

## New species and findings of Scaritinae (Coleoptera: Carabidae) from Madagascar. Part 2

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**Taxonomy, descriptions, redescrptions, faunistic, Coleoptera, Carabidae, Scaritinae, *Brachypelus*, *Dyscherus*, Madagascar**

**Abstract.** New species of the genera *Brachypelus* Putzeys, 1866 and *Dyscherus* Jeannel, 1946: *B. janaki* sp. n. and *D. janaki* sp. n., are described, illustrated and compared to the similar species. *Brachypelus obesus* Putzeys, 1866 and *Dyscherus storthodontoides* Bänninger, 1935 are redescrbed and the lectotype of *B. obesus* is designated. Second findings of the very rare species, *Madascaris marojejyanus* Basilewsky, 1976 and *Pilades coquereli narindae* Basilewsky, 1976, are quoted and the male genitalia of the first species are described and illustrated.

### INTRODUCTION

This paper concurs with papers of Basilewsky (1971, 1972, 1973, 1976 and 1978) and Bulirsch et al. (2005) where all to date known species of Madagascan Scaritinae, including the genera *Brachypelus* and *Dyscherus*, were described or revised.

Bulirsch et al. (2005) quoted findings of *Dyscherus storthodontoides* in Ambondrombe Mts.; these specimens well correspond to the original description of this species as well as to the redescription in Basilewsky (1973). Later, after loan of the holotype from MNHN, we have found out that the series from Ambondrombe belongs to a new, sibling species, described below. Finally, the first author has received for determination further rare Malgasy Scaritinae, including short series of *Madascaris marojejyanus* Basilewsky, 1976 known in female HT, and we have described and illustrated its male genitalia for the first time.

### MATERIAL AND METHODS

Both new species described there have been compared to the HT of the most similar species: *Brachypelus janaki* sp. n. to *B. obesus* (MNHN) and *Dyscherus janaki* sp. n. to *D. storthodontoides* (MNHN). Recently collected series of *Madascaris marojejyanus* has been compared to HT (MNHN) as well.

The methods of measurement of total length and proportions of different parts of body follow Bulirsch et al. (2005). We did not find any important measurement differences between males and females. Length of body is quoted with accuracy 0.05 mm by specimens

of the genus *Brachypelus* and 0.5 mm by specimens of the genera *Dyscherus* and *Madascaris* Bänninger (1937); length of median lobe of aedeagus with accuracy 0.01 mm by HT of *B. janaki* sp. n. and 0.1 mm by HT of other species. All the available specimens were used for the measurements. Male genitalia (aedeagi) were embedded in Canada Balsam or fixed with water soluble glue.

The following codens are used to indicate the depository of specimens:

ACTI A. Casale collection, Torino, Italy;

MNHN Muséum National d'Histoire Naturelle, Paris, France;

MRAC Royal Museum of Central Africa, Tervuren, Belgium;

PBPC P. Bulirsch collection, Praha, Czech Republic.

Further abbreviations used:

BSP: basal (prescutellar) setiferous puncture(s); DSP: dorsal setiferous puncture(s)

HT: holotype(s); PT: paratype(s)

/ (a forward slash): indicates the end of a line on locality labels

//: indicates the end of a label and the beginning of the next one

## RESULTS

### Genus *Brachypelus* Putzeys, 1866

A very rare and endemic genus with 13 known species from the eastern part of Madagascar that belongs to the tribe Clivinini. The first species of this genus was described by Putzeys (1866), next four species was described or redescribed by Basilewsky (1973, 1976) and remaining 8 species by Bulirsch et al. (2005). The genus was reviewed and its species were keyed by Bulirsch et al. (2005); latter authors studied different populations of *B. obesus* Putzeys, 1866 (in the sense of Basilewsky 1973, 1976) and commented differences between specimens from different localities but did not make any taxonomic changes. After study of next material collected (sub)recently, we have decided to separate a short series, collected in Mananara district, and described it here as a new species.

