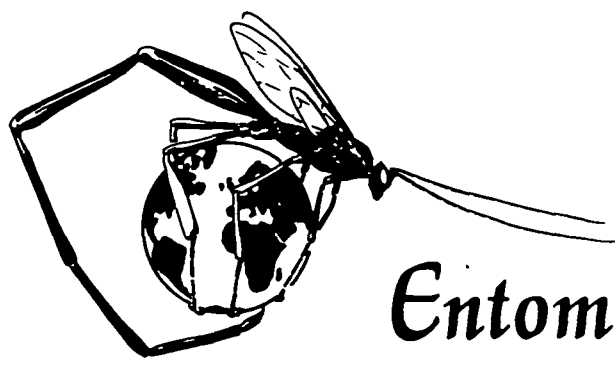




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New species of Cossyphodinae from Africa

(Coleoptera, Tenebrionidae)

and

Description of the Host Ant *Messor ferrerii* sp. nov.

(Hymenoptera, Formicidae)

J. Ferrer & C.A. Collingwood

Abstract

A new species of *Cossyphodes*, *C. mourgliai* FERRER sp. nov. from Zambia, together with new species of *Cossyphodinus*, *C. bremeri* FERRER sp. nov. from Kenya and *C. basilewskyi* FERRER sp. nov. from Zambia, are described. *Cossyphodes decimcarinatus* FERRER, 1990, is transferred to the genus *Cossyphodinus*. The description of *Messor ferrerii* COLLINGWOOD sp. nov., host ant of *Cossyphodinus bremeri* sp. nov., is given.

Zusammenfassung

Eine neue Art der Gattung *Cossyphodes*, *C. mourgliai* FERRER sp. nov. aus Zambia, sowie neue Arten der Gattung *Cossyphodinus*, *C. bremeri* FERRER sp. nov. aus Kenya und *C. basilewskyi* FERRER sp. nov. aus Zambia, werden beschrieben. *Cossyphodes decimcarinatus* FERRER, 1990, wird in die Gattung *Cossyphodinus* gestellt. *Messor ferrerii* COLLINGWOOD sp. nov., eine Wirtsameise von *Cossyphodinus bremeri* sp. nov., wird beschrieben.

Introduction

Prof. Dr. H.J. BREMER from Heidelberg University kindly sent me specimens of Cossyphodinae from Mt. Elgon, Kenya, collected by him and from Zambia collected by our colleague Dr. R. MOURGLIA, Turin. These Cossyphodinae include new taxa described in this paper. The host ant of *Cossyphodinus bremeri* sp. nov. proved to be a new species of *Messor* is described as an appendix to this paper.

New species and a new combination in Cossyphodinae

by J. FERRER

Cossyphodes mourgliai FERRER sp. nov.

Diagnosis: Superficially recalling the form of body of *Cossyphodes kundelunguensis* BASILEWSKY, 1950, but more strongly convex, exhibiting strongly and highly elevated carina both ventrally and dorsally.

Length: 3.1 mm; maximum width: 1.2 mm.

Reddish, shiny, bare, exhibiting isodiametrical reticulation and apterous. Head semicircular in a nearly regular explanated curve from canthons to epistoma. Ocular canthons forming an acute near right angle with the lateral clypeo-epistomal explanation. Vertex forming a feebly curved line at a near right angle to the posterior side of the ocular canthons. Eyes small, narrowly constricted, occupying a space approximately equal to half the lateral portion of the canthons as measured in dorsal view. Frons deeply impressed before and between the eyes, with two subconcentric impressions parallel to the eye. Four smaller impressions are placed as follows: two anteriorly and two posteriorly in the epistomal portion in front of the eyes (fig. 1). Two moderate elevations are placed at the sides of the epistome corresponding to the insertion of the antennae in the inferior face of the head. Antennae invisible in dorsal aspect and normally retracted in special excavations in the inferior side of the head.

Pronotum 1.3 X as broad as long, subparallel at sides with obtusely rounded anterior angles and right angled but rounded posterior angles. The front border is strongly sinuate through the extreme ridged elevations of the thorax. Sides broadly explanate, each side as broad as the width of three ridges. Discal zone excavate and limited laterally by two anteriorly convergent ridges. Posterior border sinuate as the anterior border resulting in a wavy ridged conformation of the dorsal surface.

