Genus RHOTPOMYEX, revision of, and key to species

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This card, and Pilot Register of Zoology Card No. 12 through 19 together constitute a revision of genus Rhotpomyex. The main conclusions of this revision are as follows:

1. The subgenus or genus Acidomyex, raised to include the Oriental species of Rhotpomyex by Emery, deserves to be recognized as no more than a simple species-group. Although the Oriental-Welsh species always have propodial teeth in the female, these teeth vary from long spines to mere anular plates within the single species *R. wrothi*oni. The female of *R. wellesii* has the propodial unarmored. The three African species, on the other hand, all lack propodial teeth in the female, but the female may have propodial armament relatively well developed, as in *R. transvernoides*. Aside from the African species, no other species seem to be very much alike, and it seems unrealistic to separate them at subgeneric, let alone generic, level.

2. Some species formerly described in *Rhotpomyex* do not belong there. Arnold (1926, Ann. s. Afr. Mus., 23: 271) has already reassigned *R. arnoldii* Sanfichi to *Tetratoma*; where he renamed it *T. crassifemura*. By examination of the types of *R. arnoldii*, now in the Sanfichi Collection at Basel, allows me to confirm Arnold's generic placement (but the species may be a synonym of some older species in the tetratoma group of *Tetratoma*). *R. t. tetratoma* Forlì is synonymized with *Mordiceps* spp. *R. wrothi*oni (see PRZ Card No. 12); *R. t. arnoldii* Forlì is replaced by *T. crassifemura* (PRZ 18); and *R. arnoldii* Forlì is placed in *Mordiceps* (PRZ 19).

3. In place of the 18 named forms recognized by Emery in the Genera Insectorum in 1922, only five species are retained in the genus here; these are cited in the key below. Species-level synonymy is dealt with on PRZ Cards 14 through 17. It should be noted that *Tetratoma angustisia* Mann, compared by its author with *Tetratoma melvillei* in the original description, is not a *Rhotpomyex* (Type examined in 1964).

Distribution: Africa south of the Sahara, but not yet known from the more arid areas or from East Africa; southern India and western China to Korea. The species of *R. angustisia* are now known from Taiwan and western China and Australia are newly reported here. Over most of its range, the species seems to be sporadic and occurs in small numbers.

Biogeography: The species of *Rhotpomyex* are found in a variety of habitats, including savannas, grasslands, and arid regions. Several species are known from the mangrove forests of northeastern Africa. The species are typically found in small numbers and are not considered to be abundant.

Key to species of *Rhotpomyex* based on the workers:

1. Propodial armed with a pair of teeth (Indo-Australian)
   - Propodidal unarmored (African)

2. Propodial teeth very long, about twice as long as the distance between the centers of their bases and about as long as the maximum width of the propodial sculpture of head predominantly finely and densely reticulate-punctate, longitudinal costae obsolete or few and weak (W. Guiana, N. Cape York Pen.).
   - Propodial teeth much longer than the distance between the centers of their bases, and shorter than the propodial width; head and usually also the alitrunk with fine, close longitudinal costae prominent in the sculpture (India, China through Indonesia, N. Queensland).

3. Alitrunk (and usually also the head) with dense, opaque reticulate-punctate sculpture throughout (W. and E. Africa).-openus
   - Head and alitrunk in large part smooth and shining (mainly southern Africa).

4. Postpetiolar subglobular, up to about 1.5 times as broad as long, with a prominent rounded ventral protuberance. (W. and E. Africa).
   - Postpetiolar transversely subangulate, about twice as broad as long, without a prominent rounded ventral protuberance.

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MACROMISCHOIDES AFRICANUS, new synonymy of Insecta: Hymenoptera: Formicidae

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The type of R. tessmanni is a begrimed worker of M. africanus with the apical sections of the antennae missing. It compares well with workers determined as Tetramorium africanum by Forel in his own collection.

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RHOPTOPHYTRAX MELLEUS, brief characterization of, by William L. Brown, Jr.
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Insecta: Hymenoptera: Formicidae


Worker: A rather average RHOPTOPHYTRAX in size and in its testaceous color close to E. wrothorni, but differing in the following respects:

1. Propodeal teeth very long, spiniform (about as long as twice the distance between the centers of their bases), their tips straight or curved outwards.
2. Sculpture of head and alitrunk predominantly densely reticulate-punctulate and opaque; longitudinal costae (rugulae) of vertex absent or very few and weak, widely spaced. Rugulae of alitrunk also obscure or nearly so, but there is a weak median longitudinal carina on the pronotum.
3. Essentially, the worker is an exaggeration of the long-toothed variant of wrothorni ("numetrisca") of the Sumatran highlands. Were the worker of melleus not so constant throughout its range, one would be tempted to consider it conspecific with wrothorni. The discovery of more intermediate material in the right places might of course lead to this merger, anyway.

