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Diversity of *Aleochara* species in Madagascar (Coleoptera Staphylinidae Aleocharinae)

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Abstract

A review of the species of the genus *Aleochara* GRAVENHORST from Madagascar is presented. Fifteen species in five subgenera are reported from the island. Of the fifteen species reported, six are known to occur only in Madagascar and are potentially endemic, but the remaining nine are broadly distributed and are reported from Madagascar and elsewhere (mainly continental Africa). The potentially endemic species constitute about 40% of the *Aleochara* fauna of the island. *Aleochara granulicauda* CAMERON and *A. lineatocollis* BERNHAUER are reported as new to Madagascar. A new subgenus, *Madagaschara*, is erected to embrace *Aleochara subsulcata* PACE. A lectotype is designated for *A. granulicauda* CAMERON. *Aleochara eppelsheimi* LIKOVSKY, a replacement name for *A. picipennis* EPPELSHEIM, is considered as a junior synonym of *A. keiseri* SCHEERPELTZ. *Aleochara amplicollis* ERICHSON is transferred to the tribe Hoplandriini FENYES and the subgenus *Palaeochara* BERNHAUER is elevated to generic status to embrace it (following PACE 1999). Keys to the subgenera and species are provided. Diagnoses are given for the fifteen *Aleochara* species (genitalic illustrations are provided for six), and for *Palaeochara amplicollis* (ERICHSON).

Keywords : Aleocharinae, Aleocharini, *Aleochara*, Coleoptera, Hoplandriini, *Palaeochara*, diversity.

Introduction

Staphylinid beetles of Madagascar were described by the following authors : ERICHSON (1839); WASMANN (1897); FAIRMAIRE (1899); BERNHAUER (1901a, b, 1917); FAUVEL (1904, 1905); PAULIAN (1948); SCHEERPELTZ

(1961); JARRIGE (1970, 1973, 1978); and PACE (1984a, b, c, 1990, 1999). The most comprehensive works on aleocharines published so far are those of PACE (1984a, b, c, 1999). Species of *Aleochara* from Madagascar have never before been treated comprehensively (exception PACE 1999), in spite of their economic importance as natural biological regulators of fly populations. Instead, adults were described haphazardly. This paper treats fifteen species of Madagascan *Aleochara*, in five subgenra, of which one, *Madagaschara*, is described as new and is very likely endemic to the island. Of the fifteen species, six (40%) are known to occur only in Madagascar and are potentially endemic (*A.* (*X.*) *cribricauda*, *A.* (*X.*) *tantsirakaorum*, *A.* (*X.*) *vulnerata*, *A.* (*A.* s. str.) *daubentoniae*, *A.* (*M.*) *subsulcata*, and *A.* (*M.*) *hova*). The remaining nine species have broad distribution ranges and are recorded from Madagascar and elsewhere (mainly continental Africa). The species recorded only from Madagascar belong to the subgenus *Xenochara* (3 sp.), which is believed to contain generalist species, subgenus *Aleochara* s. str. (1 sp.), containing mainly species associated with carrion, subgenus *Madagaschara* (1 sp.), and subgenus *Maseochara* (1 sp.). *Aleochara* (*M.*) *subsulcata* is believed to represent the most ancient element of the genus in Madagascar.

We provide keys to all the subgenera and valid species ever recorded from Madagascar. Each species is furnished with diagnostic features. To avoid repetition, no redescriptions are given for previously described species.

Materials and methods

All specimens examined were dissected, and either their genitalic structures dehydrated in absolute alcohol, transferred to xylene, and mounted in Canada balsam on celluloid microslides, and pinned with the specimens from which they originated, or were directly embedded in water soluble polyvinyl pyrrolidone after extraction and mounted on microslides as above. Genital structures were traced using a KEN-A-VISION microprojector and were inked on V-C tracing film.

The terms used here are the same as in the previous contributions (KLIMASZEWSKI, 1984; KLIMASZEWSKI & JANSEN, 1993, 1994 a, b, c).

Abbreviations of the collections used in the text are : **FMNH** : Field Museum of Natural History, Chicago, Illinois, USA; **HFC** : H. Franz private collection, Mödling, Vienna, Austria; **IRSNB** : Institut royal des sciences naturelles de Belgique, Bruxelles, Belgique; **NHB** : Naturhistorisches Museum Basel, Basel, Switzerland; **NHM** : The Natural History Museum, London, United Kingdom; **NHP** : Muséum National d'Histoire Naturelle, Paris, France; **NHW** : Naturhistorisches Museum Wien, Vienna, Austria; **SEM** : Snow Entomological Museum, The University of Kansas, Lawrence, Kansas, USA; **RPC** : R. Pace private collection, Verona, Italy; **TMSA** : Transvaal Museum, Pretoria, South Africa; **ZMB** : Zoologisches Museum der Humboldt-Universität, Berlin, Germany; **ZIF** : Zoologisches Institut der Universität Freiburg, Germany; **ZLC** : Z. Likovsky private collection, Praha, Czech Republic.

Systematics

Tribe Aleocharini FLEMING

Diagnosis

Tarsal formula predominantly 5, 5, 5 (occasionally 4-5-5, e.g. in *Tinotus*); maxillary palpus 4-segmented with minute apical pseudosegment; labial palpus 3-segmented with minute apical pseudosegment; ligula bilobed, half as long as basal segment of labial palpus; mesosternum ranging from not carinate to fully carinate; aedeagal paramere with finely reticulate velum.

Genus *Aleochara* GRAVENHORST

Aleochara GRAVENHORST, 1802 : 67. Type species : *Staphylinus fuscipes* LINNAEUS. Fixed by LEACH (1819), by subsequent designation.