Elytra ovally acuminate at apex nearly 1.3 X as long as broad, with very flattened sides continuing the lateral explanation of the pronotum. The disc is very convex with each elytron having 5 ridges including the sutural. Intervals between the ridges broaden towards the centre and form a peculiar elevation visible in profile from the lateral explanate sides of the elytra as shown in fig.3. This elevation is carinate. The epipleurae are visible in lateral view and the dorsal carinae converge apically. Lower part of body depressed, bare, shiny, isodiametrical, feebly punctured, showing the same flattened aspect as the dorsum.

The head shows a well developed gular explanation at the sides completely concealing the eyes and most of the antennae; mentum excavated, concave anteriorly with

small basal teeth at the sides; mandibles black, shining and pointed (fig. 6).

Prosternum carinated at each side exhibiting a pointed superficially excavated apophysis (fig. 5). Abdomen depressed showing peculiar middle and lateral carinae. The disposition of these carinae is as follows: First abdominal sternite carinated at each side of the middle forming a weakly excavated depression between each carina at the sides. The space between the carinae occupies less than 1/3 of the breadth of the abdomen. Sternites 3, 4 and 5 each have another carina at each side. The space between the carinae is feebly excavated anteriorly and truncated anteriorly at the metasternal zone becoming obsolescent at the apex (fig. 2). The aedeagus is lanceolate, length 0.1 mm. (Fig. 4).

Habitat: This species was found under stones without indications.

Derivatio nominis: I am pleased to designate this species after my friend and colleague Dr. Ricardo MOURGLIA from Turin, specialist of African Cerambycidae.

Holotype: Male, Zambia, Kafue city, Kafue river, 1200 m, Lusaka, 22.XI. - 2.XII.1987, R. MOURGLIA leg. (coll. Prof. H.J. BREMER).

Paratype: Same provenance, sexe not examined (author's coll.).

***Cossyphodinus bremeri* FERRER sp. nov.**

Dimensions: Length 3.5 mm, maximum width 2 mm.

Diagnosis: Closely related to the *Cossyphodinus* group of *leleupi* (BASILEWSKY 1950: 183), but different from all previously known species by peculiar disposition of elytral carinae: In this new species carinae 4-5 of elytra are complete as in *leleupi*, but free, not united laterally. This new species is similar to *Cossyphodinus decimcarinatus* (FERRER 1990) but exhibits smaller eyes and 3 carinae obsolescent basally at disc (only 2 carinae are obsolescent basally in *decimcarinatus*).

Body largely oval, the outline of the head, prothorax and elytra being nearly continuous. Head large and semicircular, almost flat, vertex nearly straight, weakly curved inwards. Front without carinae, moderately convex at middle, from vertex to front. Epistome weakly impressed on either side with a small, oblique, longitudinal line, occupying the supraocular portion before the eyes, corresponding to the insertion of antennae in the inferior side of the head. Eyes very small, faceted, separated from each other by a distance equivalent to 10 X the width of a eye, measured dorsally.

Pronotum large, transverse, trapezoidal, nearly 2 and 1/2 X broader than long, feebly but regularly curved at sides, continuing the regular line from epistome of head to elytral apex, much flattened at the sides, finely and feebly keeled down on either side of its disc, also with two complete, raised striae and an other obsolescent in the posterior 1/2 zone on either side of pronotum.

Elytra likewise keeled and much flattened laterally, with 5 finely raised carinae on either side. The disposition of those carinae are as follows: carinae 5-4 complete, rejoining the base of elytra, carina 3 obsolescent in the anterior 1/3 of elytra. Carinae 2-1 occupying only the posterior 1/2 of elytra.

Inferior side of body finely and shortly pubescent, each hair yellowish and a little longer than the dorsal hairs. Prosternal apophyse shaped as a peculiar "axe", subparallel anteriorly, dilated and curved distally, without longitudinal impressions, weakly and pointly reflexed backwards, not surpassing the limit of procoxae (fig. 9).

