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New Anillina from South Africa, Tanzania, Madagascar and Seychelles Islands (Coleoptera: Carabidae, Bembidiini)

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Abstract
The Author describes two new genera of Bembidiini Anillina (Carabidae): *Afranillus* **gen. n.** of the *Paranillus* phyletic lineage and *Afrodipnus* **gen. n.** of the *Microtyphlus* phyletic lineage and the following new species: *Paranillus madecassus* **sp. n.** from Ankarafantsika N.P. (NW Madagascar); *Paranillus banari* **sp. n.** from Ranomafana N.P. (Madagascar); *Afranillus schuelei* **sp. n.** from Silaka Nat. Res. (Eastern Cape, RSA); *Argiloborus praslinicus* **sp. n.** from Praslin Is. (Seychelles); *Caeconannus bulirschi* **sp. n.** from Franschhoek pass (Western Cape, RSA); *Caeconannus occidentalis* **sp. n.** from Koloniesbos (Western Cape, RSA); *Caeconannus orientalis* **sp. n.** from Amatola Mts (Eastern Cape, RSA); *Microdipnites zicsii* **sp. n.** from Kwamkoro (Tanga reg., Tanzania); *Pelonomites mahunkai* **sp. n.** from Kwamsambia For. (Tanga reg., Tanzania); *Afrodipnus transvaalianus* **sp. n.** from Roberts Drift (S. Transvaal, RSA). Comparative morphological data are provided and discussed.

Key words: Coleoptera, Carabidae, Anillina, Madagascar, Seychelles, Tanzania, South Africa, new species, new genera, soil fauna, endogean beetles.

Introduction

Carabidae Bembidiini of the subtribe Anillina of the Ethiopian Zoogeographic Region, and particularly of Madagascar, are unanimously considered well-known, as several important contributions have been devoted to Madagascar by the famous specialist René Jeannel (1937, 1949, 1952, 1954, 1957, 1958, 1963). After the contributions by Jeannel, and before the paper of Giachino (2008) devoted to the knowledge of Anillina of Madagascar and Seychelles Islands, only few contributions have been dedicated to African Anillina by different specialists (Sciaky & Zaballos 1993; Zaballos & Casale 1997; Garetto & Giachino 1999; Schüle, 2004).

Recent specialistic entomological research, aimed mainly at searching geobiotic and phytosaprobic entomofauna, carried out in Madagascar, Seychelles Islands and South Africa by a group of Czech entomologists, whose material was put at my disposal for study by my colleague Petr Bulirsh of Prague, together with the material sent in study by my colleague Peter Schüle of Herrenberg (Germany), by the Ditsong National Museum of Natural History of Pretoria, by the Field Museum of Natural History of Chicago and by the Hungarian Natural History Museum of Budapest, enable me to add further knowledge about this interesting group of endogean Ground Beetles in Africa.

Material and methods

The specimens, of which the drawings of the habitus and male genitalia were made, were previously included in Canada Balsam. The drawings were made by means of a camera lucida connected to a Leica Biological Microscope DM2500 equipped with differential interference contrast.

Specimens total length is always measured from the anterior margin of the labrum to the end of the elytra.

The following acronyms have been used for the Museums or private Collections:

- DMNHP: Ditsong National Museum of Natural History, Pretoria, South Africa.
- FMNHC: Field Museum of Natural History, Chicago, U.S.A.
- HNHMB: Hungarian Natural History Museum, Budapest, Hungary.
- MMBC: Moravian Museum, Brno, Czech Republic.
- CBu: Petr Bulirsh Collection, Praha, Czech Republic.
- CCa: Achille Casale Collection, Torino, Italy.
- CGi: Pier Mauro Giachino Collection, Torino, Italy.

The following acronyms have been used for the type material:

- HT: Holotype
- PT, PTT: Paratype(s)

Taxonomy and Systematics

Paranillus phyletic lineage (sensu novo)

Key to the Genera

1. Umbilicate series of 9 pores; labial tooth bearing two setae, labium without setae on the central area .... *Paranillus* Jeannel
- Umbilicate series of 10 pores; labial tooth without setae, labium bearing two setae on the central area .... *Afranillus* **gen. n.**

Genus ***Paranillus*** Jeannel, 1949

After the description of the new species included in this contribution, the key to the species of *Paranillus* (*Paranillus*) given by Jeannel (1963: 86) and modified by Giachino (2008: 92) needs to be changed as follows:

Subgen. ***Paranillus*** s. str.

1. Species of the Seychelles Islands ..... *P. insularis* Giachino
- Species of Madagascar 2
2. Species of smaller sizes, not over 1.10 mm 3
- Species of bigger sizes, over 1.10 mm .... To be continued at point 1 of Jeannel's key (1963: 86)
3. Elytra bearing the posterior discal seta .... *P. janaki* Giachino
- Elytra without the posterior discal seta 4
4. Pronotum more transverse, with the base as wide as the anterior edge ..... *P. pavesii* Giachino
- Pronotum less transverse, with the base clearly narrower than the anterior edge 5
5. Species of smaller size (0.88 mm); aedeagus as in fig. 4 .... *P. madecassus* **sp. n.**
- Species of bigger size (1.0-1.09); aedeagus as in fig. 3 .... *P. banari* **sp. n.**

Paranillus (***Paranillus***) ***insularis*** Giachino, 2008

Examined material: 7 exx, **Seychelles**: Mahé, Trois Frères, 450-470 m, 4°38'04''S 55°26'52''E, 20 Nov 2007, J. Janák leg., shrubs *Memecylon* + *Pandanus* sifted litter (CBu, CGi).

Notes. *P. insularis*, endemic to the island of Mahè (Seychelles), was known so far from two sites placed, respectively, in the North and in the South of this island (Giachino 2008). The new site of Trois Frères, characterized by *Memecylon* and *Pandanus* shrubs, is located instead in the central part of the island.

Paranillus (***Paranillus***) ***madecassus*** **sp. n.** (figs. 2, 4)

Locus typicus: Madagascar NW: Ankarafantsika N.P., S 16°18'46.6" E 46°48'58.8", 89 m.

Type series: HT ♂, AKF/04/2011, Madagascar NW, Ankarafantsika N.P., S 16°18'46.6" E 46°48'58.8", 89 m, sifting forest litter, Winkler app. extr., L.S. Rahanitriniaina & R. Raveloson lgt. (MMBC).

Diagnosis. *P. madecassus* sp. n. differs from all other Malagasy species of the nominal subgenus by the smallest size (0.88 mm). Related to *P. milloti* Jeannel, 1949, *P. janaki* Giachino, 2008, *P. pavesii* Giachino, 2008 and *P. banari* sp. n. by the pronotum having sides without denticulations before the basal angles, it differs from *P. milloti*, *P. janaki* and *P. banari* sp. n. by the different shape of the median lobe of the aedeagus. It differs from *P. pavesii* also by the pronotum bearing a less transverse shape and from *P. janaki* by the absence of the posterior discal seta of elytra.

Description of the Holotype ♂. Total length (from the anterior margin of the labrum to the end of the elytra) 0.88 mm. Body elongated, relatively slender, depigmented, testaceous, with legs, antennae and palpi lighter; integuments shiny, with an obvious microsculpture, covered with a sparce and short pubescence.

Head relatively big, poorly narrower than the pronotum. Labium bearing a semitransparent tooth, not clearly visible. Antennae robust, moniliform, short, just reaching the base of the pronotum when stretched backwards. Clypeo-frontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum transverse (max width/max length ratio = 1.27), with the maximum width at about the anterior third, base narrower than the anterior edge; sides regularly arcuate anteriorly, subrectilinear posteriorly, posteriorly sinuate just before the basal angles. Base not distinctly emarginated before the basal angles. Anterior angles obtuse, not prominent; posterior ones subsquared and not pointed apically. Disc poorly convex, with a short and very sparse pubescence; median groove shallow, poorly marked. Marginal groove wide and flattened, slightly enlarged close to the base; anterior marginal setae inserted inside the marginal groove on about the anterior seventh; basal setae placed at the posterior angles.

Legs robust, protarsi pentamerous with two dilated basal tarsomeres in the male.

Elytra oval, poorly elongated (max length/max width ratio = 1.62), with the maximum width in the middle, not emarginated in the pre-apical area. Disc poorly convex; integuments shiny, with an obvious microsculpture and a short, sparse and upright pubescence. Humeri not marked, rounded; post-humeral margin denticulated, with an obvious crenellation, distinct up to the apical fifth and bearing setae; elytral apices separately rounded. Marginal groove wide and obvious up to the 7th pore of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type A (sensu Jeannel, 1963), with the first three pores of the humeral group almost equidistant, the 4th

pore neatly farther and inserted after the basal third of the elytron; the 5th pore placed just at the base of the posterior third of the elytron; the 5th and 6th ones far from each other about 1/3 of the distance between the 6th and the 7th; the 6th and 7th ones neatly placed on the disc; the 8th and 9th ones geminate. The 7th one decidedly farther from the 8th one. Posterior discal seta missing.

Aedeagus (fig. 4) small, elongated, decidedly and angularly arcuate in the basal part; median lobe, in lateral view, elongated with the ventral margin subrectilinear in the central part, slightly curved in the apical one; apical blade short, stocky and rounded. Inner sac bearing a poorly sclerified structure in the median area: ventrally a long tubuliform structure; dorsally a C-shaped structure followed by a curved, double structure. Parameres stocky, relatively elongated, reaching the distal third and bearing two apical setae.

Female unknown.

