuous and continuous down the declivity while in *lura* the lamella is inconspicuous. See also under *glycon*.

*Strumigenys lura* Fisher sp. n.

**HOLOTYPE WORKER.** TL 1.8, HL 0.44, HW 0.33, CI 76, ML 0.22, MI 50, SL 0.27, SI 82, PW 0.22, AL 0.47. Characters of *scotti*-complex. Mandibles in full-face view short, outer margins shallowly and evenly convex, sharply narrowed at base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible. Maximum diameter of eye approximately equal to maximum width of scape, with 4 - 5 ommatidia in longest row. Scape subcylindrical, curved and narrowed near base; hairs on leading edge slender, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with short, slender filiform ground-pilosity which is thickened apically. The upper scrobe margin fringed with sharply curved hairs which are flattened or spoon-shaped apically and are similar in size to those on the leading edge of the scape. Cephalic dorsum with 6 standing filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate and dorsum with usually two pairs of short suberect or erect hairs. Mesonotum with three pairs of hairs: a pair of standing filiform to narrowly remiform hairs on anterior margin, a shorter more posteriorly situated pair of erect filiform hairs, and an even shorter pair of erect fine hairs on posterior margin (pair on posterior margin absent in some paratypes). Hairs on promesonotal dorsum appear easily abraded and are broken or missing in many of the paratypes. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity as on head but sparser. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly. Anterior mesonotum without a conspicuous carina above the mesothoracic spiracle; mesopleural gland set in a small circular notch. Propodeal tooth triangular, lamellate, pointed apically, and subtended by a very narrow lamella that is continuous down the declivity. Pronotal dorsum and sides longitudinally striolate with superficial punctulate sculpture; mesonotal and propodeal dorsa reticulate-punctate. Pleurae and side of propodeum smooth and peripherally punctulate. Anterior face of petiole with narrow lamellate, anteriorly projecting ridge at lateral margins. Postpetiole disc more or less smooth. In profile ventral spongiform tissue of petiolar peduncle a narrow irregular strip along the base of the peduncle, its deepest point approximately equal to or less than maximum diameter of eye. Ventral spongiform tissue of postpetiole moderately developed. Basigastral costulae well developed and sharply defined, radiating on each side of a central clear area. Dorsal surface of petiole, postpetiole, and gaster with standing filiform hairs which are slightly thickened apically. Colour light brown.

**PARATYPE WORKERS.** TL 1.8 - 1.9, HL 0.43 - 0.45, HW 0.33 - 0.35, CI 75 - 79, ML 0.21 - 0.24, MI 48 - 53, SL 0.26 - 0.27, SI 75 - 80, PW 0.21 - 0.22, AL 0.45 - 0.50 (7 measured). As holotype.

Holotype worker, Madagascar: 5.3 km. SSE Ambanizana, Andranobe, 15°40'S, 49°58'E, 425 m., 21.xi.1993, sifted litter (leaf mold, rotten wood), rainforest, #926 (27)-11 (*B.L. Fisher*) (MCZ).

Paratypes. 8 workers and 1 queen (dealate) with same data as holotype but coded: (5)-5, (23)-12, (28)-12, (35)-11, (40)-17 (BMNH, SAM).

**NON-PARATYPIC MATERIAL EXAMINED.** Madagascar: Marojejy, 375 m. (*G.D. Alpert*); 6.5 km. SSW Befingotra, Res. Anjanaharibe-Sud, 875 m. (*B.L. Fisher*); 9.2 km. WSW Befingotra, Res. Anjanaharibe-Sud, 1200 m. (*B.L. Fisher*); 19 km. ESE Maroantsetra, 350 m. (*P.S. Wård*); 1 km. W Andampibe, Cap Masoala, 125 m. (*Alpert et al.*); Fotodriana, Cap Masoala, 25 m. (*Alpert et al.*); 14 km. W Cap Est, Ambato, 100 m. (*G.D. Alpert*); 6.3 km. S Ambanizana, 25 m. (*B.L. Fisher*); Nosy Mangabe, 300 m. (*P.S. Wård*); S.F. Tampolo, 10 m. (*B.L. Fisher*); Vanjamanitra, 8 km. SE Anjozorobe, 1380 m. (*J.-M. Betsch*); Ankarongambe, 1050 m. (*J.-M. Betsch*); Andranobi, Route d'Andriamena, ca 25 km. W Morarano Sud, ca 1250 m. (*A. Peyrieras*); F.C. Sandrananitra, 450 m. (*H.J. Ratsirarson*); Ambohitantely, 1550 m. (*J.-M. Betsch*); F.C. Didy, 960 m. (*H.J. Ratsirarson*); F.C. Andrianantely, 530 m. (*H.J. Ratsirarson*); P.N. Mantadia, 895 m. (*H.J. Ratsirarson*); Rte d'Anosibe, Km. 33 (*A. Peyrieras*); 6 km. ESE Andasibe, 900 m. (*P.S. Wård*), Perinet (*Noyes & Day*).