### *Brachypelus obesus* Putzeys, 1866

(Fig. 1)

**Type material.** Lectotype labelled: handwritten „obesus/ Putz./ Madagasc. Type”// printed „Type// Ex. Musaeo/ Mniszech// Museum Paris// Lectotypus/ Brachypelus/ obesus Putzeys, 1866/ P. Bulirsch des. 2009”, (MNHN).

**Other material studied:** „Madagascar Est/ Beforona/ (RN No. 2) PK 181/ lavage de terre/ A. Peyrieras x. (19)73 (leg.)// Coll. Mus. Tervuren/ (ex. Muséum Paris)/ Coll P. Basilewsky”// *Brachypelus/ obesus* Putz/ P. Basilewsky det. 1974”, 1 ♀, (MRAC); „Madagascar: Tam(atave)/ Foulpointe/ xi.1995 bac jaune/ forêt, sable/ A.Pauly coll//Coll. Mus. Tervuren”, 1 spec., (MRAC) and 1 ♂ with general locality Madagascar, (PBPC).

**Redescription of lectotype.** Habitus as in Fig. 1; length of body 6.90 mm. Surface dark piceous, antennae and mouthparts rusty brown, legs dark rusty brown; underside piceous.

Head. Smooth, convex, with very fine micropunctures. Anterior margin of clypeus slightly emarginated, bordered; lateral lobes protruded, slightly separated of convex supraantennal plates. Transversal furrow missing, facial furrows deep, parallel and broad. Eyes relatively very broad, almost twice broader than width of antennomere 2. Antennae moniliform, with outer antennomeres nearly globose (left antennomeres 8-11 and right 4-11 missing).

Pronotum. Transversal, moderately vaulted from lateral view; 1.25 times as wide as long, 1.86 times as wide as head; fairly smooth, without microsculpture except narrowly reticulated area along lateral margin, with fine micropunctures. Lateral channel moderately broad and entire; sides moderately rounded, strongly attenuated anteriorly; maximum width below second third of its length; posterior angles broadly rounded. Front transverse impression indistinct, median line strongly impressed and broad, distinct towards base.

Protibia. Relatively broad from lateral view.

Elytra. Convex, outline ovate, maximum width distinctly before middle; 1.43 times as long as wide, 1.07 times as wide as pronotum, 1.92 times as long as pronotum, base rectilinear to stria 3, then moderately sloping; humeri moderately rounded; humeral reflexed margin continuous, without humeral denticle. BSP distinct, connected with stria 1. Two lateral intervals, base and apex finely reticulated, disk smooth, with irregular, fine micropunctures. Lateral channel wide, continuous, at base extended to stria 4. Elytral striae deeply impressed, moderately, irregularly punctate, weakened in apical fifth and disappearing straight before apex. Stria 3 with 1 DSP in apical third. Intervals strongly convex in basal two third, slightly vaulted in apical third and flat on apical inclination.

Ventral part. Ventral segments in middle not reticulated, last visible segment with very fine and sparse wrinkles. Episterna and epipleura shining, very finely, irregularly reticulated.

**Remarks.** *B. obesus* was described by Putzeys (1866) with a general locality Madagascar. Basilewsky (1973, 1976) cited above redescribed specimen as Type and quoted next findings from diverse localities. Together with Lectotype we have revised 6 specimens of *B. obesus* (in the sense Basilewsky, 1973, 1976, Bulirsch et al. 2005); three of them cited above (from East Madagascar, E of Perinet) very probably actually belong to this species but remaining three (from NE Madagascar, Mananara district) create a new species described below. By LT are labial setae hardly recognisable due to damage of this very old specimen, by remaining three specimens is labrum 7-setose, but middle seta is more or less vestigial. Lectotype designation is made to stabilize the nomenclature of this species.

### ***Brachypelus janaki* sp. n.**

(Figs 2, 2a,b,c)

**Type material.** Holotype (♂) labelled: „Madagascar Est/ Ambatodrahely/ Dr. Mananara-Nord/ Vadon, Peyrieras (leg.) X.// Coll. Mus. Tervuren/ (ex. Muséum Paris)/ Coll P. Basilewsky”, (MRAC). Paratypes: (1 ♀) labelled: „(Madagascar Est)/ A-(mbato)drahely/ (district) Mananara (Nord)/ Peyrieras (leg.) X.”, (PBPC); (1 ♀) labeled: “Madagascar-Est/ Dist. - Mananara Nord/ Seranambe/ Vadon-Peyrieras (leg.)”, (MRAC).