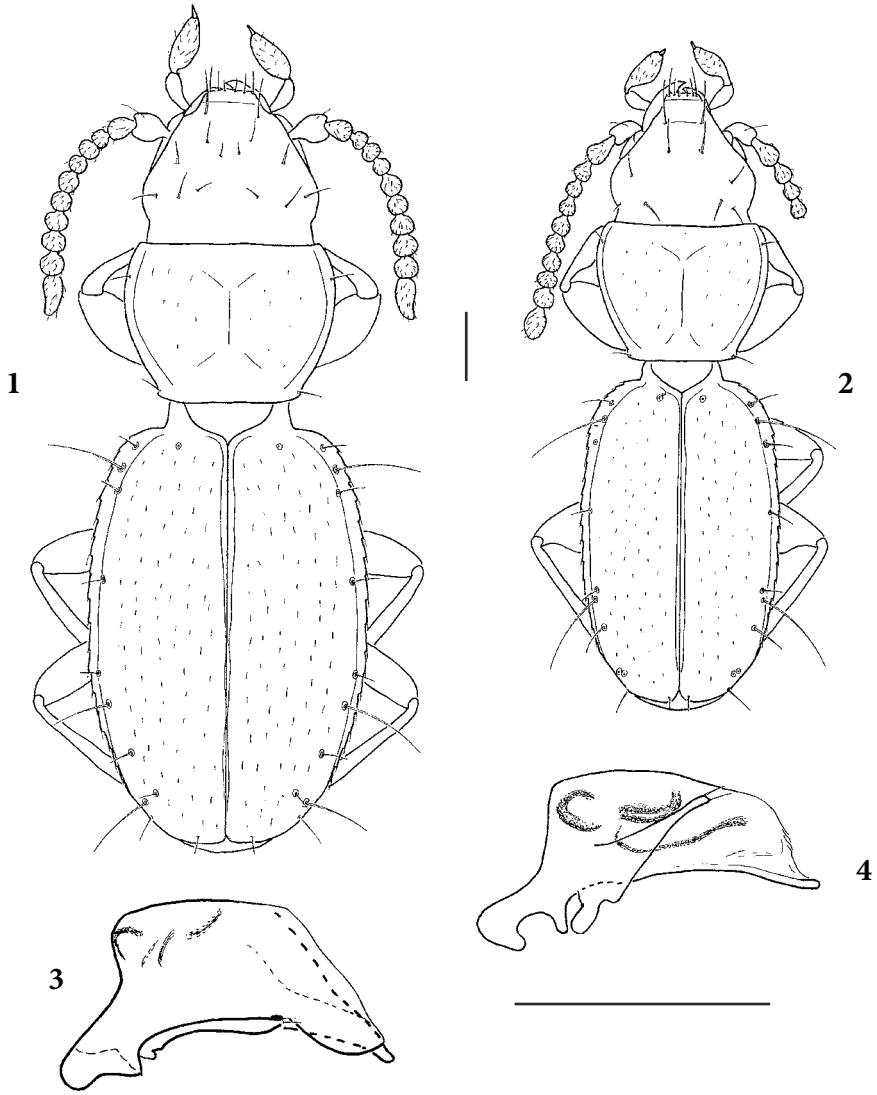
Etymology. From Madagascar.

Distribution, **ecology**. *Paranillus madecassus* sp. n. is presently known only from its type locality, situated in the Ankarafantsika N.P., NW Madagascar, where it was collected, using Winkler apparatus, sifting forest litter at low altitude (89 m).

***Paranillus banari* sp. n.** (figs 1, 3)

Locus typicus: Madagascar, Ranomafana N.P., 1158 m, S 21°14'58.6" E 47°24'23.9".

Type material: **Madagascar**: HT ♂, RNF, 10/2011, Ranomafana N.P., 1158 m, S 21°14'58.6" E 47°24'23.9", 15 Apr 2011, sifting forest litter, Winkler extraction, L. S. Rahanitriniaina lgt. (MMBC). PTT: **Madagascar**:



Figs. 1-4 – **1**, **3**, *Paranillus banari* sp. n. HT ♂; **2**, **4**, *Paranillus madecassus* sp. n. HT ♂. **1**, **2**, habitus; **3**, **4**, aedeagus in lateral view. Scale bar: 0.1 mm.

1 ♂ 2 ♀♀, RNF, 10/2011, Ranomafana N.P., 1158 m, S 21°14'58.6" E 47°24'23.9", 15 Apr 2011, sifting forest litter, Winkler extraction, L. S. Rahanitriniaina lgt.; 5 ♂♂ 3 ♀♀, RNF, 05/2011, Ranomafana N.P., 1105 m, S 21°14'21.2" E 47°23'35.9", 14 Apr 2011, light secondary forest, sifting litter, Winkler extraction, P. Bañař lgt. (MMBC, CBu, CGi).

Diagnosis. Related to *P. milloti* Jeannel, 1949, *P. janaki* Giachino, 2008, *P. pavesii* Giachino, 2008 and *P. madecassus* sp. n. by the pronotum having sides without denticulations before the basal angles, *P. banari* sp. n. differs from *P. milloti*, *P. janaki* and *P. madecassus* sp. n. by the different shape of the median lobe of the aedeagus. *P. banari* sp. n. differs from *P. madecassus* sp. n. also by its bigger body size (1.06 mm v. 0.88 mm); from *P. janaki* by the absence of the posterior discal seta of elytra and from *P. pavesii* by the pronotum bearing a less transverse shape.

Description. Total length (from the anterior margin of the labrum to the end of the elytra) 1.06-1.10 mm. Body elongated, relatively slender, depigmented, yellow-testaceous, with legs, antennae, and palpi of the same colour; integuments shiny, with an obvious microsculpture, covered with a sparse and moderately short pubescence.

Head relatively big, slightly narrower than the pronotum. Labium bearing a big tooth, with two small basal setae. Antennae robust, moniliform, short, hardly reaching the base of the pronotum when stretched backwards. Clypeo-frontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum slightly transverse (max width/max length ratio = 1.32 ♂♂, 1.34 ♀♀), with the maximum width on about the anterior third, narrowed basally, where it is clearly narrower than the anterior edge; sides regularly arcuate both anteriorly and posteriorly, sinuous posteriorly before the angles. Base distinctly curved near the basal angles. Anterior angles obtuse, not prominent; posterior ones from obtuse to almost right and pointed apically. Disc poorly convex, with a moderately long and very sparse pubescence; median groove shallow, poorly marked. Marginal groove wide and flat, slightly widened close to the base; anterior marginal setae inserted inside the marginal groove, almost on the anterior fifth; basal setae placed almost on the posterior angles.

Legs robust, protarsi pentamerous with two slightly dilated basal tarsomeres in the male.

Elytra oval, poorly elongated (max length/max width ratio = 1.48 ♂♂, 1.47 ♀♀), with the maximum width in the middle, not emarginated in the pre-apical area. Disc poorly convex, integuments shiny, with an obvious microsculpture, and a moderately long, sparse and upright pubescence. Humeri not marked, rounded; posthumeral margin denticulated, with an obvious crenellation, distinct up to the apical eighth and bearing setae; elytral apices separately rounded. Marginal groove wide and obvious up to the 7th pore of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type A (sensu Jeannel, 1963), with the first three pores of the humeral group almost equidistant, the 4th pore neatly farther and inserted just beyond the basal third of the elytron; the 5th pore placed before the apical third of the elytron; the 5th and 6th ones far from each other about a half of the distance between the 6th and the 7th; the 3rd pore slightly, and the 7th one clearly placed on the disc; the 8th and 9th ones geminate. The 7th one decidedly far from the 8th. Posterior discal seta missing.

Aedeagus (fig. 3) small, with the basal bulb very small; median lobe, in lateral view, short, stumpy, and showing a swollen aspect, with the left side distinctly lobed preapically; apical blade short, stocky and rounded. Inner sac bearing some short, C-shaped and poorly sclerified structures on the dorsal side of the medium-basal area. Parameres relatively slender, elongated, reaching the distal third of the median lobe and bearing two apical setae.

Etymology. This new species is dedicated to its collector, Dr. Petr Bañař of the Moravian Museum of Brno (Czech Republic).

Distribution, **ecology**. *Paranillus banari* sp. n. is presently known only from two sites, situated in the Ranomafana N.P., NW Madagascar, where it was collected, using Winkler apparatus, sifting primary and secondary forest litter at an altitude between 1105 and 1158 m.

***Afranillus* gen. n.** (figs 5-8)

Type species: *Afranillus schuelei* **sp. n.**

Diagnosis. A genus of Anillina of the "*Paranillus* phyletic lineage" (sensu Jeannel, 1963), with species of medium-big size (mm 2.0), provided with a labial tooth. It is characterized by the following characters: labial tooth without setae (two long setae are present on the central area of the labium); pronotum with the base as wide as the anterior margin and sides not dentellate before the basal angles; elytral disc bearing one seta; umbilicate series of type A with ten pores.

Afranillus n. gen. differs from *Paranillus* Jeannel, 1949 by the absence of setae on the labial tooth and for an umbilicate series of 10 pores.

Description. A genus of Anillina characterized by species of a medium-big size (mm 2.0), anophthalmous. Integuments depigmented, well sclerified and covered with a short pubescence.

Head of normal size, not hypertrophic, much narrower than the pronotum; mandibles short and simple, without hyperplasies. Maxillary palpi ovoidal, elongate and swol-

len. Labium transverse, articulated and toothed, provided with two long and central setae; labial tooth without setae; mentum not fused with the submentum. Antennae submoniliform

Pronotum subquadrate, with the base as wide as the anterior edge; lateral groove on the average wide and flattened, distinctly widened posteriorly. Lateral edge slightly sinuate and not denticulate before the posterior angles. Basal angles obtuse, but not rounded; two pronotal setae present, the posterior one placed almost on the basal angles.

Elytra elongated, with humeri marked; separately rounded, not truncate but emarginated pre-apically; without a longitudinal groove. Elytral striae missing (except for the sutural stria). Lateral edge, starting from the humeral area, distinctly dentellate up to over the half. Juxtascutellar pore present, big and umbilicate; umbilicate series of type A (sensu Jeannel, 1963) with the 10th pore present; one discal seta present.

Legs relatively short and stocky. Protarsi pentamerous in female.

Aedeagus unknown.

Etymology. From the union of the geographic term "Africa" and the genus name *Anillus*. The genus name is masculine.