Measurements of these specimens extend the range shown by the type-series: HL 0.42 - 0.52, HW 0.33 - 0.39, CI 74 - 81, ML 0.20 - 0.27, MI 47 - 53, SL 0.25 - 0.32, SI 75 - 86 (20 measured). As in the type-specimens, the number of pairs of hairs on the mesonotum varies between 2 and 3 in the non-paratypic material.

*S. lura* is closely related to *lucomo*; see under the latter.

*Strumigenys odaocon* Fisher sp. n.

**HOLOTYPE WORKER.** TL 2.1, HL 0.51, HW 0.39, CI 77, ML 0.22, MI 44, SL 0.31, SI 78, PW 0.25, AL 0.52. Characters of *scotti*-complex. Mandibles in full-face view short, outer margins shallowly and evenly convex. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible. Maximum diameter of eye approximately equal to maximum width of scape, with 3 ommatidia in longest row. Scape subcylindrical, curved and narrowed near base; hairs on leading edge slender, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with erect to suberect filiform ground-pilosity. Upper scrobe margin fringed with sharply curved hairs which are flattened or spoon-shaped apically and are similar in size to, or slightly larger than, those on leading edge of scape. Cephalic dorsum with 6 standing filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate. Mesonotum with two pairs of filiform hairs: a pair on the anterior margin and a shorter more posteriorly situated pair. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines which are more or less as long as spines. Ground-pilosity on dorsal pronotum as on head, pilosity inconspicuous on remainder of alitrunk. Dorsum of alitrunk in outline convex anteriorly and more or less flat posteriorly. Metanotal groove shallowly impressed. Anterior mesonotum without a conspicuous carina above the mesothoracic spiracle; mesopleural gland set in a small circular notch. Propodeal tooth triangular, lamellate, pointed apically, and subtended by a very narrow lamella that is continuous down the declivity. Pronotal dorsum longitudinally striolate with superficial punctulate sculpture. Mesonotal and propodeal dorsum reticulate-punctate. Side of pronotum superficially longitudinally striolate. Pleurae and side of propodeum glassy smooth and peripherally punctulate. Postpetiole disc with superficial longitudinally striolate sculpture. In profile ventral spongiform tissue of petiolar peduncle a well developed curtain that is continuous along the base of the peduncle and equal or greater in depth than the maximum diameter of eye. Basigastral costulae well developed and sharply defined, radiating on each side of a broad central clear area. Dorsal surface of petiole, postpetiole, and gaster with standing filiform hairs which are slightly thickened apically. Colour light brown.

**PARATYPE WORKERS.** TL 2.0 - 2.2, HL 0.48 - 0.51, HW 0.37 - 0.41, CI 76 - 81, ML 0.22 - 0.25, MI 44 - 0.51, SL 0.29 - 0.31, SI 72 - 78, PW 0.23 - 0.25, AL 0.51 - 0.54 (9 measured). As holotype.

Holotype worker, Madagascar: 40 km. S Ambalavao, Res. Andringitra, 22°13'S, 46°58'E, 1275 m., 15.x.1993, sifted litter (leaf mold rotten wood), montane rainforest #793 (50)-8 (*B.L. Fisher*) (MCZ). Paratypes. 9 workers and 2 ergatogynes with same data as holotype but coded (14)-9, (29)-7, (30)-8, (35)-5, (37)-8, (42)-10, (46)-4 5 (BMNH, SAM).

See notes under *glycon* and *langrandi*.

*Strumigenys origo* Fisher sp. n.

(Fig. 403)

**HOLOTYPE WORKER.** TL 2.2, HL 0.50, HW 0.39, CI 78, ML 0.25, MI 49, SL 0.30, SI 78, PW 0.26, AL 0.54. Characters of *scotti*-complex. Mandibles in full-face view short,