**Description.** Habitus as in Fig. 2; length of body by HT 6.20 mm, by PT 6.45 mm, 7.35 mm. Surface dark piceous, antennae and mouthparts rusty brown, legs dark rusty brown; underside piceous.

**Head.** Smooth, convex, with very fine micropunctures. Anterior margin of clypeus slightly emarginated, bordered, lateral lobes protruded anteriorly, slightly separated of convex supraantennal plates. Transversal furrow distinct, moderately impressed; facial furrows deep, parallel and moderately broad. Eyes broad, about 1.5 times as broad as width of antennomere 2. Antennae moniliform, with outer antennomeres nearly globose. Labrum 7-setose; by HT median seta very fine, by both PT distinct.

**Pronotum.** Slightly transversal, strongly vaulted from lateral view; by HT 1.18, by PT 1.17, 1.18 times as wide as long, by HT 1.76, by PT 1.75, 1.77 times as wide as head, fairly smooth, without microsculpture except very narrowly reticulated area along lateral margin, with fine micropunctures. Lateral channel broad and entire; sides slightly rounded, moderately attenuated anteriorly; maximum width behind second third of its length; posterior angles broadly rounded. Anterior transverse impression indistinct, median line strongly impressed and broad, distinct towards base.

**Protibia.** Relatively broad from lateral view.

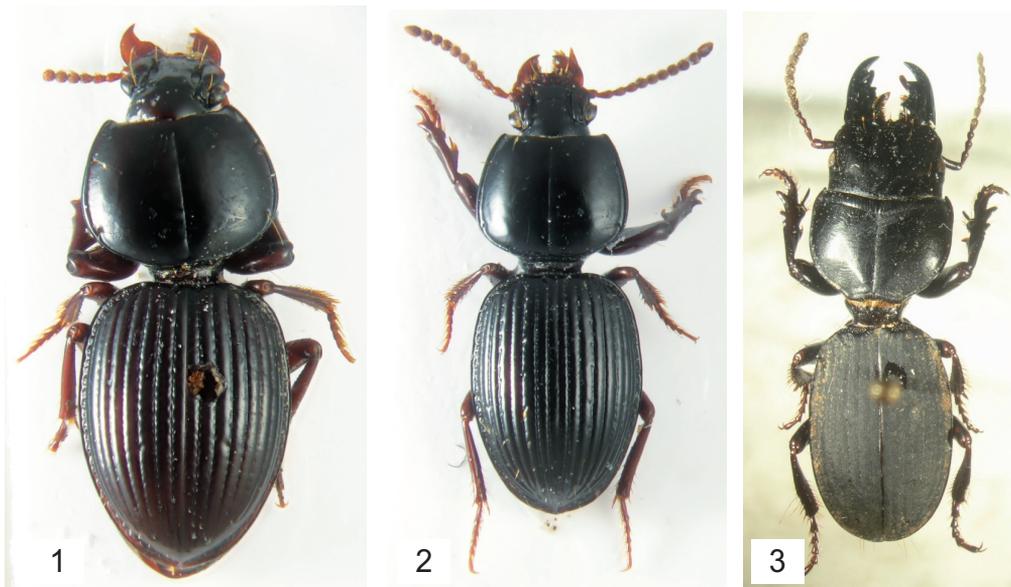
**Elytra.** Convex, outline ovate, maximum width distinctly before middle; by HT 1.45, by PT 1.44, 1.48 times as long as wide, by HT 1.11, by PT 1.10, 1.12 times as wide as pronotum, by HT 1.89, by PT 1.87, 1.95 times as long as pronotum; base rectilinear to stria 4, then slightly sloping; humeri narrowly rounded; humeral margin continuous, without humeral denticle. BSP distinct, connected with stria 1. Two lateral intervals, base and apex finely reticulated, disk almost smooth, with irregular rests of very fine reticulation and with fine micropunctures. Lateral channel wide, continuous, at base extended to stria 4. Elytral striae deeply impressed, moderately, irregularly punctate, not weakened apically. Striae 3, 5, 7 with several DSP: stria 3 with 8-10, stria 5 with 10-12 and stria 7 with 5-6 punctures. Intervals strongly convex in its whole length including apical inclination.