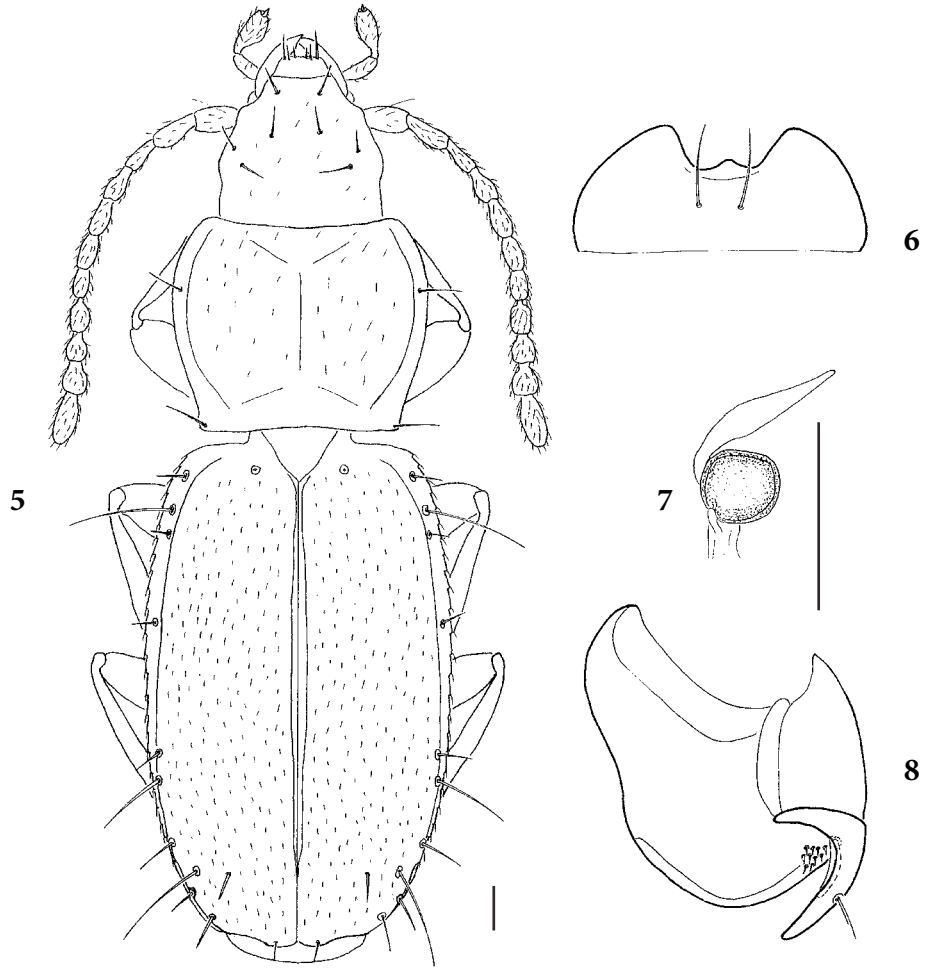
***Afranillus schuelei* sp. n.** (figs 5-8)

Locus typicus: RSA, Eastern Cape, Silaka Nat. Res., 31.39S-29.30E.

Type material: HT ♀, **Republic of South Africa**: Eastern Cape, Silaka Nat. Res., 31.39S-29.30E, 7/8 Jan 2009, P. Schüle leg. (DMNHP).

Diagnosis. See the Genus diagnosis.

Description of the HT ♀. Total length (from the anterior margin of the labrum to the tip of the elytra) 2.0 mm. Body elongated, depigmented, testaceous, with legs, antennae, and palpi slightly lighter; integuments shiny, with a poorly evident, isodiametric microsculpture, covered with a sparse and short or very short pubescence.



Figs. 5-8 – *Afranillus* gen. n. *schuelei* sp. n. HT ♀. **5**, habitus; **6**, labium; **7**, spermatheca; **8**, left external female genitalia. Scale bar: 0.1 mm.

Head small, narrower than the pronotum. Labium transverse, articulated, toothed and bearing two setae in the central area (fig. 6); tooth without setae. Antennae robust, submoniliform, relatively short, just exceeding the base of the pronotum when stretched backwards. Clypeofrontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum subquadrate (max width/max length ratio = 1.18), with the maximum width at about the base of anterior third, poorly narrowed basally, where it is almost as wide as the anterior edge; sides poorly and regularly arcuate on the anterior 2/3, slightly sinuate posteriorly before the base. Anterior angles rounded, not prominent; basal angles obtuse and sharp apically. Disc poorly convex, with a short and very sparse pubescence; median groove very shallow, poorly marked. Marginal grooves wide and flattened, widened close to the base; anterior marginal setae inserted inside the marginal groove, on about the base of the anterior third; basal setae placed at the posterior angles. Base subrectilinear.

Legs robust, without particular characters.

Elytra ovoidal, elongated (max length/max width ratio = 1.63), with the maximum width in the middle, not truncate but emarginated pre-apically. Disc moderately convex, without elytral grooves; integuments shiny, with a poorly evident isodiametric microsculpture and a sparse, very short and upright pubescence. Humeri obvious; posthumeral margin denticulate, with an obvious crenellation, distinct up to the apical fifth and bearing short setae; elytral apices separately rounded. Marginal groove wide and obvious almost up to the 9th pore of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type A (sensu Jeannel, 1963), bearing 10 pores. First three pores of the humeral group almost equidistant, with the first and the 2nd one slightly farther; 4th pore decidedly farther and inserted almost on the basal third of the elytron; the 5th pore placed just after the half of the elytron; the 5th and the 6th ones as far from each other as the half of the distance between the 6th and the 7th; 8th pore placed after the 9th with the last one displaced onto the disc; 8th and 9th ones closer to each other than the distance between the 7th and 8th; 10th pore placed after the 8th along the marginal groove. One discal seta present and placed at the level of the 9th pore of the umbilicate series.

Female genitalia as in figs. 7, 8, with a globular spermatheca provided with a short ductus and a fusiform spermathecal gland.

Male unknown.

Etymology. This new species is dedicated to its collector, Peter Schüle of Herrenberg (Germany), as a token of gratitude for having given me in study the material object of this description.

Distribution, **ecology**. *Afranillus schuelei* sp. n. is presently known only from its type locality, the Silaka Nat. Res. in the Eastern Cape of R.S.A., where it was collected on the underside of a big stone deeply buried in the forest soil.

Argiloborus phyletic lineage (sensu Jeannel 1963)

Genus ***Argiloborus*** Jeannel, 1937

Argiloborus imerinae Jeannel, 1957

Examined material. **Madagascar**: 2 ♂♂ 3 ♀♀, ABT Nov 2011/11, Madagascar 2011, Ambohitanteli Spec. Res., 1497 m, S 18°10’52.6 E 47°17’22.5, 18 Nov, sift. forest litter, Winkler app. extr., S. Rahanitriniaina lgt.; 6 ♂♂, ABT Nov 2011/16, Madagascar 2011, Ambohitanteli Spec. Res., 1620 m, S 18°11’22.7 E 47°17’10.8, 21 Nov, sift. forest litter under *Pandanus*, Winkler app. extr., S. Rahanitriniaina lgt.; 1 ♂ 1 ♀, ABT Sept 2011/08, Ambohitanteli Spec. Res., 1493 m, S 18°10’52.3” E 47°17’21.3”, 2 Sept 2011, sift. forest litter under *Pandanus* + bamboo, Winkler extr., S. Rahanitriniaina lgt. (MMBC, CBu, CGi).

Notes. The new distribution data fall within the distribution area already known for *A. imerinae* (Jeannel 1957, 1963), where this species is confirmed syntopic with *Neodipnus oblongus* Jeannel, 1957.

Argiloborus thoracicus Jeannel, 1957

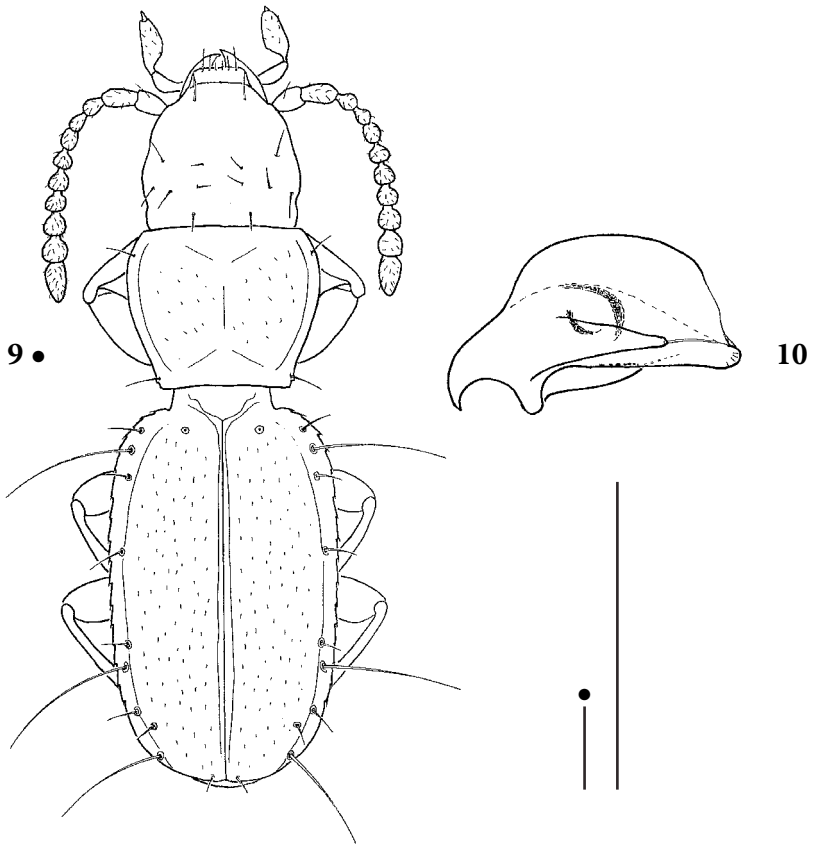
Examined material. **Madagascar**: 1 ♂, ABS Nov 2011, border of Andasibe N.P., 29 Nov 2011, sifting leaf litter, Winkler extraction, L. S. Rahanitriniaina lgt.; 1 ♀, ASB May 2011/17, Andasibe N.P., Ambatomandondona, 1027 m, S 18°55’52.9” E 48°25’40.2”, 4 May 2011, sifting forest litter, Winkler app. extr., S. Rahanitriniaina lgt. (CBu, CGi).

Notes. The new distribution data fall within the distribution area already known for *A. thoracicus* and increase the altitudinal range of this species to 1027 m a.s.l. (Jeannel, 1957, 1963).

Argiloborus praslinicus sp. n. (figs 9-10)

Locus typicus: Seychelles, Praslin, Salazie, 200 m, 4°19’ 12’’S 55°43’53’’E.

Type material: HT ♂, **Seychelles**: Praslin, Salazie, 200 m, 4°19’12’’S 55°43’53’’E, 30 Nov 2007, J. Janák leg., *Lodoicea maldivica* palms sifted litter (CBu). PTT: 79 ♂♂♀♀, Praslin, Salazie, 200 m, 4°19’12’’S 55°43’53’’E, 30 Nov 2007, J. Janák leg., *Lodoicea maldivica* palms sifted litter (CBu, CCa, CGi).



Figs. 9-10 – *Argiloborus praslinicus* sp. n. HT ♂. **9**, habitus; **10**, aedeagus in lateral view. Scale bar: 0.1 mm.