outer margins shallowly and evenly convex. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible. Maximum diameter of eye slightly greater than maximum width of scape, with 4 - 5 ommatidia in longest row. Scape subcylindrical, curved and narrowed near base; hairs on leading edge slender, flattened or spoon-shaped apically. Cephalic dorsum densely clothed with erect to suberect filiform ground-pilosity. The upper scrobe margin fringed with sharply curved hairs which are similar in shape and size or slightly larger than those on the leading edge of the scape. Cephalic dorsum with 6 standing filiform hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate, dorsum with a central pair of standing hairs. Mesonotum with three pairs of standing filiform to narrowly remiform hairs: a pair on anterior margin, a pair situated central laterally, and a pair on posterior margin. Propodeum with one pair of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity on dorsal alitrunk inconspicuous and more or less absent, consisting of short suberect to decumbent fine filiform hairs. Dorsum of alitrunk in outline convex anteriorly and more or less flat to shallowly convex posteriorly. Metanotal groove without a conspicuous impression. Anterior mesonotum with a narrow carina above the mesothoracic spiracle; mesopleural gland set in a small circular notch. Propodeal tooth triangular, lamellate, pointed apically, and subtended by a narrow lamella. Pronotal dorsum longitudinally striolate; mesonotal and propodeal dorsa reticulate-punctate. Sides of pronotum superficially longitudinally striolate. Pleurae and side of propodeum glassy smooth and peripherally punctulate. Postpetiole disc more or less smooth. In profile ventral spongiform tissue of petiolar peduncle a well developed curtain that is continuous along the base of the peduncle and equal or greater in depth than maximum diameter of eye. Basigastral costulae well developed and sharply defined, radiating on each side of a broad central clear area. Dorsal surface of petiole, postpetiole, and gaster with standing filiform hairs which are slightly thickened apically. Colour light brown.

PARATYPE WORKERS. TL 2.1, HL 0.49 - 0.51, HW 0.38 - 0.40, CI 74 - 82, ML 0.24 - 0.25, MI 48 - 50, SL 0.29 - 0.30, SI 73 - 79, PW 0.24 - 0.26, AL 0.51 - 0.54 (4 measured). As holotype.

Holotype worker, Madagascar: 10 km. NW Enakara, Ris. Andohahela, 24°34'S, 46°49'E, 430 m., 24.xi.1992, sifted litter (leaf mold, rotten wood, rainforest #522 (17)-4 (*B.L. Fisher*) (MCZ). Paratypes. 4 workers and 2 queens (dealate) with same data as holotype but coded (2)-3, (3)-2, (7)-2, (9)-5, (18)-25 (BMNH, SAM).

NON-PARATYPIC MATERIAL EXAMINED. Madagascar: R.S. Manongarivo, 12.8 km. 228° SW Antanambao, 780 m. (*B.L. Fisher*); Marojejy R.N.I.#12, 375 m. (*G.D. Alpert*); Marojejy, 600 m. (*J.-M. Betsch*); 6.5 km. SSW Befingotra, Ris. Anjanaharibe-Sud, 875 m. (*B.L. Fisher*); 19 km. ESE Maroantsetra, 350 m. (*P.S. Ward*); 6.9 km. NE Ambanizana, Ambohitsitondroina, 825 m. (*B.L. Fisher*); 5.3 km. SSE Ambanizana, Andranobe, 425 m. (*B.L. Fisher*); 1 km. W Andampibe, Cap Masoala, 125 m. (*Alpert et al.*); F.C. Didy, 960 m. (*H.J. Ratsirarson*); For. d'Ankarongambe, 10 km. E. Ambohidray, 900 m. (*J.-M. Betsch*); F.C. Andriantantely, 530 m. (*H.J. Ratsirarson*); 10 km. NE Antananarivo, Sacred Forest, 1360 m. (*Alpert et al.*); Andasibe, 800 m., 870 m. (*Alpert et al.*); Perinet & vic. (*W.L. Brown*); 16 km. S Moramanga (*P.S. Ward*); ; Col des Tapias, 1550 m. (*J.-M. Betsch*); Itremo Mts, 1630 m. (*A. Peyrieras*); Massif de l'Itremo, 1630 m. (*J.-M. Betsch*); 7 km. W Ranomafana Nat. Park, 900 m. (*W.E. Steiner*); Ranomafana Nat. Park, Miaranony Forest, 700 m. (*E. Rajeriarison*); 3 km. W Ranomafana, nr Ifandiana, 950 m. (*P.S. Ward*); 45 km. S Ambalavao, 785 m. (*B.L. Fisher*); 43 km. S Ambalavao, Ris. Andringitra, 825 m. (*B.L. Fisher*); Ambalamarovandava, 1550 m. (*J.-M. Betsch*); 8.0 km. NE Ivohibe, 1200 m. (*S. Razafimandimby*); 9.0 km. NE Ivohibe, 900 m. (*S. Razafimandimby*); R.S. Ivohibe, 7.5 km. ENE Ivohibe, 900 m. (*S. Razafimandimby*); R.S. Ivohibe, 8.0 km. E Ivohibe, 1200 m. (*S. Razafimandimby*); Anosyennes Mts, 600 m. (*J.-M. Betsch*); 13 km. NW Enakara, Ris. Andohahela, 1250 m. (*B.L. Fisher*); 10 km. NW Enakara, Ris. Andohahela, 420 m. (*B.L. Fisher*); 6 km. SSW Eminiminy Reserve, Andohahela, 250 m. (*G.D. Alpert*); Ris. Andohahela, 6 km. SSW Eminiminy, 330 m. (*P.S. Ward*); 6 km. ESE Imonty, Res. Andohahela, 1000 m. (*Alpert et al.*); 2.7 km. WNW 302° Ste Luce, 20 m. (*B.L. Fisher*); Mandena, 8.4 km. NNE 30° Tolagnaro, 20 m. (*B.L. Fisher*).