**Ventral part.** Ventral segments in middle not reticulated, last visible segment with fine and sparse wrinkles. Epipleura of elytra reticulated in basal part, episterna shining, slightly and irregularly reticulated.

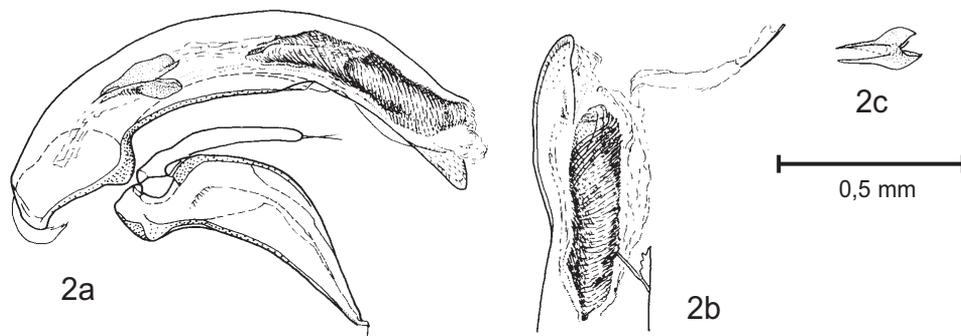
**Aedeagus.** As in Figs 2a,b; by HT 1.26 mm long; median lobe strongly curved in apical third; its left side in subapical part slightly bulging. Basal sclerite as in Fig. 2c, by HT 0.26 mm long. Apex simple, long, narrowly rounded from dorso-apical view. Paramere (right one from above) with single recognisable seta.

**Differential diagnosis.** *B. janaki* sp. n. can be distinguished from the most similar species, *B. obesus*, by head with narrower eyes and with distinct transverse furrow (by *B. obesus* this furrow is missing); by pronotum slightly narrower, less narrowed anteriorly and especially by elytra with several DSP in intervals 3, 5, 7 (versus single DSP in interval 3) and with intervals strongly vaulted up to apex (versus flat apically).

**Name derivation.** Patronymic, in honor of Jiří Janák (Rtyně nad Bílinou), specialist in Staphylinidae.



Figs. 1-3. 1- *Brachypelus obesus* Putzeys, 1866 (6.90 mm): habitus of lectotype. 2-3- Habitus of holotypes (actual length in parentheses behind the name): 2- *B. janaki* sp. n. (6.20 mm); 3- *Dyscherus janaki* sp. n. (18.5 mm).



Figs 2a, b, c. *B. janaki* sp. n.: 2a- aedeagus of HT from right lateral view; 2b- apex of aedeagus of HT from dorso-apical view; 2c- basal sclerite of median lobe of HT.

### Genus *Dyscherus* Chaudoir, 1855

An endemic genus with 14 known species from Madagascar that belongs to the tribe Dyscherini (in the sense Basilewsky 1973, 1976).

*Dyscherus janaki* sp. n.

(Figs 3, 3a)

**Type material.** Holotype (♂) labelled: „E Madagascar 26.iii.-2.iv./ 2001, Mt. Ambondrombe/ env. peak 1579, camp 6/ 1500-1600 m, P. Bulirsch lgt.“, (PBPC). Paratypes: (2 spec.): with the same data as HT, (PBPC); (1 ♂, 4 spec.) labelled: „Madagascar Est, 1500-1600 m/ Massiv Ambondrombe, J. Janák + P. Moravec lgt.// cote 1579, 15-18.3.1996/ forêt humide/ tamisages, camp 5“ (or sous/ écorses, camp 5“ or feuilles en/ décomposition, camp 5“), (PBPC).