Diagnosis. An *Argiloborus* strictly related to *A. scotti* Jeannel, 1937 by the pronotum having lateral sides with denticulation before the basal angles. *A. praslinicus* sp. n. differs from *A. scotti* by its smaller body size (0.80-0.90 mm v. 1.5 mm), by the different position of the 8th pore of the umbilicate series and by the absence of the posterior discal seta (Jeannel (1937: 275) specified that the posterior discal seta is really present but lacking in fig. 52).

Description. Total length (from the anterior margin of the labrum to the end of the elytra) 0.80-0.90 mm. Body poorly elongated, relatively stumpy, depigmented testaceous, with legs, antennae, and palpi lighter; integuments shiny, with an obvious microsculpture, covered with a sparse and short pubescence.

Head big, but slightly narrower than the pronotum. Labium bearing a tooth with two setae. Antennae robust, moniliform, short, hardly reaching the base of the pronotum when stretched backwards. Clypeo-frontal groove indistinct; anterior margin of the epistome subrectilinear.

Pronotum slightly transverse (max width/max length ratio = 1.22 ♂♂, 1.23 ♀♀), with the maximum width at about the base of the anterior fourth, narrowed basally, where it is clearly narrower than the anterior edge; sides regularly arcuate anteriorly, subrectilinear posteriorly, slightly sinuate posteriorly before the base and denticulate just before the basal angle. Anterior angles broadly obtuse and slightly rounded, not prominent; the posterior ones right but not pointed apically. Base distinctly subrectilinear. Disc poorly convex, with a short and sparse pubescence; median groove very shallow, poorly marked. Marginal groove wide and flattened, enlarged near the base; anterior marginal setae inserted inside the marginal groove, almost on the anterior seventh; basal setae placed before the posterior angles.

Legs robust, with protarsi pentamerous, two basal tarsomeres slightly dilated in the male.

Elytra oval, elongated (max length/max width ratio = 1.64 ♂♂, 1.61 ♀♀), with the maximum width in the middle, not emarginated in the pre-apical area. Disc moderately convex; integuments shiny, with an obvious microsculpture, and a short, sparse and upright pubescence. Humeri poorly marked, rounded, posthumeral margin denticulate, with an obvious crenellation, distinct up to the apical fourth and bearing setae; elytral apices separately rounded. Marginal groove wide and obvious up to the 9th pore of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type B (sensu Jeannel, 1963), with the first three pores of the humeral group almost equidistant (1st and 2nd ones very slightly closer to each other), the 4th pore decidedly farther and inserted almost at the base of the an-

terior third of the elytron; the 5th pore placed after the half of the elytron; the 5th and 6th ones about the half far from each other of the distance between the 6th and the 7th; the 8th one slightly displaced onto the disc; the 7th, 8th and 9th ones almost equidistant. Discal setae missing.

Aedeagus (Fig. 10) small, with the basal bulb large; median lobe, in lateral view, short, stumpy, and showing a swollen aspect, with the ventral margin subrectilinear; apical blade short, stocky and rounded. Inner sac bearing two short, falciform and poorly sclerified structures in the median area. Parameres stocky and relatively short, exceeding the half of the median lobe; only one, long and apical seta.

Etymology. From the name of the type locality of Praslin Island.

Distribution and ecology. *A. praslinicus* sp. n. is presently known only from its type locality of Salazie, in the Praslin Island, where it was collected, at 200 m, sifting litter of forest with *Lodoicea maldivica* palms.

Genus ***Neodipnus*** Jeannel, 1957

Neodipnus oblongus Jeannel, 1957

Examined material. **Madagascar**: 1 spec., ABT Nov 2011/01, Madagascar 2011, Ambohitanteli Spec. Res., 1603 m, S 18°11'52.7" E 47°17'0.4", 16 Nov sift. forest litter under *Pandanus*, Winkler app. extr., S. Rahanitriniaina & P. Baňař lgt.; 5 spec., ABT Nov 2011/07, Ambohitanteli Spec. Res., 1595 m, S 18°10'48.5" E 47°17'9.3", 17 Nov 2011, sift. forest litter, Winkler extraction, P. Baňař lgt.; 2 spec., ABT Sept 2011/08, Ambohitanteli Spec. Res., 1493 m, S 18°10'52.3" E 47°17'21.3", 2 Sept 2011, sift. forest litter under *Pandanus* + bamboo, Winkler extr., S. Rahanitriniaina lgt.; 1 spec., ABT nov 2011/11, Ambohitanteli Spec. Res., 1497 m, S 18°10'52.6" E 47°17'22.5", 18 Nov sift. forest litter, Winkler app. extr., S. Rahanitriniaina lgt.; 1 spec., ABT Nov 2011/14, Ambohitanteli Spec. Res., 1623 m, S 18°11'22.7" E 47°17'07.8", 21 Nov, sift. forest litter under *Pandanus*, Winkler app. extr., S. Rahanitriniaina lgt.; 3 spec., ABT Sept 2011/14, Ambohitanteli Spec. Res., 1525 m, S 18°10'58.4" E 47°17'22.6", 3 Sept 2011, sift. forest litter under *Pandanus* + big tree, Winkler extr., S. Rahanitriniaina lgt.; 7 spec., ABT Nov 2011/15, Ambohitanteli Spec. Res., 1634 m, S 18°11'32.0" E 47°17'08.7", 21 Nov 2011, sift. forest litter under *Pandanus*, Winkler extr., L. S. Rahanitriniaina lgt.; 1 spec., ABT Sept 2011/16, Ambohitanteli Spec. Res., 1565 m, S 18°11'02.2" E 47°17'13.4", 4 Sept, sift. forest litter under *Pandanus*, Winkler app. extr., S. Rahanitriniaina lgt.; 4 spec., ABT Nov 2011/16, Ambohitanteli Spec. Res., 1620 m, S 18°11'22.7" E 47°17'10.8", 21 Nov, sift. forest litter under *Pandanus*, Winkler app. extr., S. Rahanitriniaina lgt.; 1 spec., ABT Nov 2011/26, Ambohitanteli Spec. Res., 1642 m, S 18°11'43.6" E 47°17'22.4", 5 Nov, sift. forest litter under *Pandanus* and palm trees, Winkler app. extr., S. Rahanitriniaina lgt.; 2 spec., ABT Sept 2011/29, Ambohitanteli Spec. Res., 1613 m, S 18°11'54.2" E 47°17'05.5", 6 Sept, sift. forest litter under *Pandanus*, Winkler app. extr., S. Rahanitriniaina lgt.; 2 spec., ABT 01/2011, Ambohitanteli Spec. Res., 1593 m, S 18°10'51.7" E 47°17'21.6", 19 Apr, sift. forest litter; Winkler extr., L. S. Rahanitriniaina, P. Baňař & R. Raveloson lgt.; 14 spec., ABT 02/2011, Ambohitanteli Spec. Res., 1593 m, S 18°10'51" E 47°17'21.6", 19 Apr, sift. litter under rock; dry material, Winkler extr., R. Raveloson lgt.(MMBC, CBu, CGi).

Notes. The new distribution data fall within the distribution area already known for *N. oblongus* (Jeannel 1957, 1963), where this species is confirmed syntopic with *A. imerinae* Jeannel, 1957.

Neodipnus perineti Giachino, 2008

Examined material. **Madagascar**: 2 ♂♂ 4 ♀♀, ABS Nov 2011, border of Andasibe N.P., 29 Nov 2011, sifting leaf litter, Winkler extraction, L. S. Rahanitriniaina lgt. (MMBC, CBu, CGi).

Notes. The new distribution data fall within the distribution area already known for *N. perineti* (Giachino 2008).

Microtyphlus phyletic lineage (sensu Giachino 2008)

Key to the African Genera
(Modified from Giachino 2008)

1. Elytra without or bearing only one discal seta 2
- Elytra normally bearing three discal setae, exceptionally without setae, but then the sides of the pronotum are distinctly serrulate before the basal angles 7

2. Elytra elongated with protruding humeri and apex covering the last abdominal tergite 3
- Elytra short with humeri poorly rounded and apex reduced, leaving some abdominal tergites uncovered .... *Caeconannus* Jeannel

3. Umbilicate series of type B (i.e. series with 9 pores, the large pores are the 2nd, 6th and 9th), labium free, articulated 4
- Umbilicate series of type C (i.e. series with 8 pores, the large pores are the 2nd, 6th and 8th apparent or B (one species of *Microdipnites* but in this case: elytral apices very reduced) 5

4. Elytra with an obvious longitudinal discal groove .... *Bulirschia* Giachino
- Elytra without a longitudinal discal groove .... *Microdipnus* Jeannel

5. Mentum fused with the submentum. Elytra with apex not truncate or reduced ..... *Hypodipnites* Jeannel
- Mentum, not fused with submentum, or fused, but with the suture still visible. Elytra with the apex truncate, reduced or lobate 6

6. Head with small pigmented spots replacing the eyes. Elytral apices separately and broadly rounded .... *Cryptorites* Jeannel
- Head without eye traces. Elytral apices with lobes narrow and elongated, sinuate on the external edge .... *Microdipnites* Jeannel

7. Labium bearing a tooth 8
- Labium without the tooth 10

8. Elytra with the apex reduced, pygidium not covered by the elytral apex ..... *Elgonotyphlus* Sciaky and Zaballos
- Elytra with the apex not reduced, pygidium covered by the elytral apex 9

9. Pronotum sides multidentate before the posterior angles. Metafemora dentate in the male .... *Serratotyphlus* Giachino
- Pronotum sides not multidentate before the posterior angles. Metafemora not dentate in the male .... *Malagasydipnus* Giachino

10. Head anophthalmous, labium transverse, articulated and free 11
- Head bearing functional eyes, labium narrow, soldered to the prebasal ..... *Microdipnodes* Basilwesky
11. Mandibles simple, without carina on the dorsal edge 12
- Mandibles, above all the left one, bearing a high dark, dentate or tuberculate crest on the dorsaledge .... *Pelonomites* Jeannel

12. Elytra without a longitudinal discal groove 13
- Elytra bearing a longitudinal discal groove, more or less obvious ..... *Malagasytyphlus* Giachino

13. Pronotum strongly alutaceous, without a median groove, but with a longitudinal smooth stripe on the median line .... *Selenodipnus* Jeannel
- Pronotum finely alutaceous, sulcate on the median line, without a smooth median longitudinal stripe .... *Afrodipnus* gen.n.