Propleurae and epimerae of meso- and metathorax exhibiting vaste cavities to receive the legs. The excavation of mesothorax is large and semicircular.

3 first abdominal sternites broader as others and probably fused, first sternite narrow.

Aedeagus: Lanceolated and asymmetric (fig. 8).

Habitat: Collected in the nest of an undescribed species of ant, agreeing to the genus *Messor* and described by C.A. COLLINGWOOD under the name *M. ferreri* in an appendice of this paper.

Distribution: Probably endemic from Mt. Elgon.

Holotype: Male, Kenya, Mt. Elgon, 2.200 m, 23.vii.1988, leg. H.J. BREMER (deposited in Zoologische Staatssammlung München / ZSM).

Paratypes: 9 specimens, sexe not examined, same provenance (4 specimens in ZSM, 2 specimens in author's coll., 1 specimen in coll. Albert ALLEN, Idaho), 1 specimen in Museum National d'Histoire Naturelle, Paris, 1 specimen in Transvaal Museum, Pretoria.

***Cossyphodinus basilewskyi* FERRER sp. nov.**

Diagnosis: Similar to *Cossyphodinus leleupi* (BASILEWSKY, 1950) and related species *C. decimcarinatus* (FERRER, 1990) and *C. bremeri* sp. nov. and exhibiting as *decimcarinatus* lateral carinae 5, 4, 3 entirely rejoining the base of elytra, different of all those species by carina 2 longer, practically as long as the others, but becoming a little obsolescent at base. carina 1 shorter as in all species of the genus. As *C. leleupi* this new species exhibites carinae 5-4 rejoining together laterally, but this species is longer, finely pubescent and exhibites largely lanceolated and feebly impressed longitudinally prosternal apophyse.

Length 4 mm, maximum width 2 mm.

Reddish, shiny, finely covered with a extremely short, yellowish pubescence dorsally. Body oval, as the precedent species. Head semicircular, exhibiting two feebly impressions at each side of the epistoma placed before the anterior border of the eye. Eyes separated at front by a distance equal to about 12 X the width of a eye measured dorsally. Pronotum transverse, about twice broader than long, exhibiting subparallel sides, obtuse anterior angles and subright posterior angles. Base straight exhibiting a large zone at middle, separated from the disc of pronotum by a deeply impressed horizontal carina, enlarging this zone at middle and becoming very narrow laterally, with the posterior angles. Two longitudinally traced carinae are placed at each side of the disc, as in *C. leleupi*. The first carina is placed nearly discally and is feebly interrupted at middle, the second, extern carina is shorter, disappearing at middle, basally.

Elytra longely oval, about 1.6 X longer as broad, exhibiting 5 carinae disposed as following: 1 carina shorter discally, obsolescent at middle. Carinae 2, 3, 4 and 5 rejoining the base of elytra, the 2nd and 3rd a little feebly raised, 4-5 stronger and rejoining together apically. carina 3 feebly impressed apically. The holotype is clearly

asymmetric, the right 3rd carina becoming obsolescent and exhibiting only 2-3 points apically, the left side exhibiting a well impressed third carina into the apex. Base of elytra right.

Underside of body finely pubescent, covered with a yellowish pubescence a little longer as dorsally. Prosternal apophyse large, lanceolated and feebly impressed longitudinally (fig. 12).

Aedeagus lanceolated and asymmetric (fig. 11), more sinuated apically than in the anterior species.