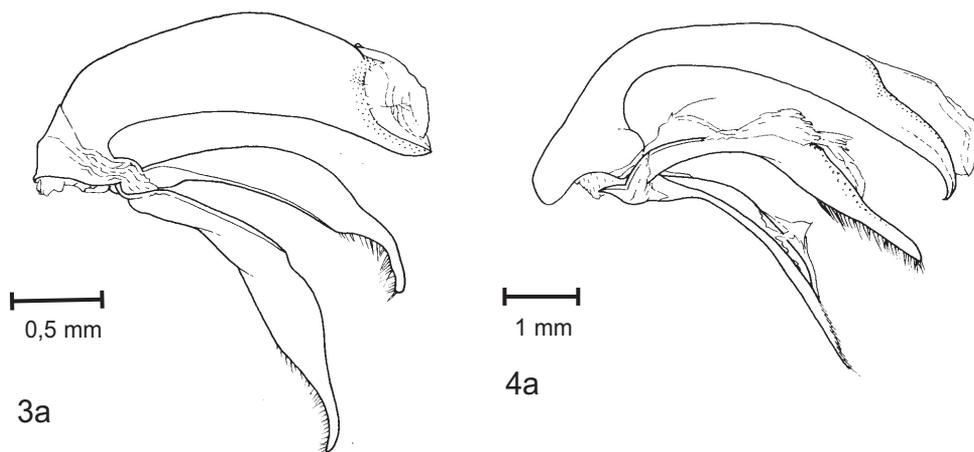
**Description.** Habitus as in Fig. 3; length of body: 17.0-19.0 mm (HT 18.5 mm, mean of 7 measured specimens 18.0 mm). Black, femora fuliginous, tibiae, tarsi, antennae and mouth parts brown piceous.

Head. Broad, vaulted, surface shiny, with irregular reticulation in its latero-posterior part; surface with fine micropunctures; frontal furrows slightly impressed and moderately long; some superficial and irregular striae also between eyes and prolongation of frontal furrows and on front. Eyes relatively small and flat, genae flat, not extended beyond eyes level. Facial furrows deep, started in middle of rounded, not emarginated supraantennal plates, and turned down around posterior part of eyes.

Pronotum. Slightly transverse, 1.35-1.42 (HT 1.35, mean 1.40) times as broad as long, 1.16-1.23 (HT 1.16, mean 1.20) times as broad as head, surface moderately shiny, disk slightly irregularly reticulated, with fine punctures and irregular wrinkles; basal foveae large, dull, with regular and strong reticulation and sparse small tubercles; disk flattened from lateral view; anterior margin emarginated; anterior angles protruded as short and very sharp projection. Outline slightly convex, subparallel in anterior part, distinctly narrowed in anterior third, forming there very blunt, just recognizable angle, indistinctly to slightly emarginated before flange (posteriorly produced pronotal base). Lateral channel with anterior and posterior setiferous punctures (by one PT left anterior puncture duplicate), without next basal punctures. Front transverse impression deep, crossed by dense and fine striae, not shortened laterally, median line deep and broad, crossing basal line above flange).

Protibia. With 2 large apical and next 2-3 smaller lateral teeth; upper surface without setae in middle.

Elytra. Slightly flattened from lateral view; 1.51-1.59 (HT 1.59, mean 1.56) as long as wide, 1.01-1.05 (HT 1.02, mean 1.02) times as broad as pronotum, 2.13-2.25 (HT 2.19, mean 2.21) times as long as pronotum; almost complete upper surface dull, strongly reticulated, covered by rough and very dense granulation; basal inclination and very basal part of intervals 3, 5 shining; base before intervals 2-5 with 3 irregular lines of small tubercles. Outline convex, formed by interval 8, by HT and some PT slightly, by remaining PT moderately extended backwards. Base narrow, strongly sloping, humeri broadly rounded, slightly protruded, humeral tooth moderately large, blunt, not overhanging outline from dorsal view. Striae 1-6 very fine, finely and sparsely punctate, not weakened apically, stria 7 just visible; intervals generally almost flat, intervals 3 and by HT and some PT also interval 5 markedly elevated just before base, interval 7 forming by very short and moderately sharp humeral keel connected with humeral tooth. Stria 3 with 4 DSP; first at about middle, remaining three in apical fourth; interval 5 just before base with 1 DSP (near stria 5).