Diagnosis

Body usually robust, broadly oval to narrowly subparallel (Figs 1, 16, 28); maxillary palpus 4-segmented with a minute apical pseudosegment; lacinia with tuft of apical setae; ligula small, bilobed apically; tarsal formula 5, 5, 5; paramere of aedeagus consists of paramerite and finger-shaped condylite bearing 3-4 long setae. Adults predacious on eggs, larvae and pupae of cyclorrhaphous Diptera; all known larvae are ectoparasitoids of dipterous pupae.

Checklist of subgenera and species of *Aleochara* occurring in Madagascar
(species known only from Madagascar are in bold)

Subgenus *XENOCHARA* MULSANT & REY, 1874
A. cribricauda PACE, 1999
A. pseudocrassa KLIMASZEWSKI & JANSEN, 1993
A. puberula KLUG, 1833
A. tantsirakaorum PACE, 1984b
A. vulnerata ERICHSON, 1839

Subgenus *COPROCHARA* MULSANT & REY, 1874
A. granulicauda CAMERON, 1935
A. lineatocollis BERNHAUER, 1930
A. sublaevipennis FAUVEL, 1907

Subgenus *ALEOCHARA* s. str. GRAVENHORST, 1802
A. aepyornithidorum PACE, 1999
A. clavicornis REDTENBACHER, 1849 (subgeneric status not settled)
A. daubentoniae PACE, 1999
A. dilatata ERICHSON, 1839
A. madegassa LIKOVSKY 1983 (synonymized by PACE 1999)
A. keiseri SCHEERPELTZ, 1961, **new status**

A. eppelsheimi LIKOVSKY, 1983; PACE, 1999; replacement name for *A. picipennis* EPPELSHEIM, 1885, *nec* GYLLENHAL, 1827. **New synonymy!**

Subgenus *MADAGASCHARA* **new**
A. subsulcata PACE, 1999

Subgenus *MASEOCHARA* SHARP
A. hova PACE, 1999

Key to subgenera of *Aleochara* GRAVENHORST of Madagascar

1. Pronotum with two longitudinal, subparallel rows of more or less confluent setigerous punctures near the middle line of disc; each elytron frequently with pale, rust-brown to yellowish-brown apico-medial spot; mesosternum completely carinate; species predominantly associated with herbivore dung ..... ***Coprochara*** MULSANT & REY
- Pronotum usually evenly punctate, sometimes punctures uneven in size and distribution (Fig. 16) but never forming two distinct longitudinal rows near the middle line of disc; elytra uniform in color or each elytron with longitudinal narrow spot ranging from shoulder to postero-inner corner, mesosternum either completely carinate or not carinate 2

2. Body broad and robust, strongly glossy, sparsely pubescent; mesosternum not carinate; mesocoxae broadly separate; antennal segments V to X each usually much more than twice as broad as long (subgenus *Aleochara*), or about twice as broad as long (subgenus *Madagaschara*); mostly found on carrion, sometimes on dung 3
- Body spindle-shaped or subparallel, not robust, moderately glossy, densely to moderately densely pubescent; mesosternum not carinate (*Maseochara*), or partially to entirely carinate (*Xenochara*); mesocoxae narrowly separate (*Xenochara*), or usually broadly separate (*Maseochara*); antennal segments V to X from 1.2 to 2.2 (mostly less than 2) times as broad as long; usually associated with dung, forest litter, and decaying vegetable matter, occasionally with carrion 4

3. Antennal segments V to X strongly transverse, each usually at least 2.2 times as broad as long; pronotum almost evenly punctate, punctures usually fine; elytra with pubescence directed straight posteriorly ..... ***Aleochara*** s. str. GRAVENHORST
- Antennal segments V to X moderately transverse (Fig. 16), each about twice as broad as long; pronotum unevenly punctate, punctures in basomedial part of disc dense and coarse and sparse elsewhere; elytra with pubescence near lateral margins directed straight posteriorly and in remaining part of disc obliquely postero-laterad ..... ***Madagaschara*** new subgenus

4. Mesosternum entirely or partially carinate; body moderately to strongly convex, spindle-shaped or subparallel; pronotum broadest in basal third and then gradually narrowing apically; forebody usually without microsculpture ..... ***Xenochara*** MULSANT & REY
- Mesosternum not carinate, body flattened, narrowly subparallel; pronotum broadest in middle part, sides symmetrically curved; forebody with microsculpture ..... ***Maseochara*** SHARP

Subgenus *Xenochara* MULSANT & REY, 1874

Xenochara MULSANT & REY, 1874: 344. Redefined by KLIMASZEWSKI, 1984: 35.
Type species : *Aleochara decorata* AUBÉ, 1850, (= *A. puberula* KLUG), by monotyp.

Diagnosis

Body spindle-shaped or subparallel (Fig. 1), moderately glossy with abdomen strongly so; forebody evenly and moderately to densely punctate and pubescent; either uniformly brown to black or with two pale, rust-brown or yellowish-brown oblique spots on elytra; antennae with segments V to X slightly broadening towards apex with each segment less than 2.2 times as broad as long; mesosternum completely carinate or nearly so; mesocoxae narrowly separate. Adults are frequently found in forest and vegetable litter, herbivore dung, occasionally in carrion.