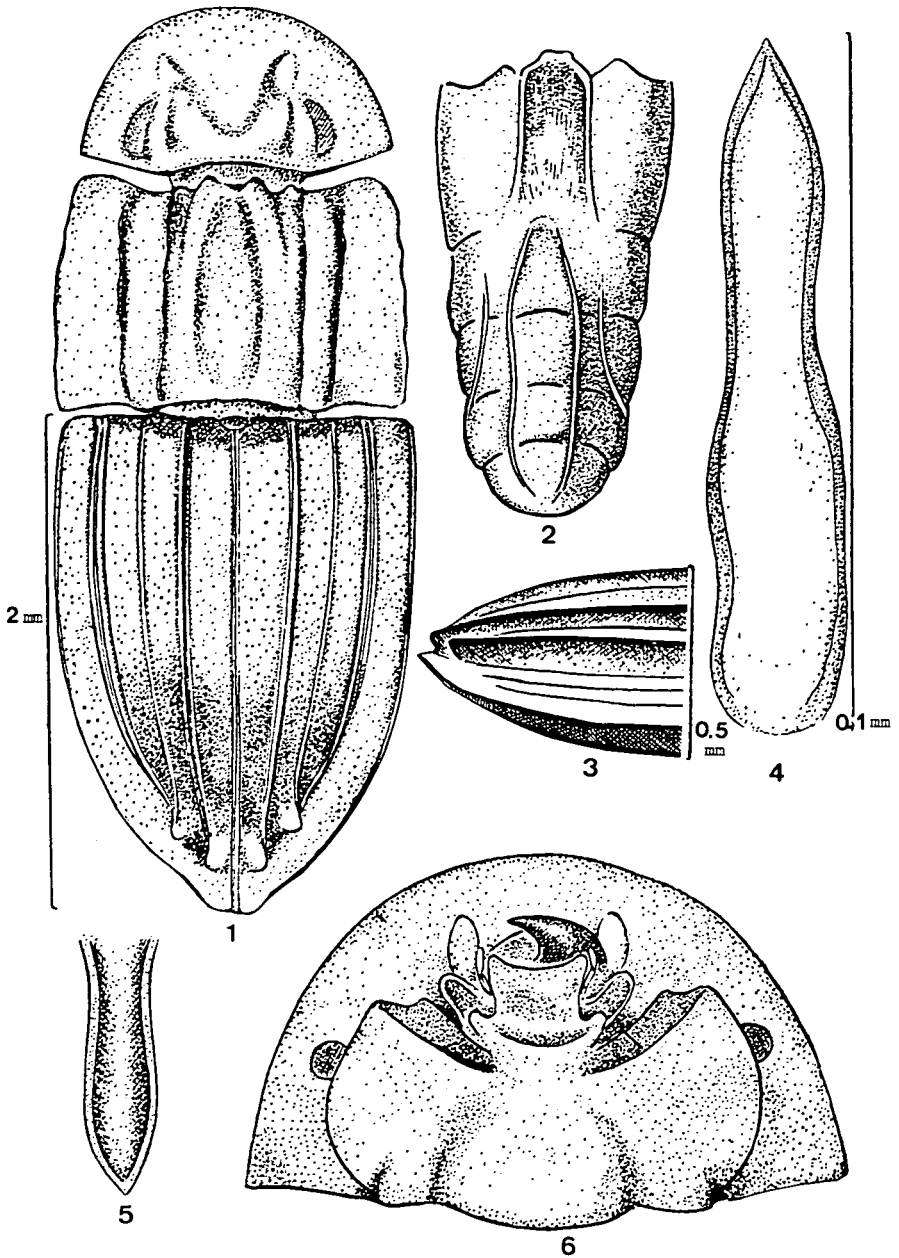
Holotype: Male, Zambia, Kafue city, Kafue river, 1200 m, Lusaka, 22.XI. - 2.XII.1987, R. MOURGLIA leg., ex coll. Prof. H.J. BREMER (deposited in Zoologische Staatssammlung München).