Figs 3a, 4a. 3a- *Dyscherus janaki* sp. n.: aedeagus of HT from right lateral view. 4a- *Madascaris marojejanus* Basilewsky, 1976: aedeagus of non type male from right lateral view

Ventral part. Prosternal projection with rows of setae along its lateral and posterior border, anterior part of mesothorax without setae. Episterna, interval 9 („pseudoepleura“) and epleura shiny, with irregular rests of reticulation. Paragenae triangle, without any tooth, internal carina not developed.

Aedeagus. As in Fig. 3a; by HT 2.1 mm long, median lobe short and broad, laterally lower margin in apical part straight, not bent down. Parameres with long and narrow apical part.

**Differential diagnosis.** Basilewsky (1973, 1976, 1978) described or redescribed and keyed all *Dyscherus* species except recently described *D. ambondrombe* Bulirsch, Janák et Moravec, 2005. *D. janaki* sp. n. can be distinguished from the sibling species, *D. storthodontoides* Bänninger, 1935, redescribed below, by smaller body (17.0-19.0 mm versus 23.5 mm by HT of *D. storthodontoides*); by head with facial furrows turned down around posterior part of eyes (by *D. storthodontoides* are furrows straight posteriorly, not turned down); by pronotum with front transverse impression deeper, not obliterated laterally, with base not distinctly emarginate; by elytra with strongly sloping base and with broadly rounded humeri (by *D. storthodontoides* is base moderately sloping and humeri are more distinct); by interval 7 forming much shorter keel (by *D. storthodontoides* keel reaches elytral midlength) and by protibia without setae in the middle of upper side. *D. janaki* sp. n. can be distinguished from sympatric *D. ambondrombe* by smaller body (17.0-19.0 mm versus 24.0-30.0 mm); by head with facial furrows turned down around posterior part of eyes (by *D. ambondrombe* are furrows straight posteriorly, not turned down); by pronotum with front transverse impression much deeper, not obliterated laterally, with base slightly emarginate, without additional setae (by *D. ambondrombe* are 2-5 prebasal setae); by elytra with more strongly sloping base and more broadly rounded humeri, with anterior DSP near stria 5 (versus near stria 4); by paragenae without inner keel and by mesosternum without setae.

**Name derivation.** Patronymic, in honor of Jiří Janák (Rtyně nad Bílinou), collector of several Madagascan Scarininae.

*Dyscherus storthodontoides* Bänninger, 1935

**Material examined.** Holotype labeled: „Museum Paris/ Madagascar/ Ivohibé/ B. Decary, 1926// Type// Type/ *Dyscherus storthodontoides*/ det Bänninger 12.1934 m.”, (MNHN).

**Redescription of holotype.** Length of body 23.5 mm. Black, femora fuliginous, tibiae, tarsi, antennae and mouth parts brown piceous. Head and pronotum moderately shining, elytra dull.

Head. Broad, with irregular, very fine reticulation; surface with dense, fine micropunctures; frontal furrows broad, slightly impressed and moderately long; some superficial and irregular striae also between eyes and prolongation of frontal furrows and on front. Eyes relatively small and flat, genae flat, not extended beyond eyes level. Facial furrows deep, started below middle of rounded, not emarginated supraantennal plates, direct, not turned down around posterior part of eyes.

Pronotum. Slightly transverse, 1.36 times as broad as long, 1.08 times as broad as head surface moderately shiny, disk slightly irregularly, fine reticulated, with fine punctures and irregular wrinkles; basal foveae large, dull, with regular and strong reticulation and sparse small tubercles; disk flattened from lateral view; anterior margin regularly emarginated; anterior angles protruded as short and sharp projection. Outline slightly convex, moderately narrowed in posterior third, forming there very blunt, slightly recognizable angle, emarginated just before flange (posteriorly produced pronotal base). Lateral channel with anterior and posterior setiferous punctures, without next basal punctures. Front transverse impression superficial, not cross-striated, obliterated laterally, median line deep and broad, crossing basal line above flange.