Key to adults of subgenus *Xenochara* of Madagascar

1. Body small, length 2.0-3.5 mm; abdominal terga with scale-shaped and pointed sculptures; median lobe of aedeagus with moderately-sized bulbus and narrow, subparallel tubus, internal sac with two distinct small subapical sclerites; spermatheca with spherical capsule, straight median portion of duct and twisted posterior part (for illustrations see KLIMASZEWSKI & JANSEN 1993, Figs 93-96) .... *A. (X.) pseudocrassa* KLIMASZEWSKI & JANSEN
- Body larger, length 3.0-6.5 mm; abdominal terga without scale-shaped sculptures (if sculptures present then only on tergum VIII and differently shaped); median lobe of aedoeagus and spermatheca not as above 2

2. Antennal segments V-X slightly elongate; impressions of abdominal terga with large, longitudinally elongated pores; spermatheca with approximately spherical capsule, narrowing posteriad and with singularly coiled posterior duct (for illustrations see PACE 1999 : 230, Figs 624, 625); male unknown ..... *A. (X.) cribricauda* PACE
- Antennal segments V-X transverse; impression of abdominal terga with smaller pores; genital structures different 3

3. Body black with central part of elytra reddish; male tergum VIII with large, broadly rounded apical teeth; subapical part of tubus of median lobe of aedeagus slightly produced ventrally but not hooked; spermatheca with approximately ovoid capsule, narrowing posteriad and with irregularly coiled thin duct (for illustrations see PACE 1984b : 77) ..... *A. (X.) tantsirakaorum* PACE
- Body either uniformly light-brown to dark-brown with reddish tinge, or with elytra bearing two rust-brown to yellowish rust-brown spots, each ranging from shoulder to postero-inner corner of elytron (Fig. 1); male tergum VIII with minute apical serration or smooth; genitalia differently shaped 4

4. Pronotal punctation fine and dense, punctures separated from each other by distance of 1 or 1.5 times their diameter; forebody slightly glossy; male tergum VIII with smooth posterior margin; tubus of median lobe of aedeagus with hooked apex; spermatheca with approximately ovoid capsule, narrowing posteriad, with broadly, irregularly coiled, moderately broad duct (for illustrations see KLIMASZEWSKI & JANSEN, 1993) ..... *A. (X.) puberula* KLUG
- Pronotal punctation moderately large and sparse, punctures separated from each other by a distance of at least two of their diameters; forebody strongly glossy; male tergum VIII with fine apical serration (Fig. 4); tubus of median lobe of aedeagus with narrowly produced subapical part and apex slightly produced ventrally but not hooked (Fig. 3); spermatheca as in Fig. 5 ..... *A.(X.) vulnerata* ERICHSON

Aleochara (Xenochara) cribricauda PACE
Figs 624, 625 (PACE 1999)

Aleochara (Xenochara) cribricauda PACE, 1999 : 236.
Holotype (female) : Madagascar Est, Vatomandry, J. Vadon (NHP).

Diagnosis

Body glossy, 5.1 mm long, narrowly subparallel, elytra slightly broader than pronotum and abdomen, forebody densely pubescent, abdomen sparsely so; head brown, pronotum reddish brown, elytra reddish yellow with oblique reddish brown band, abdomen reddish with large reddish brown spot, antennae brown with reddish base, antennal segments V to X elongate; pronotum and elytra with coarse granulation; abdominal punctation large. Spermatheca with approximately spherical capsule, narrowing posteriad, and with singularly coiled posterior duct (for illustrations see PACE 1999 : 230, Figs 624, 625); male unknown.

Bionomics

Unknown.

Geographic distribution
Eastern Madagascar.

Aleochara (Xenochara) pseudocrassa KLIMASZEWSKI & JANSEN
Figs 93-96 (KLIMASZEWSKI & JANSEN 1993)

Aleochara (Xenochara) pseudocrassa KLIMASZEWSKI & JANSEN, 1993 : 86; PACE 1999 : 235.
Holotype (male) : South Africa, Transvaal, Soutpan, Pretoria, 8.II.1973, Endrödy-Younga (TMSA).

Diagnosis
Body small, moderately glossy, robust, length 2.0-3.5 mm, dark brown to nearly black, with basal two antennal segments, maxillary palpi, legs and two posterior spots on elytra all rust brown; antennal segments VI to X transverse; pubescence moderately dense, abdomen with scale-shaped microsculpture; aedeagus with tubus nearly straight ventrally, apex narrowly rounded, internal sac with two distinct subapical sclerites; spermatheca with spherical capsule, straight median portion of duct and twisted posterior part (for illustrations see KLIMASZEWSKI & JANSEN 1993 : 98, Figs 93-96).

Bionomics
The single specimen of *A. pseudocrassa* reported from Madagascar by PACE (1999) was collected in July. No other data are available on the Madagascar population. From other regions it was recorded in arid to near-desert habitats from herbivore dung (KLIMASZEWSKI & JANSEN 1993).

Geographic distribution
PACE (1999) reported *A. pseudocrassa* for the first time from southern Madagascar, Ampanihy. KLIMASZEWSKI & JANSEN (1993) previously reported this species from South Africa (Transvaal, Natal, Northern Cape), Lesotho, Namibia, Angola and Kenya. Former records of *A. crassa* BAUDI from Madagascar are almost certainly related to *A. pseudocrassa* (for details on the two species see KLIMASZEWSKI & JANSEN 1993, and PACE 1999). Additional record : Antanambé, baie d'Antougil, III-IV.97, A. Mocqerys (IRSNB) 2 males [1 male without label but probably from the same locality].

Aleochara (Xenochara) puberula KLUG
Figs 56-59 (KLIMASZEWKI & JANSEN, 1993)

Aleochara puberula KLUG, 1833 : 139. -As subgenus *Aleochara* s. str. : PACE 1999 : 235.
Lectotype (male) : Madagascar, *puberula* KLUG, No. 5566 (ZMB). Designated by KLIMASZEWSKI 1984. For synonymy see KLIMASZEWSKI, 1984; and KLIMASZEWSKI & JANSEN, 1993.