Female, dealate, previously undescribed: TL 3.8, HL 0.75, HW (without eyes) 0.68, alitrunk L 1.06, scape L 0.54 mm. Cephalic index 91. (E. O. Wilson #1088).

General shape as shown in fig. 2; head as seen from front view with sides almost parallel, gently convex; occipital angles broadly rounded, occipital margin shallowly concave within a zone bounded by the lateral ocelli. Mandibles armed as in worker. Humerum broadly rounded. Petiole seen from above with node about as long as broad (0.20 mm) measuring from the spiracles. Postpetiole broader (W 0.34 mm) than long, subquadrate, with nearly parallel sides and rounded corners as seen from directly above; with a prominent rounded anteroventral process. Gaster broad and slightly flattened above anteriorly.

Integument of body smooth and shining throughout, with a few separated shallow punctures, especially on the occiput above the compound eyes. Appendages with indistinct, fine, dense punctuation, especially at extremities, but more smooth, shining near the base. Body nearly hairless; with only very fine, short, dilute, appressed pubescence on dorsum and occiput of head, on mandibles and appendages, on both nodes, and a little more conspicuously developed on both surfaces of gaster. Gastric apex with a few fine erect hairs. Color dark orange-brown to brown, gaster darkest, appendages lightest; occiput and pronotum blackish.

Another dealate female from Bismarck, near Sogeri, Papua, is a little smaller: TL 3.1, HL 0.70, HW 0.64 (CI 91), WL 0.94, scape L 0.49 mm. Both the pilosity-pubescence and the punctures carrying the hairs are better-developed and more abundant in this specimen than in the one from Nadzab (Wilson #1088, described above). A few curved erect hairs are present on scutum and postpetiole, and are more abundant on the gaster dorsum and apex. Rather coarse punctures above and below the eyes tend to be elongate, with incipient ridges forming between them. Limited areas around the wing insertions are slightly roughened, especially the antero dorsal sides of the propodeum, which are finely and densely punctulate and opaque. Color as in Nadzab female, but head and gaster tend toward dark mahogany.

Male unknown.

Distribution: So far as known, the Island of New Guinea and one locality on northern Cape York Peninsula, Queensland, Australia.

The New Guinea-Papua records here cited are all from the collections of E. O. Wilson, and the numbers cited all refer to his notebook (see also below): Northwestern New Guinea: Bismarck Peninsula, Ebebaang, 1300-1600 m, No. 830, and Wamuk, 800 m, strays on ground, No. 853. Nadzab, dry evergreen forest, a dealate female, No. 1088, and workers foraging in low arboreal zone, No. 1104. Bubia, near Lai, lowland rain forest, strays on top of large rotten log, No. 1076, and lower Bunu River near Lai, rain forest, workers tending scale on branch of sapling 2 m tall, No. 1022. Papua: Bismarck, near Sogeri, about 300 m, rain forest strays, Nos. 617 and (female strain) 655; workers extremely abundant in a clearing in the forest; tending aphids on bamboo shoots, and on extra- floral nectaries; a few workers carrying small insects. Nest in soil, marked by irregular piles of fine particles of excavated earth. Queensland: vicinity of Tozer Gap, Iron Range, northern Cape York Peninsula, in rain forest (P. F. Darlington).

Biology: About the Ebebaang collection (No. 830) Wilson wrote as follows: "Huge colony in soil between two buttresses of tree at trailside. Heaps of fine particles of excavated earth, but in no recognizable form. Once again I was unable to excavate well enough to hit brood or sexuals. Two great irregular columns of ants, comprising many thousands of individuals, proceeded from the nest along the trail (9 AM, sunny morning) on either side of the nest, fanning out in a few feet into the surrounding soil and leaf litter. A third column proceeds up the tree. "Workers seemed to be everywhere on the ground within 20 feet of the nest, and all sorts of smallarthropods— isopods, entomobryids, insects of various orders (Homoptera, Passeoptera, fragments of larger insects)— were being carried back to the nest. The total intake of insect food in a single day must be tremendous. Coccioids (root mealybugs) were in the earthen galleries in the nest. There is no doubt that this huge colony completely "owned" a large area around its nest. It is remarkable that this is the only colony of the genus found thus far in the highlands— colonies must be few and far between, but huge in size, when they occur, as was my impression gained at Bismarck."