Measurements of these specimens extend the range shown by the type-series: HL 0.41 - 0.55, HW 0.33 - 0.45, CI 75 - 83, ML 0.20 - 0.28, MI 46 - 53, SL 0.25 - 0.36, SI 74 - 86 (14 measured).

*S. origo* is a widespread and commonly collected species. Among the *scotti*-complex species which have the dorsum of the petiole node reticulate-punctate, *origo* can be distinguished by having:

1 Mesonotum with 3 pairs of erect hairs.



- 2 Pronotum with one pair of long erect hairs on central dorsum.  
 3 In profile ventral spongiform curtain of petiolar peduncle well developed, entire depth of curtain more or less greater than maximum diameter of eye.  
 4 Cephalic ground-pilosity erect or suberect.

See under *glycon* for further discussion.

***Strumigenys ravola* Fisher sp. n.**

HOLOTYPE WORKER. TL 2.3, HL 0.54, HW 0.44, CI 81, ML 0.22, MI 41, SL 0.33, SI 76, PW 0.28, AL 0.56. Characters of *scotti*-complex. Mandibles in full-face view with outer margins shallowly and evenly convex, the width gradually decreasing from near the base to the apicodorsal tooth. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange. Eyes small, not visible in full-face view; maximum diameter of eye less than maximum width of scape, with 2 - 3 ommatidia in longest row. Scape short and stout, shallowly and gently curved; hairs on leading edge spatulate or spoon-shaped. Cephalic dorsum densely clothed with curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margin fringed with hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 6 clavate standing hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Reticulate-punctate sculpture of cephalic dorsum with superimposed longitudinal or oblique rugulae; the top surface of the rugulae with a beaded appearance due to the presence of aligned punctulation. Pronotal humeral hair flagellate. Mesonotum with 2 pair of erect clavate hairs. Propodeum with 2 pairs of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with ground-pilosity as on head. Dorsum of alitrunk in outline more or less flat. Anterior mesonotum with a narrow carina above mesothoracic spiracle. Propodeal tooth broadly triangular, lamellate, pointed apically, subtended by a moderate lamella. Alitrunk dorsum and sides of pronotum densely reticulate-punctate, dorsal pronotum also with short rugulose sculpture. Pleurae mostly smooth and shiny with reticulate-punctate sculpture peripherally. Postpetiole disc smooth and shining. In profile the petiole with a straight ventral spongiform strip, its depth approximately equal to maximum diameter of eye. Postpetiole with moderately developed ventral and lateral spongiform lobes. Basigastral costulae arising on each side of a narrow, central clear area. Dorsal surfaces of petiole, postpetiole and gaster with standing clavate to remiform hairs. First gastral sternite, including anterior half, with numerous short suberect filiform hairs. Colour light brown.

Holotype worker, Madagascar: Prov. Toamasina, P.N. Mantadia, 18°47.5'S, 48°25.6'E, 895 m., 25.xi.-1.xii.1998, ground forager(s), rainforest., #25-2 (*H.J. Ratsirarson*) (MCZ).

*S. ravola* is distinguished from other species in the *scotti*-complex by having the cephalic dorsum reticulate-punctate with superimposed longitudinal or oblique rugulae, the top surface of the rugulae with a beaded appearance due to the presence of aligned punctulation. See *langrandi* for further discussion.