Diagnosis

Body spindle-shaped, moderately convex, 3.0 - 5.0 mm long, pronotum and elytra densely pubescent, head and abdomen sparsely so, abdomen glossy; body brown with rust tinge; three basal antennal segments, maxillary palpi, legs, edges of pronotum, apex of abdomen and two oblique spots, one on each elytron ranging from outer-anterior corner to inner-posterior corner, all rust-brown; in some individuals elytra are uniformly rust-brown; antennal segments V to X slightly transverse, each at most 1.5 times as broad as long. Male tergum VIII truncate and smooth apically. Median lobe of aedeagus hooked apically in lateral view, sclerites of internal sac distinct with median ones being each emarginate apically. Spermatheca pipe-shaped with posterior duct irregularly coiled.

Bionomics

This species is mainly associated with animal droppings and carrion.

Geographic distribution

Aleochara puberula is a cosmopolitan species known from Europe, North and South America, Africa, Madagascar, South and East Asia, Hawaii, New Caledonia, and New Zealand (ALMEIDA & PRADO, 1996; CAMERON, 1939; HORION, 1967; KLIMASZEWSKI, 1984; KLIMASZEWSKI & JANSEN, 1993; KLIMASZEWSKI & CROSBY, 1997; KUSCHEL, 1990; PACE, 1991; SHIBATA, 1973; TOYAMA & IKEDA, 1976).

New records for southern Madagascar (PACE 1999) : Ampanihy, VII.1969, Y. Gomy. Additional records : Madagascar, Diego-Suarez, Ch. Alluaud 1893 (IRSNB) 1 male, 1 female; Madagascar Sud (IRSNB) 1 female; Ile Maurice, Carié (IRSNB) 1 female; La Réunion (IRSNB) 1 sex?

Comments

PACE (1999), without explanation, transferred this species to subgenus *Aleochara* s. str. We disagree with this transfer because all the external and genital characteristics suggest that it belongs to the subgenus *Xenochara* (see diagnosis above).

Aleochara (Xenochara) tantsirakaorum PACE
Figs 1-5 (PACE 1984b)

Aleochara (Isochara) tantsirakaorum PACE, 1984b : 76, 1999 : 237.
Holotype (male) : Southern Madagascar, leg. Franz (HFC). Paratype (female) : labelled as the holotype (RPC).

Diagnosis

Body spindle-shaped, moderately convex, 5.8 mm long, strongly glossy, black; elytra reddish centrally and black laterally; antennae black with first, second and base of third basal segment reddish; head and pronotum slightly asperate, abdomen with round or longitudinally elongate punctation; antennal

segments VII-X transverse, each at most 1.5 times as broad as long. Male tergum VII with large, broadly rounded apical teeth. Median lobe of aedeagus similar in shape to that of *A. puberula*, with narrow and ventrally slightly produced apex. Spermatheca with laterally broadly oval capsule, with thin posterior duct and multiple irregular coils.

Bionomics
Unknown.

Geographic distribution
Southern Madagascar (PACE 1999).

Comments
This species is probably closely related to *A. transvaalensis* KLIMASZEWSKI & JANSEN. Both species share many genital features but may be readily separated by the differently shaped spermathecae, and unserrated male tergum VIII in *A. transvaalensis* (see KLIMASZEWSKI & JANSEN 1993).

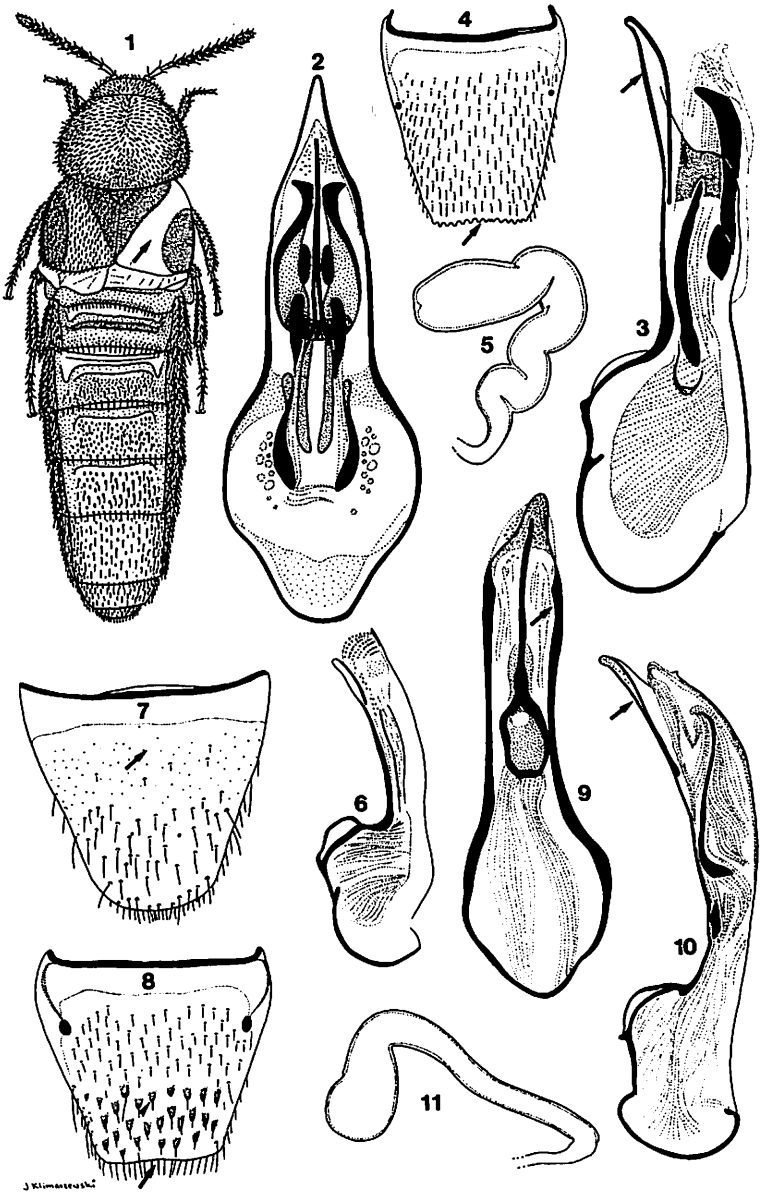
Aleochara (Xenochara) vulnerata ERICHSON
Figs 1-5