***Cossyphodinus decimcarinatus* (FERRER, 1990) comb. nov.**

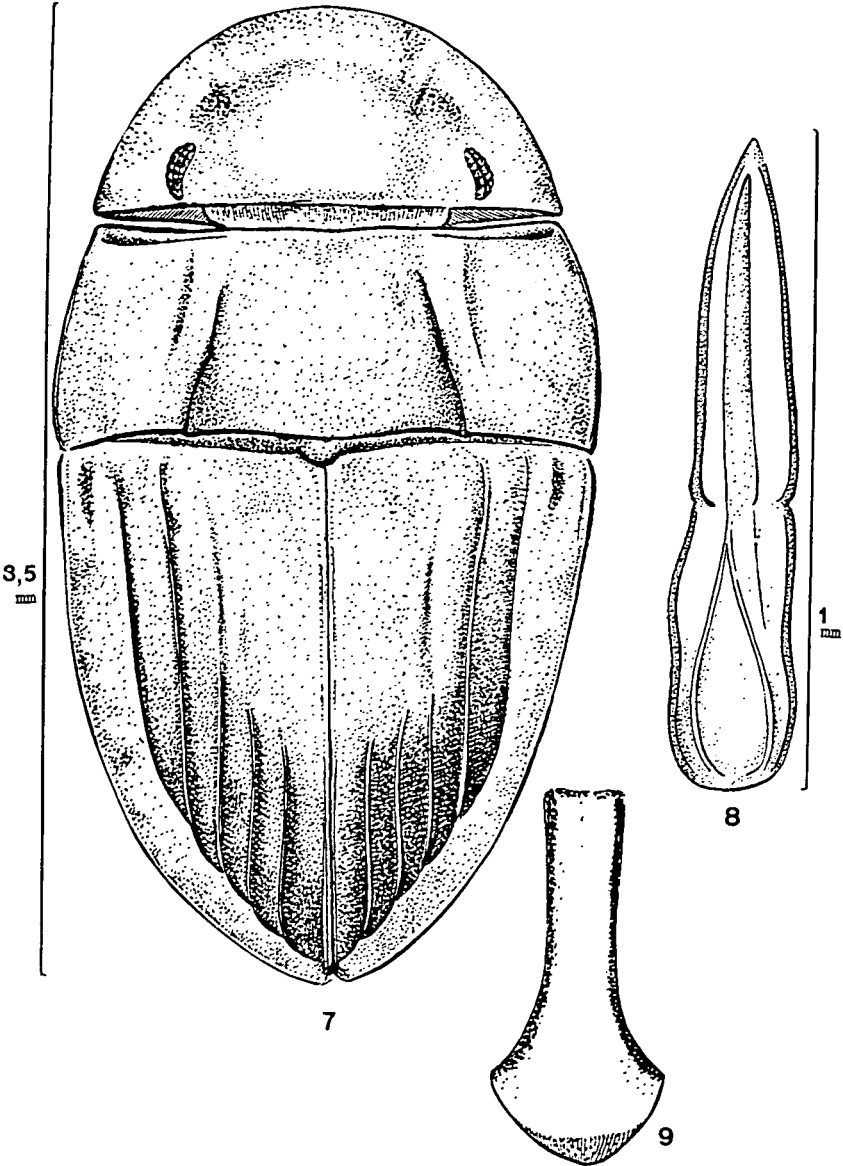
Describing this species from Kenya, I have erroneously placed it in the genus *Cossyphodes* WESTWOOD, 1850, because the antennal club apparently was fused by 2 segments. However, this species exhibits antennal club simple and tarsal combination: 5, 4, 4. Obviously it has to be transferred to the genus *Cossyphodinus* WASMANN, 1899: *Cossyphodes decimcarinatus* FERRER, 1990, = *Cossyphodinus decimcarinatus* (FERRER, 1990) comb. nov. This species differs from all other previously described species of this genus by three entire carinae of elytra.