***Strumigenys rubigus* Fisher sp. n.**

HOLOTYPE WORKER. TL 2.9, HL 0.63, HW 0.48, CI 76, ML 0.32, MI 50, SL 0.40, SI 83, PW 0.34, AL 0.71. Characters of *scotti*-complex. Mandibles in full-face view with outer margins shallowly and evenly convex, the width gradually decreasing from near the base to the apicodorsal tooth. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible. Maximum diameter of eye slightly smaller than maximum width of scape, with 3 - 4 ommatidia in longest row. Scape short and stout, shallowly and gently curved; hairs on leading edge spatulate or spoon-shaped. Cephalic dorsum densely clothed with curved narrow spatulate to spoon-shaped

ground-pilosity, the upper scrobe margin fringed with hairs which are the same shape and size as those on the dorsum. Pronotal humeral hair flagellate hair (absent on left humerus of holotype). Mesonotum with 1 pair of erect clavate hairs, located at anterior margin; shorter hairs which are curved toward the midline present posterior to this pair. Propodeum with 2 pairs of short, fine, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with ground-pilosity as on head. Dorsum of alitrunk in outline very shallowly convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum only slightly depressed below the anterior margin of propodeum. Anterior mesonotum without a carina above mesothoracic spiracle. Propodeal tooth broadly triangular, lamellate, pointed apically, and subtended by a moderate lamella. Alitrunk dorsum densely reticulate-punctate. Side of alitrunk mostly with punctate sculpture, except for katepisternum which is smooth and shiny. Postpetiole disc smooth and shining. In profile the petiole with a straight ventral spongiform strip that is slightly less deep than maximum diameter of eye. Postpetiole with moderately developed ventral spongiform lobes. Basigastral costulae arising on each side of a narrow, central clear area. Dorsal surfaces of petiole, postpetiole and gaster with standing clavate to remiform hairs. First gastral sternite, including anterior half, with numerous short suberect filiform hairs. Colour light brown.

Holotype worker, Madagascar: Prov. Toamasina, F.C. Andrianantely, 18°41.7'S, 48°48.8'E, 530 m., 4-10.xii.1998, ex rotten log, rainforest, #49-2 (*H.J. Ratsirarson*) (MCZ).

*S. rubigus* is distinguished from other species in the *scotti*-complex which have the dorsum of petiole node reticulate-punctate by having the following combination of characters:

- 1 Mesonotum with only a single pair of erect hairs, located at anterior margin; shorter decumbent hairs may be present posterior to this pair.
- 2 In full-face view hairs on upper scrobe margin decumbent and sharply bent at basal third, not projecting well beyond the scrobe margin.
- 3 Anterior half of first gastral sternite with numerous short suberect hairs.

### *Strumigenys scotti* Forel

*Strumigenys scotti* Forel, 1912c: 159. Syntype workers, SEYCHELLE IS: Silhouette, Mare aux Cochons, 1000 ft (*H. Scott*) (BMNH, MHN) [examined].

[*Strumigenys scotti*: W.M. Wheeler, 1922a: 1034 and Emery, 1924: 320 (catalogues); Brown, 1954f: 23 and Bolton, 1983: 391 (descriptions of worker); Bolton, 1995b: 398 (catalogue).]

WORKER. TL 2.7 - 3.1, HL 0.64 - 0.70, HW 0.46 - 0.52, CI 70 - 74, ML 0.30 - 0.34, MI 46 - 49, SL 0.39 - 0.47, SI 84 - 92, PW 0.31 - 0.36, AL 0.71 - 0.80 (14 measured). Characters of *scotti*-complex. Mandibles in full-face view with outer margins very shallowly and evenly convex, the width approximately constant from the level of the proximal preapical tooth to near the base. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange, the eyes visible. Maximum diameter of eye distinctly greater than maximum width of scape, with 5 - 6 ommatidia in longest row. Scape long slender and subcylindrical, only very feebly curved near the base; hairs on leading edge small, slender, slightly flattened or spoon-shaped apically. Cephalic dorsum densely clothed with curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margins fringed with a dense row of hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 6 simple standing hairs arranged in a transverse row of 4 close to the occipital margin and a more anteriorly situated pair. Pronotal humeral hair flagellate. Mesonotum with a single pair of standing hairs, rarely with one or two pairs of short decumbent filiform hairs situated posteriorly on the mesonotum. Propodeum with one pair of short, posteriorly curved hairs immediately anterior of propodeal spines. Ground-pilosity on alitrunk as on head but the hairs smaller and sparser. Posterior portion of mesonotum shallowly depressed behind the level of the standing hairs. Anterior mesonotum with a narrow carina above the mesothoracic spiracle;

mesopleural gland set in a small circular notch. Propodeal tooth triangular, lamellate, pointed apically, and subtended by a narrow lamella. Pronotal dorsum longitudinally feebly rugulose and punctate, with a longitudinal carina mid-dorsally. Remainder of dorsal alitrunk reticulate-punctate. Sides of alitrunk superficially punctulate peripherally, the pleurae mostly smooth. Petiole node in dorsal view at least as long as broad, often longer than broad. Postpetiole disc smooth and shining. Spongiform appendages well developed, the petiole with a ventral strip and conspicuous lateral lobe on the node; postpetiole with large lateral and ventral spongiform lobes of which the ventral is the larger, about as large as the exposed area of the postpetiole disc in profile. In dorsal view the spongiform material not or only very slightly projecting beyond the lateral outline of the disc. Basigastral costulae arising on each side of a central clear area. Dorsal surfaces of petiole, postpetiole and gaster with standing hairs which are simple or very slightly thickened apically. Colour yellowish brown to medium brown.