Aleochara vulnerata ERICHSON, 1839 : 164; FENYES, 1920 : 410; BERNHAUER & SCHEERPELTZ, 1926 : 788; LIKOVSKY, 1968 : 1, 2, 1983 : 16; PACE 1999 : 236.
Lectotype (female) : Madagascar, Goudot, *vulnerata* Er. [handwritten by Erichson on green labels], #5565, Type (ZMB). Designated by PACE, 1999 : 236.
Paralectotype (female) : Madagascar, Goudot, # 5565, Type (ZMB).

Diagnosis
Body spindle-shaped (Fig. 1), moderately convex, length 3.5 - 6.5 mm, pronotum and elytra moderately densely pubescent and abdomen nearly glabrous, forebody glossy with abdomen strongly so, dark-brown to nearly black, legs, maxillary palpi, three basal antennal segments and two oblique elytral spots, each ranging from shoulder to postero-inner corner of each elytron (Fig. 1), rust-brown; antennal segments V to X transverse, each at most 1.3 times as broad as long (Fig. 1). Male tergum VIII with fine serration at apex (Fig. 4). Median lobe of aedeagus (Figs 2, 3) with tubus narrowly elongate apically and slightly produced ventrally, apex not hooked (Fig. 3). Spermatheca sinuate posteriad (Fig. 5).

Bionomics
The specimens were collected in October and November from compost, zebu dung, and also by using malaise and yellow pan traps.

Geographic distribution
Madagascar. There are two doubtful records of this species from Tanganyika and Tanzania (PACE, 1986b).



Figs 1-11. *Aleochara* sp. : 1-5 : *A. (Xenochara) vulnerata* ERICHSON. 1 : habitus of a male (right elytron showing color pattern; pubescence and punctation not shown); 2 : median lobe of aedeagus in ventral view; 3 : median lobe of aedeagus in lateral view; 4 : male tergum VIII; 5 : spermatheca. 6-8 : *A. (Coprochara) granulicauda* CAMERON. 6 : median lobe of aedeagus in lateral view; 7 : male sternum VIII; 8 : male tergum VIII. 9-11 : *A. (Aleochara* s. str.*) dilatata* ERICHSON. 9 : median lobe of aedeagus in ventral view; 10 : median lobe of aedeagus in lateral view; 11 : spermatheca. Arrows indicate taxonomically important characters.

Material examined

Madagascar : Tananarive Prov., Antanarivo (Tananarive), Parc de Tsimbazaza : 21-25.X.1984, R.W. Brooks (SEM) 1 male, 1 female; 26-31.X.1984, R.W. Brooks #50 (TMSA) 1 female; 26.X.1984, R.W. Brooks #29 (SEM) 1 female; 2-6.XI.1984, R.W. Brooks #72 (SEM) 1 male, 1 female; 6-13.X.1970, coll. P.M. Hammond (NHM) 1 male, 1 sex undetermined. Tamatave Prov., Anolasibe (Périnet) 18°56'S-48°35'E, 1-5.XI.1984, Robert W. Brooks (TMSA) 1 male; Madagascar, Goudot 1834 (NMP) 1 female; Madagascar, Diego-Suarez, Ch. Alluaud 1893 (IRSNB) 1 female; forêt de Moramanga (IRSNB) 1 female.

Records (PACE, 1999) : Madagascar Nord, Diego-Suarez, Ch. Alluaud; Madagascar Centre, Tananarive, F. Sikora, Massif de L'Ankaratra, 2000 m, XI. 1947, P. C. (lément). Doubtful records (PACE, 1986b) : Tanganyika, Usa River; and Tanzania, Ngare Sero near Usa River.

Comments

Aleochara vulnerata is genitally extremely similar to *A. podocarpoides* KLIMASZEWSKI & JANSEN, which was recorded from the indigenous forests of South Africa (KLIMASZEWSKI & JANSEN, 1993). The median lobe of the aedeagus and the internal sac structures are similarly shaped in the two species.

The two species can easily be distinguished by body color, serrated apex of the male tergum VIII (*A. vulnerata*) and differently shaped spermathecae. They undoubtedly evolved from a common ancestral species.

Subgenus *Coprochara* MULSANT & REY

Coprochara MULSANT & REY 1874 : 430. Redefined by KLIMASZEWSKI 1984. Type species : *Aleochara bilineata* GYLLENHAL, fixed by FENYES 1918.

Diagnosis

Body narrowly oval or subparallel, usually moderately to strongly glossy; head and pronotum irregularly punctate and pubescent; pronotum with two subparallel, more or less impressed rows of setigerous punctures in central part of disc; brownish to black with elytra bicolored (except some specimens of *A. lineatocollis* and *A. granulicauda* which are uniformly black); antennal segments V to X moderately to strongly transverse, each segment 1.2 to 2.4 times as broad as long; mesosternum completely carinate; mesocoxae narrowly separate; median lobe of aedeagus mostly with a characteristic set of inner sclerites (KLIMASZEWSKI, 1984; MAUS, 1998).

Adults frequently occur on herbivore dung and decaying vegetable matter.