Acknowledgements

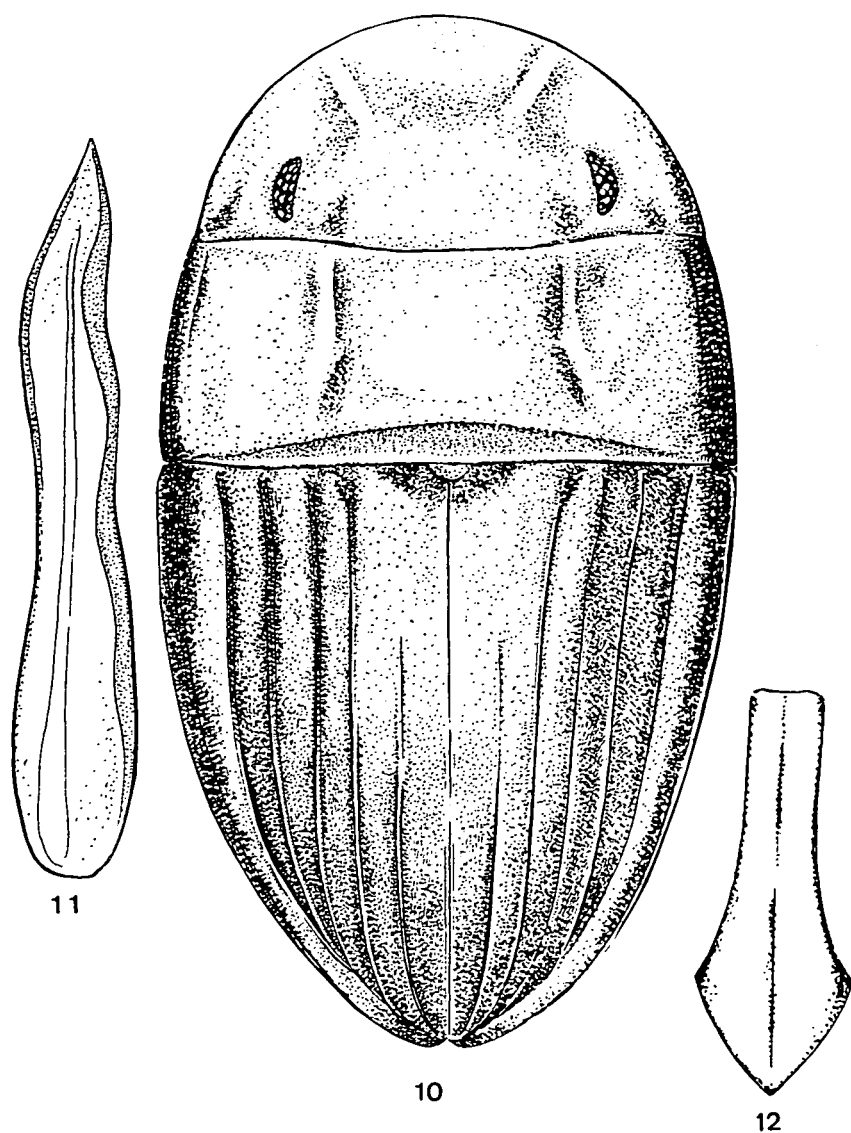
I am very grateful to my friends, Dr. R. MOURGLIA, Turin; Prof. Dr. H. J. BREMER, Heidelberg, collecting in Africa and giving me an occasion to study and describe this very interesting material, and to Mr. C.A. COLLINGWOOD, identifying and describing the host ant of *Cossyphodinus bremeri* sp. nov.



Figs. 1-6 *Cossyphodes mourgliai* FERRER sp. nov.: 1) Habitus; 2) Abdomen; 3) Profile view of apical portion of elytra; 4) Aedeagus; 5) Prosternal apophyse; 6) Underside of head.



Figs. 7-9 *Cossyphodinus bremeri* FERRER sp. nov.: 7) Habitus; 8) Aedeagus; 9) Prosternal apophyse.



Figs. 10-12 *Cossyphodinus basilewskyi* FERRER sp. nov.: 10) Habitus; 11) Aedeagus; 12) Prosternal apophyse.

Description of the host ant of *Cossyphodinus bremeri* FERRER sp. nov.

(Hymenoptera, Formicidae)

by C. A. Collingwood

***Messor ferreri* COLLINGWOOD sp. nov.**

Measurements of the holotype worker in mm: Total length 11.2, head length 2.82, head width 3.10, scape length 2.10, maximum eye length 0.47. Funiculus segment 1 : 2+3 = 32 : 37.