Genus ***Caeconannus*** Jeannel, 1963

KEY TO THE SPECIES

1. Posthumeral edge of the elytron with microserrulation 2
- Posthumeral edge of the elytron without microserrulation 4

2. Smaller species (body length less than 1.10 mm). Species from Western Cape province .... *C. occidentalis* sp. n.
- Larger species (body length more than 1.20 mm). Species from Western or Eastern Cape province 3

3. Species from Western Cape province .... *C. marlothi* Schüle
- Species from Eastern Cape province .... *C. orientalis* sp. n.

4. Elytral disc without seta; median lobe of the aedeagus slender (fig. 14) ..... *C. bulirschi* sp. n.
- Elytral disc with one (posterior) seta; median lobe of the aedeagus stout ..... *C. rotundicollis* Jeannel

Caeconannus rotundicollis Jeannel, 1963

Examined material: **Republic of South Africa**: 1 ♂ 4 ♀♀, Western Cape, Grootvaderbosch NR, 300-400 m, 33°59'S 20°49'E, indig forest, 8 Dec 2009, P. Bulirsch leg. (CBu, CGi); 1 ♂, Western Cape, Grootvaderbosch NR, 300-400 m, 33°58.4'S 20°50.0'E, indig forest, 21 Oct 2013, P. Bulirsch leg. (CBu); 3 ♂♂ 5 ♀♀, Western Cape, Grootvaderbosch NR, Bushbuck Trail (Bosbokrand), 360 m, 33°58.9'S 20°49.1'E, 25-26 Feb 2004, tall afromontane forest, leaf & log litter, Newton, Clarke, Thayer et al. (FMNHC, CGi).

Notes. These data fall within the distribution area already known for *C. rotundicollis*. In these sites *C. rotundicollis* was collected at an altitude of 300-400 m a.s.l. sifting forest litter.

Caeconannus bulirschi **sp. n.** (figs 11, 14)

Locus typicus: South Africa, Western Cape, Hottentots Holland NR., 2 km S of Franschhoek pass, 33°55.7' S 19°9.7'E.

Type series: HT ♂, **South Africa**: Western Cape, Hottentots Holland NR., 2 km S of Franschhoek pass, 33°55.7' S 19°9.7'E, 9 Feb 2012, P. Bulirsch leg. (DMNHP). PTT: **South Africa**: 11 ♂♂ 2 ♀♀, Western Cape, Hottentots Holland NR., 2 km S of Franschhoek pass, 33°55.7'S 19°9.7'E, 9 Feb 2012, P. Bulirsch leg. (CBu, CGi); 27 ♂♂ 18 ♀♀, Western Cape, Hottentots Holland NR. borders, Mt. Rochelle-Perdekloof, W of Franschhoek pass, 33°54.2' S 19°9.8'E, 8 Feb 2012, P. Bulirsch leg. (CBu, CCa, CGi, DMNHP); 1 ♂ 1 ♀, Western Cape, S of Outeniqua pass, 33°53.8'S 22°24.1 E, indig forest, sifting, 7 Feb 2012. P. Bulirsch leg. (CBu, CGi); 1 ♀, Western Cape, Salmonsdam NR. forest patch, ca. 34°25.4'S 19°38.7'E, 19 Oct 2013, P. Bulirsch leg. (CBu).

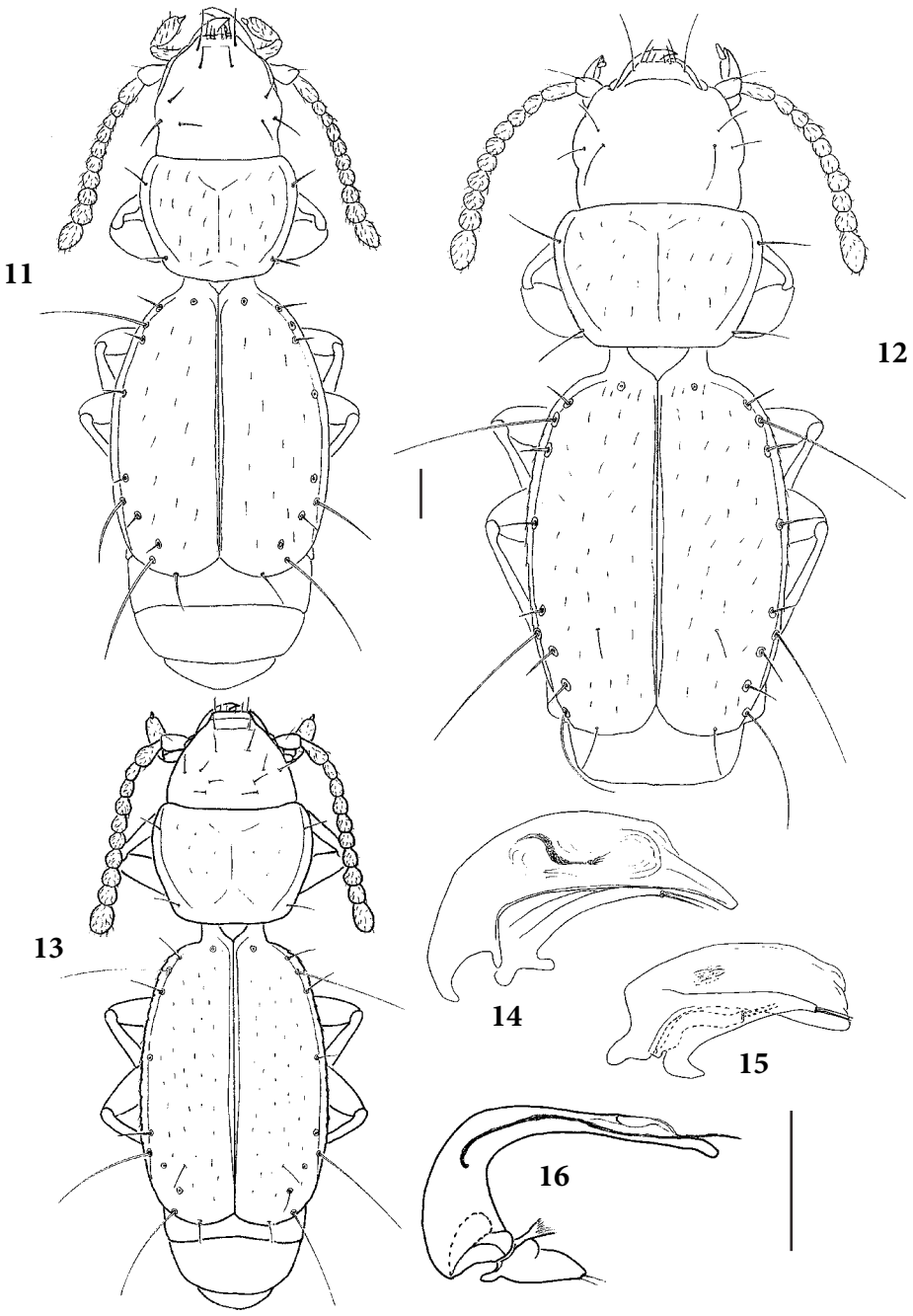
Diagnosis. *C. bulirschi* sp. n. is strictly related to *C. rotundicollis* Jeannel, 1963 by the absence of microserrulation in the basal part of the elytral margin, but differs from this species by the different shape of the median lobe of the aedeagus, that is more slender, with a beak-shaped apex. *C. bulirschi* sp. n. differs from all other *Caeconannus* species for the elytra lacking the discal (posterior) seta.

Description. Total length (from the anterior margin of the labrum to the end of the elytra) 1.04-1.06 mm. Body poorly elongated, stumpy, depigmented, yellow-testaceous,

with legs, antennae, and palpi slightly lighter; integuments shiny, with a light microsculpture, covered with a very sparse and long pubescence.

Head big, stout, slightly narrower than the pronotum. Labium without a tooth. Antennae delicate, moniliform, short, hardly reaching the base of the pronotum when stretched backwards. Clypeo-frontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum transverse (max width/max length ratio = 1.27-1.28 ♂♂, 1.28 ♀♀), with the maximum width at about the base of the anterior fourth, narrowed basally, where it is clearly narrower than the anterior edge; sides regularly arcuate anteriorly, slightly arcuate and not sinuate posteriorly before the base. Anterior angles broadly obtuse and slightly rounded, not prominent; the posterior ones broadly obtuse and rounded. Base distinctly arcuate. Disc poorly convex, with a long and sparse pubescence; median groove very shallow, poorly marked. Marginal groove wide and flattened, enlarged near the base; anterior marginal setae inserted inside the marginal groove, almost



Figs. 11-16 – *Caeconannus* spp. **11**, **12**, **13**, habitus; **14**, **15**, **16**, aedeagus in lateral view. **11**, **14**, *Caeconannus bulirschi* sp. n. HT ♂; **12**, **15**, *Caeconannus orientalis* sp. n. HT ♂; **13**, **16**, *Caeconannus occidentalis* sp. n. HT ♂. Scale bar: 0.1 mm.

on the anterior fourth; basal setae placed before the posterior angles.

Legs robust, with protarsi pentamerous, two protarsomeres slightly dilated in the male.

Elytra egg-shaped, short (max length/max width ratio = 1.31 ♂, 1.32 ♀♀), with the maximum width near the middle, not emarginated in the pre-apical area. Disc moderately convex; integuments shiny, with a light microsculpture, and a long, very sparse and upright pubescence. Humeri totally blunted, posthumeral margin not denticulate; elytral apices separately and largely rounded. Marginal groove wide and obvious up to the 8th pore of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type B (sensu Jeannel, 1963), with the first three pores of the humeral group almost equidistant (2nd and 3rd ones slightly closer to each other), the 4th pore decidedly farther and inserted near the base of the anterior third of the elytron; the 5th pore placed well after the half of the elytron; the 5th, 6th and 7th ones almost equidistant; the 5th, 7th and 8th displaced onto the disc; the 8th and 9th ones far from each other about the half of the distance between the 7th and the 8th. Posterior discal seta missing.

Aedeagus (Fig. 14) small, with the basal bulb of a normal size. Median lobe, in lateral view, long and slender, and showing a beak-shaped apex; ventral margin slightly curved; apical blade long, slender and curved downward. Inner sac with a median, S-shaped, poorly sclerified phanera. Parameres relatively long and slender, reaching the apical fourth of the median lobe; bearing two long and apical setae.