Key to adults of subgenus *Coprochara* of Madagascar

1. Body length 3.0 - 5.0 mm, moderately glossy, usually dark brown to black, elytra mostly uniform in color or with two diffuse posterior rust-brown spots each in postero-inner corner of elytron; male tergum VIII without surface sculptures; tubus of median lobe of aedeagus strongly sin-

uate in lateral view; spermatheca U-bent with several, regularly shaped, posterior coils ..... *A. (C.) lineatocollis* BERNHAUER

- Body length 1.5 - 3.0 mm, strongly glossy, light to dark brown, elytra usually with two pale rust-brown or yellowish spots in postero-inner corner of each elytron; terminalia and genitalia different 2

2. Forebody strongly glossy and sparsely pubescent, elytral punctures fine and slightly impressed, male tergum VIII without distinct posterior granulation (KLIMASZEWSKI & JANSEN 1994b, Fig. 48), male sternum VIII with scale-shaped basal sculptures (KLIMASZEWSKI & JANSEN 1994b, Fig. 49); tubus of median lobe of aedeagus as in Figs 50, 51 (KLIMASZEWSKI & JANSEN 1994b) ..... *A. (C.) sublaevipennis* FAUVEL

- Forebody moderately glossy and more densely pubescent, elytral punctures coarser and more crescent-shaped, male tergum VIII with distinct posterior granulations (Fig. 8), male sternum VIII without scale-shaped basal sculptures (Fig. 7); tubus of median lobe of aedeagus as in Fig. 6 .. .. *A. (C.) granulicauda* CAMERON

Aleochara (Coprochara) granulicauda CAMERON
Figs 6-8

Aleochara (*Coprochara*) *granulicauda* CAMERON, 1935 : 36; LIKOVSKY, 1983 : 36; VINSON 1956 : 60; MAUS 1998 : 97; PACE 1999 : 237 (as synonym of *A. sublaevipennis* FAUVEL).

Lectotype (male) : Mauritius, Moka, 3.XI.1934, J. Vinson; *Aleochara granulicauda* Cam. Type (NHM). Here designated. Paralectotype (male) in NMP.

Diagnosis

Body light to dark brown, narrowly subparallel, moderately convex, 2.5-3.0 mm long, sparsely pubescent, forebody mostly moderately to strongly glossy; legs, basal 2-3 antennal segments, postero-inner corner of each elytron and apex of abdomen usually rust-brown, antennal segments VII to X slightly to moderately strongly transverse, each at least twice as broad as long; pronotal subparallel rows of setigerous punctures diffuse basally, elytra with coarse punctures, pubescence directed latero-posteriad, abdomen with first three visible terga deeply impressed basally, impressions densely punctate, punctures round or longitudinally elongate.

Male tergum VIII with scale-shaped granulations in apical third (Fig. 8), sternum VIII broadly rounded apically and without scale-shaped impressions at base (Fig. 7). Median lobe of aedeagus as in Fig. 6. Spermatheca minute, with suborbicular capsule and stout, convex chamber, and duct without coils.

Bionomics

This species is associated with herbivore dung (e.g. turtle excrement).

Geographic distribution

Aleochara granulicauda was previously reported from Mauritius and Réunion (CAMERON, 1935; PACE, 1984c; VINSON, 1956). PACE (1999) recorded it from Madagascar as a synonym of *A. sublaevipennis* Fauvel. We reinstate the two species as distinct identities and report *A. granulicauda* for the first time from Madagascar.

Material examined

Madagascar, Grandidier 2855-90, leg. Sikora, labeled as *A. strigiventris*, auct. det. Fvl. [Fauvel] (NMP) 1 male; Antanamabé, baie d'Antougil, III. IV. 97, A. Mocquerys (IRSNB) 1 male; Diego-Suarez, 7 (IRSNB) 1 female; Madagascar, baié d'Autongil, forêt de Moramanga (IRSNB) 2 females [1 female without label but probably from the same locality]; Maurice (IRSNB) 1 female.

Records (PACE, 1999) : as *A. sublaevipennis* : Madagascar Centre, Tananarive, F. Sikora (depository unknown).

Comments

"*Aleochara strigiventris*" FAUVEL is conspecific with *A. granulicauda*. There are specimens bearing identification labels of "*A. strigiventris*" in the NHM, NHP, and IRSNB, however, this species has never been described, and as such should be considered as an *in litteris* name without taxonomic meaning. PACE (1999) synonymized *A. granulicauda* with *A. sublaevipennis*. We tentatively reinstate the two species as distinct identities until sufficient series of specimens (males and females) become available from broader areas in order to understand the specific variations. Both "species" are very similar externally; however, males of *A. granulicauda* may be distinguished as they have scale-shaped sculptures on apical third of tergum VIII (Fig. 8), they lack such sculptures at the base of sternum VIII (Fig. 7). Additional characteristics that distinguish *A. granulicauda* from *A. sublaevipennis* are : forebody less glossy and more densely pubescent, elytral punctures more crescent-shaped, apical terga with more dense, rasp-like, asperate, and longitudinally wrinkled punctation. PACE (1999) transferred *A. sublaevipennis* from subgenus *Coprochara* to *Xenochara* without discussing his decision. We do not agree with him because this species conforms externally to the range of characteristics typical to *Coprochara*. We agree, however, that the genitalia of *A. sublaevipennis* are not typical for *Coprochara*, but this has been interpreted as due to secondary modifications (MAUS & ASHE 1998). All ectomorphological characteristics leave no doubt about the affiliation of *A. granulicauda* to *Coprochara*.

Aleochara (Coprochara) sublaevipennis FAUVEL
Figs 47-52 (KLIMASZEWSKI & JANSEN, 1994b)

Aleochara sublaevipennis FAUVEL 1907 : 70; KLIMASZEWSKI & JANSEN 1994b : 153; PACE 1999 : 237. As *A. granulicauda* : PACE 1984c.