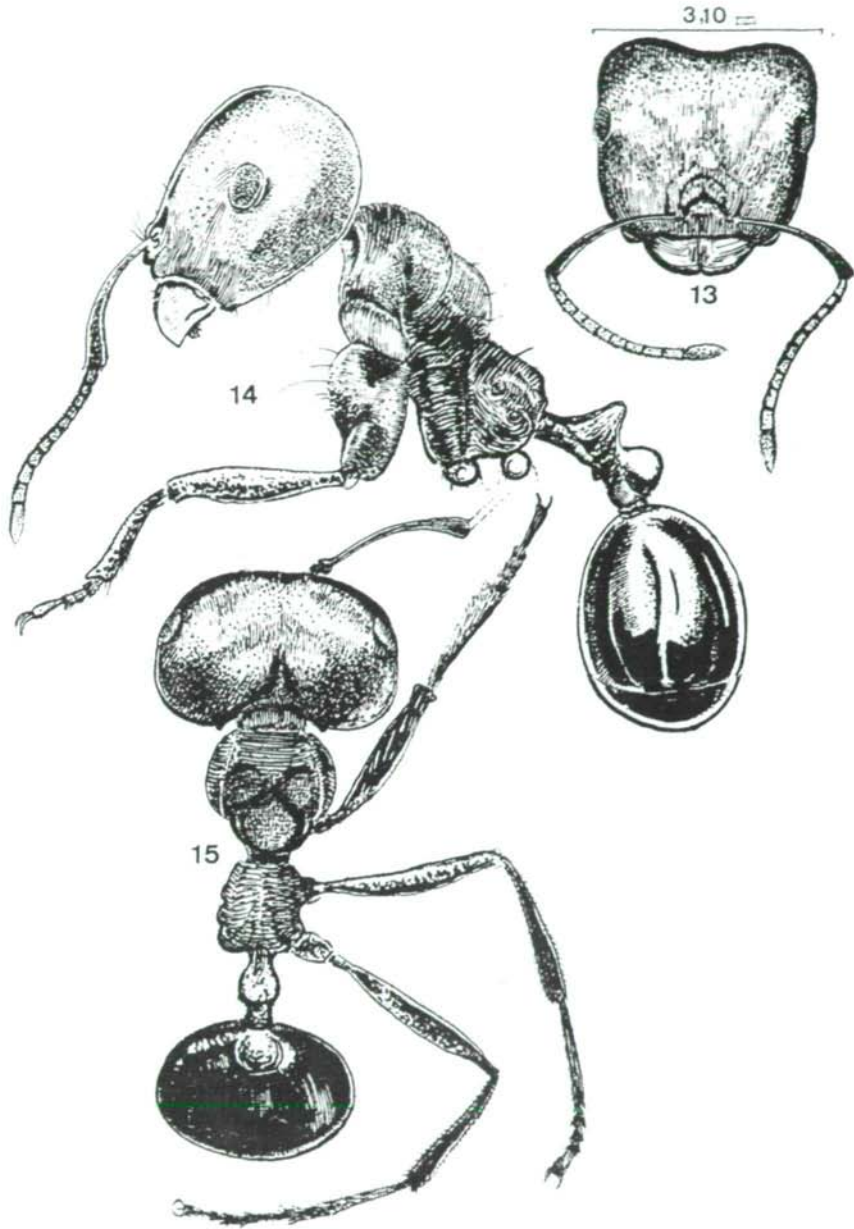
Head of usual *Messor* shape with very weakly indented clypeal border, almost square with rounded occipital corners and medially indented occipital margin. Propodeum obliquely angulate, unarmed. Antennal scape with subdecumbent hairs. Whole of head finely striate to occiput with a small area above the narrowest part of frons clear of sculpture apart from widely scattered small punctures. Whole of alitrunk reticulo-striate with the sides of the mesonotum and the whole of the propodeum strongly striate; petiole coarsely sculptured; postpetiole almost smooth; gaster completely smooth. Dorsum of head with a few scattered hairs, none on occipital margin and other hairs restricted to mandible base and clypeus which are coarsely sculptured. Propodeum with one suberect hair, dorsum of petiole and postpetiole without hairs. First gaster tergite hairless. Colour entirely black.

Paratype workers have variable head sculpture but with fine striae extending over at least half of dorsal surface. Eye size ranging from 0.153 - 0.19 X head width. Propodeum obliquely angled to rounded without dorsal hairs.