A widely distributed but easily recognized member of the *scotti*-complex. Among the species which have the dorsum of the petiole node reticulate-punctate, *scotti* is the only one with the following characters in combination.

- 1 The mesonotum with only a single pair of erect hairs, located at the anterior margin.
- 2 A well developed spongiform curtain ventrally on petiolar peduncle.
- 3 A transverse band of appressed spoon-shaped hairs arranged in several rows on the cephalic dorsum immediately behind the clypeus.
- 4 Postpetiole smooth and shiny, even at lateral margins.

In addition its large size, HL 0.64 - 0.70, HW 0.46 - 0.52, helps to characterise this species. Afrotropical material considered to be *scotti* by Bolton (1983) is now referred to a separate species, *sibyna*; see there.

#### MATERIAL EXAMINED

Seychelles Is: Silhouette I. (*H. Scott*). Madagascar: R.S. Manongarivo, 14.5 km. 220° SW Antanambao, 1175 m. (*B.L. Fisher*); Marojejy, 375 m. (*Alpert et al.*); 17 km. W Andapa, Res. d'Anjanaharibe-Sud, 875 m. (*G.D. Alpert*); Nosy Mangabe, 300 m. (*P.S. Ward*); 1 km. W Andampibe, Cap Masoala, 125 m. (*G.D. Alpert*); F.C. Didy, 960 m. (*H.J. Ratsirarson*); F.C. Andrianantely, 530 m. (*H.J. Ratsirarson*); Tananarive, Botanical Garden (*P. Saranya*); Perinet (*W.L. Brown*); 27.4 km. S Ambositra, 1600 m. (*B.L. Fisher*); 3 km. W Ranomafana, 950 m. (*P.S. Ward*); 40 km. S Ambalavao, Res. Andringitra, 1275 m. (*B.L. Fisher*); 45 km. S Ambalavao, 785 m. (*B.L. Fisher*); R. S. Ivohibe, 7.5 km. ENE Ivohibe, 900 m. (*S. Razafimandimby*); 8.0 km. E Ivohibe, R.S. Ivohibe, 1200 m. (*S. Razafimandimby*); 10 km. NW Enakara, Res. Andohahela, 430 m. (*B.L. Fisher*); 13 km. NW Enakara, Res. Andohahela, 1250 m. (*B.L. Fisher*).

#### *Strumigenys tegar* Fisher sp. n.

HOLOTYPE WORKER. TL 3.1, HL 0.75, HW 0.58, CI 77, ML 0.35, MI 46, SL 0.48, SI 83, PW 0.35, AL 0.82. Characters of *chroa*-complex. Mandibles almost straight and at full closure parallel except at base. Mandible with a narrow lamella on inner margin that extends from base to proximal preapical tooth; in dorsal view, inner margin of lamella shallowly and evenly convex and at full closure more or less touching at midlength. Upper scrobe margin evenly and shallowly convex in full-face view, not bordered by a rim or flange; eyes visible. Maximum diameter of eye slightly greater than maximum width of scape, with 5 - 6 ommatidia in longest row (left eye absent in holotype). Scape subcylindrical, shallowly and gently curved; hairs on leading edge spatulate or spoon-shaped. Cephalic dorsum densely clothed with curved narrow spatulate to spoon-shaped ground-pilosity, the upper scrobe margin fringed with hairs which are the same shape and size as those on the dorsum. Cephalic dorsum with 4 clavate standing hairs arranged in a transverse row close to the occipital margin. Pronotal humeral hair absent. Mesonotum with one pair of erect clavate hairs, located at anterior margin. Propodeum with 1 pair of short, clavate, posteriorly curved hairs immediately anterior of propodeal spines. Dorsal alitrunk with ground-pilosity as on head. Dorsum of alitrunk in outline very shallowly convex anteriorly and more or less flat posteriorly; posterior portion of mesonotum only very slightly depressed below the anterior margin of propodeum. Anterior mesonotum with a narrow carina above mesothoracic spiracle. Propodeal tooth broadly triangular, short,

lamellate, pointed apically, and subtended by a narrow lamella on declivity. Alitrunk dorsum and sides densely reticulate-punctate; petiole node and postpetiole disc reticulate-punctate. In profile the petiole with a straight ventral strip that is less than the maximum width of mandible. Postpetiole with weakly developed ventral and lateral spongiform lobes. Basigastral costulae fine and numerous, without a central clear area, remainder of gaster smooth and shiny. Dorsal surfaces of petiole, postpetiole and gaster with standing clavate to remiform hairs. Anterior half of first gastral sternite without suberect hairs. Colour light brown.