Etymology. This new interesting species is dedicated to my friend Petr Bulirsch of Prague (Czech Republic), who kindly gave me this interesting material in study.

Distribution and ecology. *C. bulirschi* sp. n. is presently known only from three different localities of the Western Cape province (South Africa): the first one includes two different sites near the Franschhoek pass, along the Hottentots Holland N.R., the second one is near Outeniqua pass and the third one in the Salmonsdam N.R. The altitude of these sites is 300-800 m, all specimens were collected by sifting litter in forest patches.

Caeconannus marlothi Schüle, 2004

Examined material: **South Africa**: 8 ♂♂ 7 ♀♀, Western Cape, Marloth NR, Koloniesbos, indig forest, 33°59.5'S 20°27.1'E, 22 Dec 2013, P. Bulirsch leg. (CBu, CGi); 17 ♂♂ 12 ♀♀, Western Cape, Marloth NR, Duiwelsbos, indig forest, 33°59.6'S 20°27.6'E, 22 Dec 2013, P. Bulirsch leg. (CBu, CGi).

Notes. These data fall within the distribution area already known for *C. marlothi*. In the site of Koloniesbos, *C. marlothi* is syntopic with *C. occidentalis* sp. n.

***Caeconannus occidentalis* sp. n.** (figs 13, 16)

Locus typicus: South Africa, Western Cape, Marloth NR, Koloniesbos, 33°59.5'S 20°27.1'E.

Type series: HT ♂, **South Africa**: Western Cape, Marloth NR, Koloniesbos, indig forest, 33°59.5'S 20°27.1'E, 22 Oct 2013, P. Bulirsch leg. (DMNHP). PTT: **South Africa**: 3 ♂♂ 3 ♀♀, Western Cape, Marloth NR, Koloniesbos, indig forest, 33°59.5'S 20°27.1'E, 22 Oct 2013, P. Bulirsch leg. (CBu, CGi); 1 ♂, Western Cape, Marloth NR, Duiwelsbos, indig forest, 33°59.6'S 20°27.6'E, 22 Oct 2013, P. Bulirsch leg. (CBu).

Diagnosis. *C. occidentalis* sp. n. differs from all other known species of the genus *Caeconannus* by the shape of the median lobe of the aedeagus: very slender and curved, with an inner sac bearing a long flagellum. It differs from *C. bulirschi* sp. n. and *C. rotundicollis* also by the presence of a microserrulation in the basal part of elytral margin. It differs from the syntopic *C. marlothi* also by its smaller size.

Description. Total length (from the anterior margin of the labrum to the end of the elytra) 1.03 -1.05 mm. Body poorly elongated, stumpy, depigmented yellow-testaceous, with legs, antennae, and palpi slightly lighter; integuments shiny, with an obvious microsculpture, covered with a sparse and short pubescence.

Head big, stout, but slightly narrower than the pronotum. Labium without a tooth. Antennae robust, moniliform, moderately long, hardly exceeding the base of the pronotum when stretched backwards. Clypeo-frontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum transverse (max width/max length ratio = 1.33 ♂♀), with the maximum width at about the base of the anterior fourth, narrowed basally, where it is clearly narrower than the anterior edge; sides regularly arcuate anteriorly, subrectilinear and not sinuate posteriorly before the base. Anterior angles broadly obtuse and slightly rounded and prominent; the posterior ones obtuse and largely rounded. Base gently curved. Disc poorly convex, with a delicate, short and sparse pubescence; median groove very shallow, poorly marked. Marginal groove wide and flattened, enlarged near the base; anterior marginal setae inserted inside the marginal groove, almost on the anterior fifth; basal setae placed before the posterior angles.

Legs robust, with protarsi pentamerous, two protarsomeres dilated, but without fanerae in the male.

Elytra oval, moderately long (max length/max width ratio = 1.50 ♂♂, 1.52 ♀♀), with the maximum width in

the middle, not emarginated in the pre-apical area. Disc moderately convex; integuments shiny, with an obvious microsculpture, and a delicate, short, sparse and upright pubescence. Humeri not marked, totally blunted, posthumeral margin slightly denticulate, with a crenellation, distinct up to the apical fourth and bearing setae; elytral apices separately and largely rounded not subtruncate. Marginal groove wide and obvious up to the 7th pore of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type B (sensu Jeannel, 1963), with the first three pores of the humeral group almost equidistant (1st and 2nd ones slightly closer to each other), the 4th pore decidedly farther and inserted after the base of the anterior third of the elytron; the 5th pore placed at the base of the posterior third of the elytron; the 5th, 6th and 7th ones almost equidistant; the 7th and 8th displaced onto the disc; the 7th, 8th and 9th ones almost equidistant. Posterior discal seta present, very delicate and placed at the level of the 7th pore. Aedeagus (Fig. 16) large, slender, with the basal bulb very large. Median lobe, in lateral view, long and very slender, hardly curved, practically C-shaped; apical blade long, stocky and rounded. Inner sac with a very long, sclerified flagellum, protruding outside of the apex. Parameres short and stocky, bearing two short apical setae.

Etymology. The name "*occidentalis*" points out that this species comes from the Western Cape province.

Distribution and ecology. *C. occidentalis* sp. n. is presently known only from two close sites along the Marloth N.R., Koloniesbos and Duiwelsbos (Western Cape province, South Africa), where it was collected by sifting forest litter. In the site of Koloniesbos, *C. occidentalis* sp. n. is syntopic with *C. marlothi*.

***Caeconannus orientalis* sp. n.** (figs 12, 15)

Locus typicus: South Africa, Eastern Cape, Amatola Mts. 15 km N of KWT, 32°43.5'S 27°23'E, ca 600 m.

Type series: HT ♂, **South Africa**: Eastern Cape, Amatola Mts. 15 km N of KWT, 32°43.5'S 27°23'E, ca 600 m, 8 Dec 2006, P. Bulirsch leg. (DMNHP). PTT: **South Africa**: 4 ♀♀, Eastern Cape, Amatola Mts. 15 km N of KWT, 32°43.5'S 27°23'E, ca 600 m, 8 Dec 2006, P. Bulirsch leg. (CBu, CGi); 6 ♀♀, Eastern Cape, Amatola Mts. 15 km N of KWT, 32°43.5'S 27°23'E, ca 600 m, 8 Dec 2006, J. Janák leg. (CBu, CGi); 1 ♀, Eastern Cape, Cape Amatole, Isidenge For. St. A1, 32.41 S – 27.18 E, 14 Nov 1987, E-Y: 2511, indig. forest litter, leg. Endrödi Younga (DMNHP).

Diagnosis. A *Caeconannus* geographically isolated in the Western Cape province while all the other species are presently known from the Western Cape province. *C. orientalis* sp. n. differs from the other species by the different shape of the body and of the median lobe of the aedeagus.

Description. Total length (from the anterior margin of the labrum to the end of the elytra) 1.31-1.35 mm. Body poorly elongated, stumpy, depigmented yellow-testaceous, with legs, antennae, and palpi slightly lighter; integuments shiny, with a light microsculpture, covered with a sparse and moderately long pubescence.

Head big, stout, but slightly narrower than the pronotum. Labium without a tooth. Antennae delicate, moniliform, short, hardly reaching the base of the pronotum when stretched backwards. Clypeo-frontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum transverse (max width/max length ratio = 1.44 ♂, 1.44-145 ♀♀), with the maximum width at about the base of the anterior fourth, narrowed basally, where it is clearly narrower than the anterior edge; sides regularly arcuate anteriorly, subrectilinear and not sinuate posteriorly before the base. Anterior angles broadly obtuse and slightly rounded, not prominent; the posterior ones obtuse and rounded. Base distinctly rectilinear. Disc poorly convex, with a delicate, moderately long and sparse pubescence; median groove very shallow, poorly marked. Marginal groove wide and flattened, enlarged near the base; anterior marginal setae inserted inside the marginal groove, almost on the anterior fourth; basal setae placed before the posterior angles.

Legs robust, with protarsi pentamerous, two protarsomeres slightly dilated in the male.

Elytra oval, short (max length/max width ratio = 1.37 ♂, 1.38 ♀♀), with the maximum width in the middle, not emarginated in the pre-apical area. Disc moderately convex; integuments shiny, with a light microsculpture, and a delicate, moderately long, sparse and upright pubescence. Humeri not marked, rounded, posthumeral margin slightly denticulate, with a crenellation, distinct up to the apical fourth and bearing setae; elytral apices separately rounded and slightly subtruncate. Marginal groove wide and obvious up to the 8th pore of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type B (sensu Jeannel, 1963), with the first three pores of the humeral group almost equidistant (1st and 2nd ones slightly closer to each other), the 4th pore decidedly farther and inserted after the base of the anterior third of the elytron; the 5th pore placed well after the half of the elytron; the 5th, 6th and 7th ones almost equidistant; the 5th, 7th and 8th displaced onto the disc; the 7th, 8th and 9th ones almost equidistant. Posterior discal seta present, very delicate and placed at the level of the 6th pore.

Aedeagus (Fig. 15) small, with the basal bulb small. Median lobe, in lateral view, long but stumpy, and showing a swollen aspect in the apical part; ventral margin slightly curved; apical blade short, stocky and rounded. Inner sac without phanerae. Parameres stocky and relatively

long, reaching the apical fourth of the median lobe; bearing two long and apical setae.

Etymology. The name "*orientalis*" points out that this is the only *Caeconannus* known from the Eastern Cape province while all the other species are presently known from the Western Cape province.

Distribution and ecology. *C. orientalis* sp. n. is presently known only from two nearest sites of the Amatola Mts. in the Eastern Cape province where it was collected, at about 600 m, by sifting forest litter.

Genus ***Microdipnites*** Jeannel, 1957

***Microdipnites zicsii* sp. n.** (figs 18-19)

Locus typicus: Tanzania, Tanga reg., Kwamkoro.