Lectotype (male) : Afrique orientale anglaise [Kenya], steppe Masai, près de Nairobi, 1904, ch. Alluaud (NHP). Designated by KLIMASZEWSKI & JANSEN 1994b : 153.

Diagnosis

Body narrowly oval, small, length 1.5-3.5 mm, brown to dark brown, sometimes nearly black, with two diffused paler spots on posterior part of elytra; forebody strongly glossy, and sparsely pubescent; pronotal subparallel lines of pores inconspicuous apart from four pronounced setigerous pores; abdomen with longitudinally elongate punctation and scale-shaped structures; male tergum VIII without apical scale-shaped structures (Fig. 48, KLIMASZEWSKI & JANSEN 1994b); sternum VIII of both sexes with scale-shaped basal structures (Fig. 49, KLIMASZEWSKI & JANSEN 1994b); median lobe of aedeagus with straight tubus ventrally and two inconspicuous fine sclerites (Figs 50, 51, KLIMASZEWSKI & JANSEN 1994b); spermatheca simple, without posterior coils (Fig. 52, KLIMASZEWSKI & JANSEN 1994b).

Bionomics

Aleochara sublaevipennis was reported in South Africa from herbivore dung in mixed shrub/grassland habitats. Its habitats and habits are unknown in Madagascar.

Geographic distribution

PACE (1999) reported *A. sublaevipennis* for the first time from Madagascar. KLIMASZEWSKI & JANSEN (1994b) recorded this species from across South Africa, Zimbabwe, Botswana, and Namibia. It was also previously known from Kenya (FAUVEL 1907, LIKOVSKY 1983).

Comments

See under comments on *A. granulicauda*.

Aleochara (Coprochara) lineatocollis BERNHAUER
Figs 41-46 (KLIMASZEWSKI & JANSEN 1994b)

Aleochara (Coprochara) lineatocollis BERNHAUER, 1930 : 206; SCHEERPELTZ 1934 : 1718; LIKOVSKY, 1983 : 17; KLIMASZEWSKI & JANSEN 1994b : 154, 155, MAUS 1998 : 93, 97.

Diagnosis

Body narrowly subparallel, moderately convex, length 3.0-5.0 mm, forebody glossy, sparsely pubescent, dark brown to black with elytra uniform in color or with pale, oval, diffused reddish-brown spots, each located posteriad near the suture, pronotal subparallel rows of setigerous punctures diffuse, punctation of forebody coarse, deep, and large especially on elytra; elytra with pubescence directed latero-posteriad, abdomen with first three visible terga deeply impressed basally, impressions densely punctate, punctures round or

longitudinally elongate and coarse; antennae with segments VII to X moderately transverse, each at most two times as broad as long. Male tergum VII truncate apically and approximately evenly pubescent; sternum VII slightly produced apically. Tubus of median lobe of aedeagus strongly sinuate in lateral view. Spermatheca U-shaped with several, regularly-shaped, posterior coils.

Bionomics

Occurs in grassland and bushveld and is associated with herbivore dung, human faeces, and occasionally carrion (KLIMASZEWSKI & JANSEN, 1994c).

Geographic distribution

Aleochara lineatocollis was originally described from Zaire (BERNHAUER, 1930). It was subsequently reported from South Africa, Zimbabwe, Botswana and Namibia (KLIMASZEWSKI & JANSEN, 1994b), and Yemen (MAUS, 1998). We report this species for the first time from Madagascar.

Material examined

Madagascar, Grandidier 2855-90, leg. Sikora (NMP) 1 male.

Subgenus *Aleochara* s. str. GRAVENHORST

Aleochara GRAVENHORST, 1802 : 67. Restricted by MULSANT & REY, 1874 : 14. Redefined by KLIMASZEWSKI, 1984 : 70.

Type species : *Staphylinus fuscipes* Linné, fixed by LEACH 1819, by subsequent designation.

Diagnosis

Body broad and robust, moderately glossy except strongly so on abdomen, approximately evenly and finely to moderately fine, to coarsely punctate; brown to black with appendages usually paler, sometimes elytra with light spots or entirely light; elytral pubescence directed approximately straight posteriad; antennal segments V to X each usually at least 2.2 times as broad as long; mesosternum not carinate; coxae broadly separate. Adults associated with carrion and sometimes animal droppings.

Key to adults of subgenus *Aleochara* s. str. of Madagascar

1. Antennal segments V to X strongly transverse, each at least 2.2 times as broad as long; pronotum approximately evenly punctate, punctures not particularly large at base; body moderately large, length 1.8-7 mm 2
- Antennal segments V to X moderately transverse, each about twice as broad as long; pronotum unevenly punctate, punctures in baso-medial part of disc large and coarse; body large, length 7.1 mm (illustrations : PACE 1999 : 234, Figs 639-641) ..... *A. daubentoniae* PACE

2. Body length 1.8-4 mm, head and pronotum densely punctate, punctation fine, body dark brown with yellowish or reddish elytra; male tergum VIII serrate apically with three pronounced teeth, two lateral and one median; genitalia illustrated by KLIMASZEWSKI & JANSEN (1994a : 99-100, Figs 19-26, 37-42) ..... *A. clavicornis* REDTENBACHER (subgeneric status not certain)
- Body length 2.5-7.0 mm (usually 6-7 mm), head and pronotum sparsely punctate, distance between punctures equal from 2 to 3 combined diameters of a puncture, punctation coarse, body dark brown to black; genital structures different 3

3. Pronotum with medio-basal area more or less triangularly impressed in shape, moderately to densely punctate and flattened, spaces between punctures strongly glossy and without transverse microsculpture, tubus of median lobe of aedeagus narrowly elongate subapically and with apex pointed and strongly produced ventrally (Fig. 12), spermatheca pipe-shaped, broadly curved posteriad (Fig. 14) ..... *A. aepyornithidorum* PACE
- Pronotum with medio-basal area convex, moderately densely punctate, spaces between punctures moderately to strongly glossy, and with inconspicuous transverse microsculpture consisting of wavy lines, genital structures as in Figs 9-11, 29-31 4