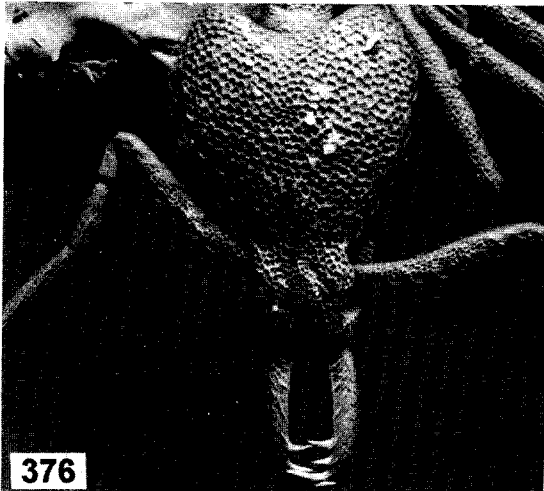
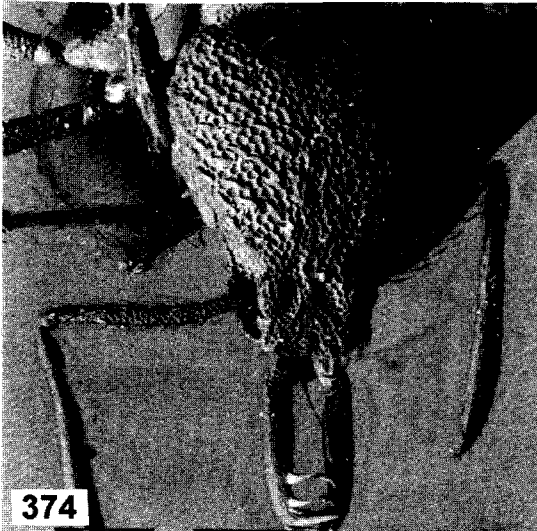
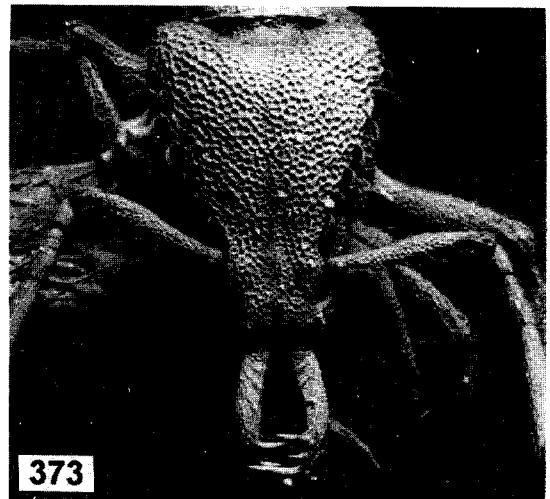
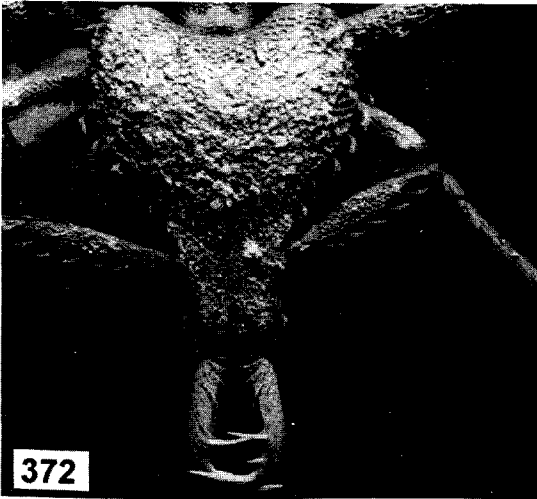
Holotype worker, Madagascar: Prov. Fianarantsoa, 29 km. SSW Ambositra, Ankazomivady, 20°46.6'S, 47°9.9'E, 1700 m., 7.i.1998, sifted litter (leaf mold, rotten wood), montane rainforest #1590 (32)-1 (B.L. Fisher) (MCZ).