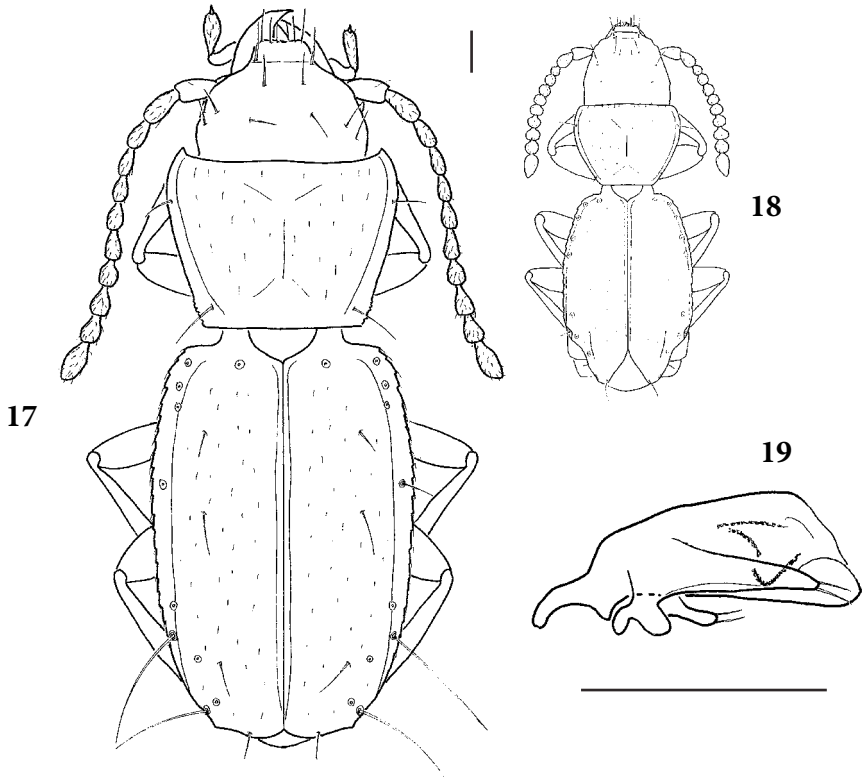
Type series: HT ♂ **Tanzania**: Tanga reg., Kwamkoro, Berlese sample No 108, 12 Feb 1987, S. Mahunka & A. Zicsi (HNHMB). PTT: **Tanzania**: 3 ♀♀, Tanga reg., Kwamkoro, Berlese sample No 108, 12 Feb 1987, S. Mahunka & A. Zicsi (HNHMB, CGi).

Diagnosis. *M. zicsii* sp. n. seems to be related with two species from Kenya: *M. mahnerti* Garetto & Giachino, 1999 and *M. perreti* Garetto & Giachino, 1999. It seems to be related to *M. mahnerti* by the shape of the median lobe of the aedeagus, but it differs from it by the presence of the 8th pore (lacking in *M. mahnerti*) of the umbilicate series (sensu Giachino & Vailati 2011 nec Jeannel 1963); it differs also by the different shape of the phanerae of the inner sac. *M. zicsii* sp. n. differs from its geographically nearest species, *M. perreti*, by the presence of a discal (posterior) seta.

Description. Total length (from the anterior margin of the labrum to the end of the elytra) 0.81-0.85 mm. Body poorly elongated, stumpy, depigmented, yellow-testaceous, with legs, antennae, and palpi slightly lighter; integuments shiny, with a light microsculpture, covered with a sparse and moderately long pubescence.

Head big, very stout, but slightly narrower than the pronotum. Labium without a tooth. Antennae robust, moniliform, short, reaching the base of the pronotum when stretched backwards. Clypeo-frontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum transverse (max width/max length ratio = 1.32 ♂, 1.33 ♀♀), with the maximum width at about the base of the anterior fourth, very narrowed basally, where it is clearly narrower than the anterior edge; sides regularly arcuate anteriorly, subrectilinear and not sinuate posteriorly before the base. Anterior angles broadly obtuse and slightly rounded, not prominent; the posterior ones obtuse



Figs. 17-19 – **17**, *Pelonomites mahunkai* sp. n. HT ♀; **18**, **19**, *Microdipnites zicsii* sp. n. HT ♂. **17**, **18**, habitus; **19**, aedeagus in lateral view. Scale bar: 0.1 mm.

and blunted. Base distinctly rectilinear. Disc poorly convex, with a delicate, moderately long and sparse pubescence; median groove very shallow, poorly marked. Marginal groove wide and flattened, poorly enlarged near the base; anterior marginal setae inserted inside the marginal groove, almost on the anterior fourth; basal setae placed well before the posterior angles.

Legs robust, with protarsi pentamerous, two protarsomeres slightly dilated and without phanerae in the male. Elytra oval, moderately long (max length/max width ratio = 1.47 ♂, 1.49 ♀♀), with the maximum width at the base of the posterior third, widely emarginated in the pre-apical area. Disc moderately convex; integuments shiny, with a light microsculpture, and a delicate, moderately long, sparse and upright pubescence. Humeri slightly marked, rounded, posthumeral margin hardly denticulate, with a crenellation, distinct up to the apical third and bearing setae; elytral apices subtriangular. Marginal groove wide and obvious up to the pre-apical emargination.

Chaetotaxy: basal umbilicate pore big, foveate, displaced near the elytral shoulder. Umbilicate series of type B (sensu Jeannel, 1963), with the four pores of the humeral group almost equidistant (3rd and 4th ones slightly farther from each other); the 5th pore placed al the level of the base of the posterior third of the elytron; the 6th and 7th ones far from each other about the half of the distance between the 5th and the 6th; the 5th, 7th and 8th displaced onto the disc; 9th pore present, placed on the edge of the elytron; the 7th, 8th and 9th ones almost equidistant. Posterior discal seta present, very long and placed at the level of the 6th pore; elytral apical seta very long.

Aedeagus (Fig. 19) small, with the basal bulb small. Median lobe, in lateral view, long but stumpy, and showing a swollen aspect in the pre-apical part; ventral margin rectilinear; apical blade short, stocky and rounded. Inner sac without evident phanerae. Parameres stocky and relatively long, reaching the apical fifth of the median lobe; bearing two apical setae.

Etymology. This new species is dedicated to one of its collectors, Dr. András Zicsi, a Hungarian specialist of earthworms.

Distribution and ecology. *M. zicsii* sp. n. is presently known only from its type locality of Kwamkoro, Tanga region, NE of Tanzania where it was collected by sifting forest litter using Berlese.

Taxonomic note. *M. zicsii* sp. n. is characterized by an anomalous and very interesting umbilicate series bearing 9 pores versus the normal series of 8 pores, which is characteristic of all known species of the genus *Microdipnites* (Jeannel, 1957, 1963; Garetto & Giachino 1999). The pore present on the edge of the apical triangle of *M. zicsii* sp. n. is really the 9th pore, a "main pore" in the interpretation by Jeannel (1963), while the 8th pore bear a shorter seta: a "secondary pore" following Jeannel (1963). The study of the umbilicate series of *M. zicsii* sp. n. suggest that the pore lost in the other species belonging to this genus may be really the 9th one, as suggested by Jeannel (1963). Nevertheless the 8th pore does not become a "main pore" as suggested by Jeannel (1963); simply, in this genus, all the "secondary pores" show a moderately longer seta (see also Garetto & Giachino 1999, fig. 1).

Genus ***Pelonomites*** Jeannel, 1963

***Pelonomites mahunkai* sp. n.** (fig. 17)

Locus typicus: Tanzania, Tanga reg., Kwamsambia For. Res., 10 km S Kwamkoro.

Type series: HT ♀, **Tanzania**: Tanga reg., Kwamsambia For. Res., 10 km S Kwamkoro, sifted No 158, 18 Feb 1987, S. Mahunka & A. Zicsi (HNHMB). PTT: **Tanzania**: 2 ♀♀, Tanga reg., Kwamsambia For. Res., 10 km S Kwamkoro, sifted No 158, 18 Feb 1987, S. Mahunka & A. Zicsi (HNHMB, CGi).

Diagnosis. *P. mahunkai* sp. n. differs from all other known species of the genus *Pelonomites* by the shape of the elytra that show an evident tooth on the pre-apical edge.

Description. Total length (from the anterior margin of the labrum to the end of the elytra) 1.63-0.65 mm. Body poorly elongated, stumpy, depigmented, testaceous, with legs, antennae, and palpi slightly lighter; integuments shiny, with an obvious microsculpture, covered with a sparse and moderately long pubescence.

Head relatively small, stout, but evidently narrower than the pronotum. Labium without a tooth. Antennae long and slender, not moniliform, reaching the basal fourth of the elytron when stretched backwards. Clypeo-frontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum transverse (max width/max length ratio = 1.29 ♀), subtrapezoidal, with the maximum width at about the base of the anterior fourth, narrowed basally, where it is clearly narrower than the anterior edge; sides regularly arcuate anteriorly, subrectilinear and slightly sinuate posteriorly before the base; crenulated in the basal part, just before the basal angles. Anterior angles acute and prominent; the posterior ones obtuse. Base distinctly rectilinear. Disc poorly convex, with a delicate, moderately long and sparse pubescence; median groove very shallow, poorly marked. Marginal groove wide and flattened, enlarged near the base; anterior marginal setae inserted inside the marginal groove, almost on the anterior fourth; basal setae placed before the posterior angles and well displaced from the lateral edge.

Legs robust, with protarsi pentamerous in the female.

Elytra oval, long (max length/max width ratio = 1.51 ♀), with the maximum width in the middle, not emarginated in the pre-apical area. Disc moderately convex; integuments shiny, with an obvious microsculpture, and a delicate, moderately long, sparse and upright pubescence. Humeri well marked, posthumeral margin hardly denticulate, with a crenellation, distinct up to the apical fourth and bearing setae; elytral apices separately rounded and distinctly dentate pre-apically. Marginal groove wide and obvious up to the level of the 8th pare of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type B (sensu Jeannel, 1963), with the first three pores of the humeral group almost equidistant (1st and 2nd ones slightly farther to each other), the 4th pore decidedly farther and inserted near the base of the anterior third of the elytron; the 5th pore placed well after the half of the elytron; the 5th, 6th and 7th ones almost equidistant; the 7th and 8th well displaced onto the disc; the 8th and 9th ones very close to each other.

Three discal setae are present: the first one at the level of the base of the anterior third of the elytra; the second one just before the middle; the third one placed at the level of the 7th pore of the umbilicate series.

Male unknown.

Etymology. This new species is dedicated to the memory of one of its collectors, Prof. Sándor Mahunka, the former Director of the Hungarian Natural History Museum and a specialist of mites.

Distribution and ecology. *P. mahunkai* sp. n. is presently known only from its type locality of the Kwamsambia Forest Reserve, placed 10 km South of Kwamkoro, in the Tanga region, NE of Tanzania where was collected sifting forest litter.