This species differs from *Messor angularis* SANTSCHI, 1914, by the much smaller eyes, the presence of several oblique hairs on the ventral surface of the hind femora and by the presence of an angular prominence on the antero-ventral surface of the postpetiole. It differs from *Messor galla* MAYR, 1904, by the absence of dorsal hairs on the petiole and postpetiole, the more sculptured head and the dark colour. These are the only two species redescribed by BOLTON (1982) in his revision of the Afrotropical *Messor* that in any way resemble *M. ferreri*. Another species, widespread in Arabia and the Middle East, *Messor ebeninus* FOREL, 1910, looks superficially similar but is of smaller size, has larger eyes and has a few dorsal hairs on the petiole, postpetiole and first gaster tergite (COLLINGWOOD 1986).

According to the data labels attached to the 4 specimens collected, *M. ferreri* was taken under a stone together with the inquiline beetle *Cossyphodinus bremeri* FERRER sp. nov. on the East face of Mt. Elgon, Kenya at 2.200 m. by H.J. BREMER, 23.vii.1988.

Holotype and 1 paratype in Zoologische Staatssammlung München, 1 paratype in Natural History Museum Stockholm, 1 paratype in coll. of the author.



Figs. 13-15 *Messor ferrerii* COLLINGWOOD sp. nov.: 13) Head frontal; 14) Habitus lateral; 15) Habitus dorsal.

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Literaturbesprechung

FOREY, P.L. et al.: Cladistics. A practical course in systematics. - Oxford University Press, Oxford, 1992. 191 S.

Systematik ist die Grundlage der gesamten Biologie, Kladistik ist eine gängige Methode der phylogenetischen Systematik, die für die Artbildung eine dichotome Verzweigung der Stammart voraussetzt. In der Kladistik basiert die rekonstruierte Abstammung mehr auf allgemeinen Verwandtschaftsbeziehungen, als auf einfachen anatomischen Ähnlichkeiten. Als Produkt eines von der britischen "Systematics Association" durchgeführten Kurses über Kladistik, versucht dieses Buch eine aktuelle Übersicht der Techniken einer modernen Kladistik zu vermitteln: "Charakterkodierung", "Kladogramm-Techniken", "Statistik", "DNA-Analyse", "Fossilien und kladistische Analyse", "Kladistische Biogeographie" und "Formale Klassifikation" sind die relevanten Themen, durch die sich der an Systematik interessierte Student "durchbeißen" muß. Für einen deutschsprachigen Student ohne einschlägige Vorkenntnisse eine wahrlich harte Angelegenheit, denn der knapp gehaltene Text steht auf hohem Niveau.

R. GERSTMEIER

DEJOUX, C., LTIS, A. (eds.): Lake Titicaca. A synthesis of limnological knowledge. - Kluwer Academic Publishers, Dordrecht-Boston-London, 1992. 573 S.

Aufgrund seiner enormen Höhenlage (3800 m), Größe (über 8500 km²) und Tiefe (284 m) gehört der Titicacasee sicher zu den extremsten Seen dieser Erde. Seine über hundert Jahre währende Erforschung gehört sicher zu den spannendsten Kapitel moderner Limnologie einerseits, andererseits weist sie noch erhebliche Lücken auf, so daß wir von einem vollständigem Verständnis dieses einzigartigen Ökosystems noch weit entfernt sind. Beginnend mit der Geomorphologie, über Palaeohydrologie und Klimatologie, werden physikalische und chemische Parameter, Phytoplankton, Makrophyten, Zooplankton, Benthos und die Fischfauna vorgestellt. Ethnologie, Ökonomie, das hydrologische und ichthyologische Potential sowie die Verschmutzung sind die angewandten Aspekte dieses Buches. Sehr gute Karten, etliche Grafiken, fantastische Strichzeichnungen vieler Organismen und 6 Farbtafeln illustrieren dieses Buch, welches als obligatorische Informationsquelle für alle zukünftigen Titicacasee-Forscher richtungsweisende Pflichtlektüre ist. Der bisherige Forschungsstand und der zukünftige Forschungsbedarf ist diesem empfehlenswerten Standardwerk zu entnehmen.

R. GERSTMEIER

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