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RHOPTROMYRAX WROUGHTONII, new synonymy of, and brief characterization

Insecta: Hymenoptera: Formicidae

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Tetramorium wrocktoni Bingham, 1903, Fauna Brit. India, Hym. 2: 177, worker, Bernardo, Upper Burma.

Tetramorium rothneyi Bingham, 1903, Fauna Brit. India, Hym. 2: 177, worker.


Worker: Varying markedly by locality in width of head, petiole and postpetiole; in length and form of propodeal teeth; in distinctness of promesonotal suture; and in tendency toward reduction of either the fine reticulate sculpture or the superimposed longitudinal costulae (rugulae). The commonest and most widespread and constant form is the one that usually received the name "rothneyi." This has the head and alitrunk densely reticulo-punctulate and opaque, overlain with conspicuous longitudinal rugulae that are most numerous on the head, where they typically form a broad, more or less crowded band of longitudinal costulae filling the space between the frontal carinae, and often extend to the sides of the head as well; the alitrunk also frequently with well-developed rugulae. The propodeal teeth of this form may vary from short and triangular to moderately long and more or less spiniform.

In the extreme "sumatrensis" form of the Sumatran highlands, the propodeal spines are very long, and the cephalic rugulae are rather widely spaced, approaching in these respects the Melanisian species R. bellii. At the other extreme is the type series of R. wroghtoni, from western peninsular India; this form has the fine reticulate sculpture reduced, so that the interrugal spaces of the head, plus areas of the alitrunk, are definitely shining. This series also has short propodeal teeth, some of them nearly rectangular, and some varying markedly bilaterally in the same individual.

Pelticolar node high and rounded apically; postpetiole with a rounded anteroventral process of varying distinctness, in most samples well-developed.

Female unknown; male not studied.

Distribution: Widespread in southeastern Asia, extending to southern peninsular India and northwestern into Yunnan and the Red Basin of Western Szechuan, probably occurring widely in southern China; Philippines; Formosa; Hainan Island; Indonesia west at least to Sumba; base of Cape York Peninsula, northern Queensland. Localities for material reviewed in the Museum of Comparative Zoology, Harvard University: Indonesia: R. wroghtoni types, Kanara (Wroughton).


Fig. 1. Rhoptromyrax wroghtoni, worker from Crawford's lookout, northern Queensland.

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RHOPTROMYRMEX OPACUS, new synonymy of, and brief characterization

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Insects: Hymenoptera: Formicidae


Rhopotromyrmex opacus subsp. monodi Bernard, 1952, Mem. Inst. Fr. Af. noire, 19 (1): 251, fig. 14F, worker. Type locality Ziele, Mt. Nimba area, Guinea. Location of unique type unknown, but was to have been deposited in Musee Nationale d'Histoire Naturelle, Paris; possibly still in possession of Prof. Bernard. Not seen. Provisional new synonymy.

Worker with predominantly fine, opaque reticulate-punctate sculpture over head and alitrunk; in some smaller specimens, the cephalic sculpture may be more shallow and more nearly shining. Metanotal groove present, moderately to deeply impressed. Petiolar node moderate in height, with broadly rounded summit; postpetiolar subglobular, slightly wider than petiolar node and wider than long, its ventral surface without a prominent rounded process or tumulus. Color dull yellow to brownish-orange; according to Bernard, the type of subsp. monodi has the occiput and alitrunk blackish-brown.

Male a little larger than the largest workers. Mandibles more or less like those of female, opposable; antennae with 9 segments, but former segmentation of long fusion segment is visible in some specimens. Petiole clavate, its node not very distinctly set off. Head above with sculpture much as in worker, sculpture otherwise predominantly smooth and shining. Gaster larger than in female, with prominent genitalia. Color as in female.

Distribution: Central and West Africa in higher-rainfall areas; sporadic. Records for samples in the Museum of Comparative Zoology and the California Academy of Science as follows: Thysville, Congo (J. C. Bequaert). 50 km s. of Tahela, Congo, and km 94 on Kavumu-Walikale Route, 900 m, Congo (E. S. Ross and R. E. Leech).

Biology: According to the collector, the Thysville sample came from a populous nest in sandy soil in savanna.

Synonymy: The types of var. esta are unremarkable specimens of opacus; the laeviscens type is just a small individual with a.ometically shallow head sculpture. The figures of subsp. monodi in the original description, especially that of the propodeum (fig. 14F), is particularly puzzling, especially since that purporting to be R. opacus on the same page (fig. 14E) bears no resemblance to the propodeum of workers of that species in my experience. I am accepting Bernard's opinion that the form belongs to opacus. It appears to be a dark variant.
**Rhoptromyrmex Transversinodis**

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Insecta: Hymenoptera: Formicidae


Worker easily recognized by its high, narrowly rounded petiolar node and transverse petiole, which is about twice as broad as long. No ventral postpetiolar process. Body predominantly smooth and shining, color yellow to yellowish-brown.