***Afrodipnus* gen. n.** (figs 20-22)

Type species: *Afrodipnus transvaalianus* **sp. n.**

Diagnosis. A genus of Anillina of the "*Microtyphlus* phyletic lineage" (sensu Giachino, 2008), with species of a medium-big size (mm 2.47-2.50), without longitudinal elytral grooves and labium without any tooth. It is characterized by a pronotum with a wide base and sides not dentellate before the basal angles; elytral disc bearing three setae; umbilicate series of type B. It is related to *Selenodipnus* Jeannel, 1963 and *Pelonomus* Jeannel, 1957, by the absence of the labial tooth, the labium transverse and articulated, two dilated protarsomeres in the male and the presence of three elytral discal setae. It differs from *Pelonomus* by the mandible simple, without carina on the dorsal edge and from *Selenodipnus* by the pronotum normally sulcate on the median line (without a longitudinal smooth stripe on the median line).

Description. A genus of Anillina characterized by species of a medium-big size (mm 2.47-2.50), anophthalmous. Integuments depigmented, well sclerified and covered with a short pubescence.

Head small, much narrower than the pronotum; mandibles short and simple, without hyperplasies. Maxillary palpi ovoidal, elongate and swollen. Labium transverse, articulated and without tooth; mentum not fused with the submentum. Antennae with articles 1-7, 11 elongate, articles 8-10 submoniliform.

Pronotum transverse, with the base wider than the anterior edge; lateral groove on the average wide and flattened, distinctly widened posteriorly; disk sulcate on the median line, without a smooth median longitudinal stripe. Lateral edge sinuate and not denticulate before the posterior angles. Basal angles right, blunted; two pronotal setae present, the posterior one placed almost on the basal angles.

Elytra ovoidal, relatively short, with humeri marked; separately rounded, not truncate or emarginated pre-apically; without a longitudinal groove. Elytral striae missing (except for the sutural stria). Lateral edge, starting from the humeral area, distinctly dentellate just up to the half. Juxtascutellar pore present, big and umbilicate; umbilicate series of type B (sensu Jeannel, 1963) with 9 pores; three discal setae present.

Legs relatively slender; protarsi pentamerous in male and female, with two dilated basal tarsomeres in the male. Aedeagus with the median lobe poorly curved, subrectilinear in the apical part. Parameres asymmetrical, with the left one more elongated; bearing two apical setae.

Etymology. From the union of the geographic term "Africa" with the suffix "*dipnus*" derived from *Scotodipnus* ("that feeds in the dark"); literally "*Scotodipnus* of Africa". The name gender is masculine.

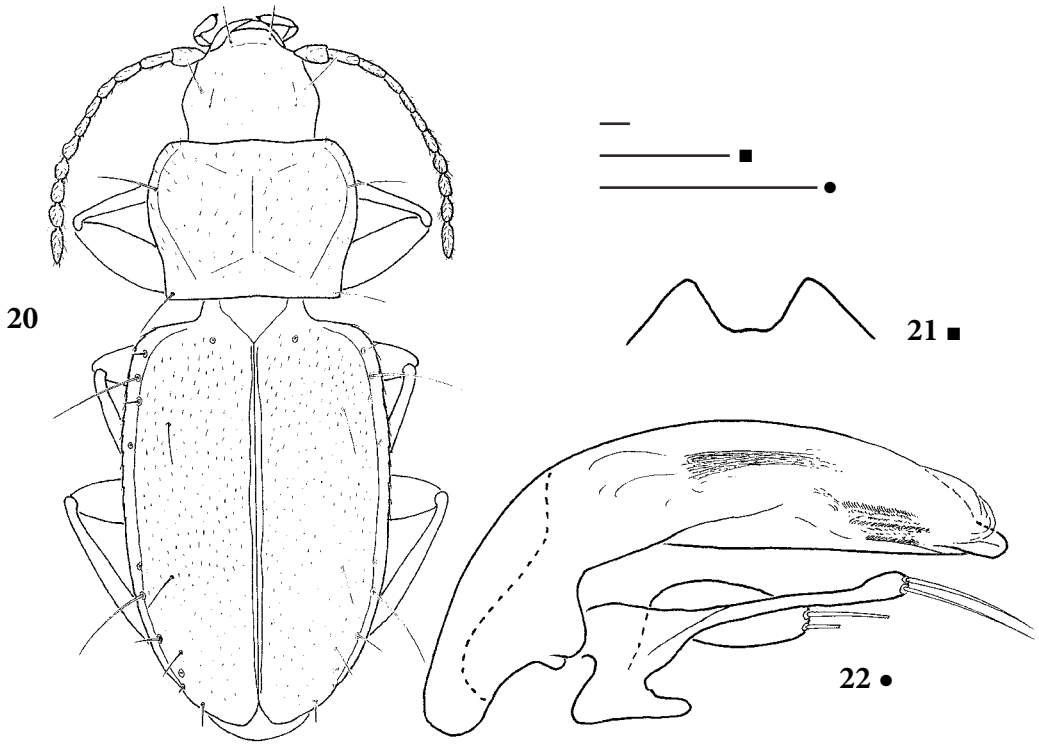
***Afrodipnus transvaalianus* sp. n.** (figs 20-22)

Locus typicus: S. Africa, S. Transvaal, Roberts Drift: Vaal R. 27.02 S - 29.02 E

Type series: HT ♂, **Republic of South Africa**: S. Transvaal, Roberts Drift: Vaal R. 27.02 S - 29.02 E, 8 Oct 1973, E-Y: 190, sifted, flood débris, leg. EndrödiYounga (DMNHP). PTT: **Republic of South Africa**: 1 ♀, S Transvaal, Roberts Drift: Vaal R. 27.02 S – 29.02 E, 8 Oct 1973, E-Y: 190, sifted, flood débris, leg. S. Endrödi Younga (CGi).

Diagnosis. See the diagnosis of the Genus.

Description. Total length (from the anterior margin of the labrum to the tip of the elytra) 2.47-2.50 mm. Body elongated, depigmented, testaceous, with legs, antennae, and palpi slightly lighter; integuments shiny, with an isodia-



Figs. 20-22 – *Afrodipnus* gen. n. *transvaalianus* sp. n. HT ♂. **20**, habitus; **21**, labium; **22**, aedeagus in lateral view. Scale bar: 0.1 mm.

metric microsculpture, more evident on head and elytra, covered with a sparse and short or very short pubescence.

Head small, much narrower than the pronotum. Labium (fig. 21) transverse, articulated, without tooth. Antennae slender, but relatively short, just exceeding the base of the pronotum when stretched backwards; antennomeres 1-7 and 11 elongate, 8-10 submoniliform. Clypeo-frontal groove distinct; anterior margin of the epistome subrectilinear.

Pronotum transverse (max width/max length ratio = 1.34), with the maximum width at about the middle and base wider than the anterior edge; sides regularly arcuate on the anterior 2/3, sinuate posteriorly before the base. The only known female specimen shows an abnormal, asymmetric, pronotum having an apparently narrower base. Anterior angles rounded, not prominent; basal angles right and blunted apically. Disc poorly convex, with a short and very sparse pubescence; median groove present but poorly marked. Marginal grooves wide and flattened, widened close to the base; anterior marginal setae inserted inside the marginal groove, at about the base of the anterior third; basal setae placed at the posterior angles. Base rectilinear. Legs relatively slender, with no toothed femora or tibiae; protarsi pentamerous in male and female, with two dilated basal tarsomeres in the male.

Elytra ovoidal, short (max length/max width ratio = 1.51), with the maximum width near the middle, not truncate nor emarginated pre-apically. Disc moderately convex, without elytral grooves; integuments shiny, with an evident, isodiametric microsculpture and a sparse, very short and upright pubescence. Humeri obvious; post-humeral margin denticulate, with an obvious crenellation, distinct just up to the half and bearing short setae; elytral apices separately rounded. Marginal groove wide and obvious almost up to the 9th pore of the umbilicate series.

Chaetotaxy: basal umbilicate pore big, foveate. Umbilicate series of type B (sensu Jeannel, 1963), bearing 9 pores. First three pores of the humeral group almost equidistant; 4th pore decidedly farther and inserted almost on the basal third of the elytron; the 5th pore placed after the half of the elytron; the 5th and the 6th ones far from each other the half of the distance between the 6th and the 7th; 8th pore displaced onto the disc; 8th and 9th ones closer to each other than the half of the distance between the 7th and 8th. Three discal setae present: the first one placed at the base of the anterior fourth; the second one placed at the base of the posterior third; the third one placed in the middle of the 7th and 8th pore of the umbilicate series.

Aedeagus (fig. 22) small, elongate, decidedly and angularly arcuate in the basal part; median lobe, in lateral view, elongated with the ventral margin subrectilinear in the central and subapical part; apex, in lateral view, beak shaped, with an evident apical blade. Inner sac bearing a small, striped, and poorly sclerified structure in the median area and a striated/toothed pre-apical area. Parameres asymmetrical, with the left one elongated and the right one stocky; bearing two long apical setae.

Etymology. From the South African region of Transvaal.

Distribution and ecology. *Afrodipnus transvaalianus* sp. n. is presently known only from its type locality of Roberts Drift, along the Vaal River, S. Transvaal (R.S.A.), where it was collected by sifting flood debris.

Final considerations

The phyletic lineages of the Anillina of Southern Africa and Madagascar (including Seychelles Islands) were correctly defined by Jeannel in his two monographic works on this group (Jeannel 1937, 1963) even if it is worth remembering, as remarked several times by different authors (Sciaky & Zaballos 1993; Zaballos & Casale 1997; Giachino 2005, 2008), that the subdivision of the subtribe into "Phanérodontes" (labial tooth present) and "Aphaenodontes" (labial tooth missing) is always more often inadequate. Jeannel (1963) established three phyletic lineages: a *Paranillus* phyletic lineage, including the genus *Paranillus*; an *Argiloborus* phyletic lineage with the genera *Pelocharis* Jeannel, 1960, *Argiloborus* and *Neodipnus* (widely discussed by Giachino 2008); a *Microtyphlus* phyletic lineage including 14 genera (as listed before in the identification key). In this work, several new species and two new genera are described, the first one, *Afranillus* n. gen., belongs to the *Paranillus* phyletic lineage, while the second one, *Afrodipnus* n. gen., belongs to the *Microtyphlus* phyletic lineage. The finding of a new genus and several new species in apparently well known areas, i.e. South Africa, Tanzania, Madagascar or Seychelles Islands, demonstrates how the African endogean fauna is still, in fact, poorly known and largely subject to future possible discoveries.

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