*S. tegar* is distinguished from other species in the *chroa*-complex by its larger size and densely reticulate-punctate postpetiole disc. See under *cabira* for further discussion.

**FIGS 354 - 359** *Strumigenys* workers, heads of (354) *spathoda*, (355) *katapelta*, (356) *tetraphanes*, (357) *omalyx*, (358) *havilandi*, (359) *korahyla*.

**FIGS 360 - 365** *Strumigenys* workers, heads of (360) *irrorata*, (361) *stygia*, (362) *traegaordhi*, (363) *paranax*, (364) *syntacta*, (365) *nimbrata*.

**FIGS 366 - 371** *Strumigenys* workers, heads of (366) *pallestes*, (367) *londianensis*, (368) *rogeri*, (369) *transenna*, (370) *cacaoensis*, (371) *pretoriae*.



FIGS 372 - 377 *Strumigenys* workers, heads of (372) *petiolata*, (373) *dromoshaula*, (374) *helytruga*, (375) *percrypta*, (376) *hastyla*, (377) *adrasora*.



**FIGS 378 - 383** *Strumigenys* workers, heads of (378) *xenohyla*, (379) *relahyla*, (380) *rukha*, (381) *adsita*, (382) *abdera*, (383) *alapa*.



**FIGS 390 - 395** *Strumigenys* workers, heads of (390) *agetos*, (391) *chilo*, (392) *fanano*, (393) *grandidieri*, (394) *dicomas*, (395) *nambao*.

**FIGS 396 - 401** *Strumigenys* workers, heads of (396) *hilaris*, (397) *fronto*, (398) *sphaera*, (399) *vazimba*, (400) *diota*, (401) *doxa*.

**FIGS 402 - 405** *Strumigenys* workers, heads of (402) *epulo*, (403) *origo*, (404) *chroa*, (405) body profile of *percrypta*.













THE MALESIAN-ORIENTAL-EAST PALAEARCTIC FAUNA OF *STRUMIGENYS*

This area contains by far the largest number of species, with 220 endemics recorded, together with the tramp-species *emmae* and *rogeri*. *S. emmae* is defined and discussed under the Austral fauna and *rogeri* under the Afrotropical.

Previous taxonomic work on the Malesian-Oriental-East Palaearctic fauna consists mainly of small papers describing one to several species, but with little or no attempt at synthesis of the fauna. Taxon based works on some species groups, or parts of species groups, have been produced by Brown (1954a, 1954d, 1959e, 1971, 1973c). Faunal surveys of small areas or countries within the extended region are represented by contributions of Emery (1897), Bingham (1903), Forel (1903), Mann (1919, 1921), Brown (1949b), Wilson & Taylor (1967), Morisita, Kubota, Onoyama, *et al.* (1992), Dlussky (1993), Choi (1995) and Lin & Wu (1996). A rather inaccurate check-list of the genus was produced by Chapman & Capco (1951) and W.M. Wheeler (1935) gave a list of the Oceanian species; all the species were catalogued by Bolton (1995b). The older references are very much out of date and all the earlier works together produced only about one-quarter of the currently known fauna.

The fauna revised and discussed here occupies two whole zoogeographical regions and part of a third. With the exception of tramp-species and other introductions the very large number of included species forms a continuous single fauna that extends from India to Japan and New Guinea and out to the Pacific Ocean islands. Attempts to revise and key the fauna in three parts, corresponding to its classical zoogeographical components, were unsuccessful. This was because numerous species, and parts of species groups or entire species groups, had to be duplicated in two or all of the component parts. Even when this was done there was no guarantee that all species currently known from only one component region really were confined to that region. In particular, material from close to the borders of two regions had always to be run through both keys, in case species known from one side of the border had not been recorded from the other. The amount of known and potential overlap and duplication in keys and text made the end-product very cumbersome and difficult to use. It was therefore concluded that the best technique was to give priority to the species rather than to the zoogeography and treat them for what they were, members of a large but single fauna.

CHECK-LIST OF MALESIAN-ORIENTAL-EAST PALAEARCTIC *STRUMIGENYS* SPECIES*akalles*-group*akalles* Bolton sp. n.*eidechthes* Bolton sp. n.*inhonesta* Bolton sp. n.*biroi*-group*basiliska* Bolton sp. n.*biroi* Emery, 1897*pulchra* Bolton sp. n.*undras* Bolton sp. n.*caniophanes*-group*benulia* Bolton sp. n.*caniophanes* Bolton sp. n.*cygarix* Bolton sp. n.*daithma* Bolton sp. n.*dipsas* Bolton sp. n.*dromica* Bolton sp. n.*heteropha* Bolton sp. n.*lacunosa* Lin & Wu, 1996