Female a highly aberrant ant, even as compared to the other known females of the genus, and like them, it varies from locality to locality. The rimmed occipital lobes, overhanging mesonotum, deep, compressed petiole, transverse postpetiole and broad, anteriorly impressed gaster are characters more or less similarly developed in gyynes of several ant genera known or suspected to found their colonies as inquilines in the nests of other ants. Most of the adaptations apparently function to protect vital body joints against the mandibles of workers of prospective host species. Females from Pretoria have shining integument rather densely sown with tiny elongate pits, into each of which is fitted a minute, appressed squamiform seta (Arnold thought there were no setae). Erect pilosity or pubescence is lacking. Color darker and more brownish than in corresponding workers. Arnold describes another form of female from Zululand as "clothed with a sparing and fairly long, greyish pubescence, oblique on legs and antennae, decumbent elsewhere. The vertex is exceedingly finely and sparsely punctate, the rest of the body impunctate, and the shallow elliptical punctures.... are entirely absent."

Distribution: Union of South Africa, widespread but apparently sporadic from southern Cape Province to Transvaal and Zululand.

**Fig. 1.**

**Fig. 2.**

**Fig. 3.**

**Fig. 4.**

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RHOPTROMYRMEX GLOBULINODIS, new synonymy of, and brief characterization

Insecta: Hymenoptera: Formicidae

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Worker: Most like *R. opacus* in form, but with the sculpture of upper head and alitrunk reduced, integument in large part smooth and shining; fine punctures often occur on the occiput, and the alitrunk may have areas of fine obsolete striolation above, shading to indistinct but subopaque punctulo-reticulation on the pleura. Petiolar node thick, not high; postpetiole subglobular, up to about 1.5 times as broad as long, differing from those of *opacus* and *transversinodis* in that it has a prominent rounded process or tumulus projecting somewhat forward as well as downward from its ventral surface. Color yellow to dark brown.

Female: About the length of the largest workers, or a trifle longer, with head less aberrant than that of *transversinodis*. Body very slender; gaster long and narrow, with a shallow basidorsal impression. Head striate above eyes; pronotum and propodeum finely striolate-shagreened; rest of body mostly smooth, predominantly shining. Long fine oblique pilosity on gaster, grading to shorter pubescence-like pilosity on head and elsewhere, but amount and length of pilosity vary markedly in female samples from two different localities. Color dark brown.

Male: Similar in size and sculpture to female. Antennae 9-segmented. Petiole subclavate, low, its node not differentiated from its peduncle. Color dark brown, head darkest.

Distribution: Southern Africa, from Congo south to south coast of Cape Province, sporadic.

Synonymy: The form *alberti* is only an allometric variant at the small end of the size range of the species; *obscurus* is based on a dark-colored montane variant of the kind common among ants.

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MONOMORIUM SOLLERI comb. nov. By G. Ettershank & W. L. Brown, Jr.
Department of Entomology
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Insecta: Hymenoptera: Formicidae Cornell University
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The holotype of R. solleri has 12-segmented antennae with weak 3-segmented clubs, and the palpi are segmented 2, 2. This female, as Forel himself hinted in the description, does not fit well in Rhoptromyrmex, but seems instead to belong to the Monomorium destructor-M. gracillimum group ("subgenus Parholcomyrmex"). It is intermediate between the destructor and gracillimum females in size, and differs from these two species also in sculptural details.

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HAGIOXENUS MAYRI comb. nov. By William L. Brown, Jr.
Insecta: Hymenoptera: Formicidae
Pilot Register of Zoology
Department of Entomology
Cornell University
Card No. 19
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Type in Muséum d'Histoire Naturelle, Geneva, examined 1963.

The R. mayri type is an aberrant form, obviously a parasite of some kind, but it is much more similar to the types
of Hagioxenus schmitzi than to any of the known Rhoptromyrmex females; furthermore, as Forel noted in the original
description, the radial cell is closed.

From H. schmitzi, H. mayri is distinguished by its much more abundant pilosity and by other relatively small
differences. The type was collected "together with Pheidole latinoda."

Parasitic myrmicines are frequently much modified, with loss or reduction of some characters, and are particularly
likely to converge in habitus. Even the rather close resemblance of H. schmitzi and H. mayri could of course be
due to convergence.

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