Protibia. With 2 big apical and next 3-4 smaller teeth, upper surface with 2 setae in middle.

Elytra. Flattened from lateral view; almost complete upper surface dull, strongly reticulated, covered by rough and very dense granulation; basal inclination and very basal part of intervals 2, 3 shining; base above intervals 1-5 with 3-4 irregular lines of small tubercles. Outline, formed by interval 8, convex, extended backwards. Base moderately sloping, humeri moderately protruded, humeral tooth moderately large, blunt, not overhanging outline from dorsal view. Striae 1-6 fine, fine and sparse punctate, slightly weakened apically, stria 7 just visible; intervals generally vaulted, intervals 3 distinctly, 2,4 moderately, 5-6 slightly elevated just before base, interval 7 forming long and sharp humeral keel, diminish below midlength, connected with humeral tooth. Stria 3 with 4-5 DSP; interval 5, near stria 4 with 1 DSP just before base. Length : width ratio 1.60, elytra : pronotum length ratio 2.19 and elytra : pronotum width ratio 1.01.

Ventral part. Prosternal projection with row of setae along its lateral and hind border, anterior part of mesothorax without setae. Episterna, interval 9 („pseuoepipleura“) and elipleura shiny, finely reticulated, epipleura. Paragenae triangular, without any tooth, internal carina not developed.

Aedeagus. As in Fig. 47b in Basilewsky (1973).

### Genus *Madascaris* Bänninger, 1937

A very rare and endemic genus with 4 known species from the northern part of Madagascar that belongs to the tribe Scaritini.

#### *Madascaris marojejanus* Basilewsky, 1976

(Fig. 4a)

**Type material examined.** Holotype (♀) labelled: „Madagascar N.E./ Massif du Marojejy/ 2050 m, xii. (19)72/ Peyrieras (leg.)// Holotype// Madascaris/ marojejanus n. sp./ P.Basilewsky det. 1974” (MNHN). Paratype: only head and elytra, with the same locality data as HT, (MNHN).

**Other material examined:** „Madagascar/ Ambolokopatrika/ m 750 27/V-3/VI (19)97/ F. Andreone (leg.) // Diego S.(uarez)/ 14°31 47.5S/ 49°26 27.5 E”, 1 (♂) and 1 spec., (PBPC, ACTI); „Madagascar/ Ambodiangezoka/ foresta Ambolokopatrika/ F. Andreone (leg.)// camp 1/ 14°32 23.1 S/ 49°26 18.0 E”, 1 spec., (ACTI).

**Description of aedeagus.** As in Fig. 4a; by non type male 5.5 mm long, median lobe long and narrow, laterally its lower margin slightly, regularly concave, top of apex very narrow, distinctly bent down. Parameres with long and narrow apical part.

**Comments.** Newly examined specimens were collected relatively near to the type locality but at lower altitude. These 3 specimens slightly differ from HT by length of body (26.0 mm by HT versus 30.0-33.5 mm by non type specimens); moreover by HT are pronotal lateral margins before base long parallel and pronotal posterior angles almost rectangular, base before angles is very slightly oblique; paragenae have blunt, but distinct tooth and mentum is indistinctly bordered posteriorly, whereas by non type series is pronotal lateral margin before base shorter, slightly converged posteriorly; base before oblique posterior angles is more obtuse; paragenae have less distinct inner tooth and mentum is more distinctly bordered. It is possible that newly collected specimens create a new subspecies or even a sibling species but material of both series (moreover from the type series no male is known) is too small to solve its (sub)specific status.

### Genus *Pilades* Heyne et Taschenberg, 1894

A rare and endemic genus with 4 known species and 9 subspecies mostly from the northern part of Madagascar that belongs to the tribe Storthodontini (in the sense Basilewsky, 1973, 1976).

*Pilades coquereli narindae* Basilewsky, 1976

**New material examined:** „Madagascar/ Sahamalaza/ 14.ii.2000/ Andreone (leg.)”, 2 spec., (ACTI, PBPC); 1 spec. with the same locality data but 20.ii.2000, (ACTI).

**Remark.** Second finding; to date this species has been known only in 2 type specimens.

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