4. Body length 2.5-7.0 mm, tubus of median lobe of aedeagus strongly curved in lateral view (Fig. 31), with broad, inwardly expanding lateral edges in ventral view (Fig. 30), spermatheca sinuate posteriad (Fig. 29) .. .. *A. keiseri* SCHEERPELTZ
- Body length 6.0-7.0 mm, tubus of median lobe of aedeagus slightly curved in lateral view (Fig. 10) and with narrow, not inward-expanding, lateral edges in ventral view (Fig. 9), spermatheca approximately straight posteriad (Fig. 11) ..... *A. dilatata* ERICHSON

Aleochara (Aleochara s. str.*) aepyornithidorum* PACE
Figs 12-15

Aleochara (*A.* s. str.) *aepyornithidorum* PACE, 1999 : 233.
Holotype (male) : Madagascar Est, Maroantsetra (ZMB).

Diagnosis

Body broadly oval, robust, moderately convex, 5.0-8.0 mm long, glossy to strongly glossy especially on abdomen, forebody moderately densely pubescent, abdomen sparsely so; brown, dark brown or black, with rust tinge and three basal antennal segments, maxillary palpi and legs rust-brown; elytra with dense and coarse punctation, pubescence directed approximately straight posteriad; abdomen with first four visible terga usually deeply impressed basally, impressions glabrous; abdomen elsewhere coarsely punctate, with punctures round or longitudinally elongate; antennal segments VII to X strongly trans-

verse, each at least 2.2 times broader than long. Male tergum VIII with apex slightly emarginate and with fine serration (Fig. 15), sternum VIII truncate apically. Median lobe of aedeagus narrowly elongate subapically, apex produced ventrally (Fig. 12), in ventral view lateral edges of tubus narrow and not produced inwards (Fig. 13). Female (**new description**) tergum VIII truncate apically, not serrated, sternum VIII truncate apically. Spermatheca pipe-shaped (Fig. 14). Externally, the specimens are similar to those of *A. dilatata* and *A. keiseri*, but differ by the more robust body and the genital features.

Bionomics

The specimens from Morondava have been found on carrion (small rodents) in a dry forest.

Geographic distribution

Madagascar and probably Seychelles.

Material examined

Madagascar, Ambositra (ZLC) 1 female; Madagascar, H. Perrier (NMP) 1 female; Madag. [ascar], locality or collector's name not readable (NMP) 1 female; locality uncertain : Ivalala, Tenir (NMP) 1 male; Maroantsetra; coll. Schubert (ZMB) 1 male; W-Madagascar, Forêt de Kirindy NE Morondava, 1. 05. 1999, M. Eberle (ZIF), 5 specimens, sex?; Antanambé, baie d'Antougil, III. IV. 97, A. Mocquerys (IRSNB) 1 male; Madagascar, Diego-Suarez, 7, Ch. Alluaud 1893 (IRSNB) 2 males; Ivohimanitra forest, Tanola, X. XI. 94, F. Major (IRSNB) 1 male; Mayotte (IRSNB) 1 female; Madagascar, Soalala (IRSNB) 1 male; Suberbieville (IRSNB) 1 female.

Comments

The specimens from Seychelles are tentatively associated with this species because of their more pronounced serration of male tergum VIII and more U-shaped spermatheca.

Aleochara (Aleochara s. str.*) clavicornis* REDTENBACHER
Figs 19-26, 37-42 (KLIMASZEWSKI & JANSEN 1994a)

Aleochara (*A.* s. str.) *clavicornis* REDTENBACHER, 1849 : 822; PACE 1999 : 233.

Holotype (male) : Austria, Vienna (NHW). Designated by KLIMASZEWSKI & JANSEN, 1994a.

Diagnosis

Body broadly oval, robust, strongly glossy, small, length 1.8-4.0 mm, dark brown to black, and usually with appendages, elytra, and apex of abdomen yellowish to reddish-brown; pubescence yellowish, moderately long and sparse; punctation moderately coarse; antennal segments VI to X each at most 2.3 times as broad as long; pronotum moderately transverse, broadest in basal third; elytra moderately transverse; abdomen with first 4 visible terga deeply

impressed, impressions glabrous basally; basal segment of metatarsus nearly as long as three following segments combined. Male tergum VIII with serrate apical margin and three pronounced teeth. Median lobe of aedeagus with strongly curved tubus and narrowly elongate apex laterally. Spermatheca with large spherical capsule and short, narrow and slightly curved duct.

Bionomics

In South Africa it was reported from predominantly arid savanna and karoo but was also found in bushveld and semi-desert habitats (KLIMASZEWSKI & JANSEN 1994a). No data are available on the Madagascar population.

Geographic distribution

This is a broadly distributed species recorded from Europe, Syria, Caucasus, Transcaspian region, India, Africa, Madagascar, Madeira, Canary Islands, Azores, Mauritius and Réunion (HORION 1967, KLIMASZEWSKI & JANSEN 1994a, PACE 1999). The first record of this species from an unspecified locality in Madagascar was provided by PACE (1999).

Comments

The subgeneric status of this species is not satisfactorily settled. Some authors believe that it belongs to the subgenus *Heterochara* Mulsant & Rey (e.g., BERNHAUER & SCHEERPELTZ 1926). We tentatively retain this species in the *Aleochara* s. str. until convincing arguments are presented to justify its transfer.

Aleochara (Aleochara s. str.*) daubentoniae* PACE
Figs 639-641 (PACE, 1999)

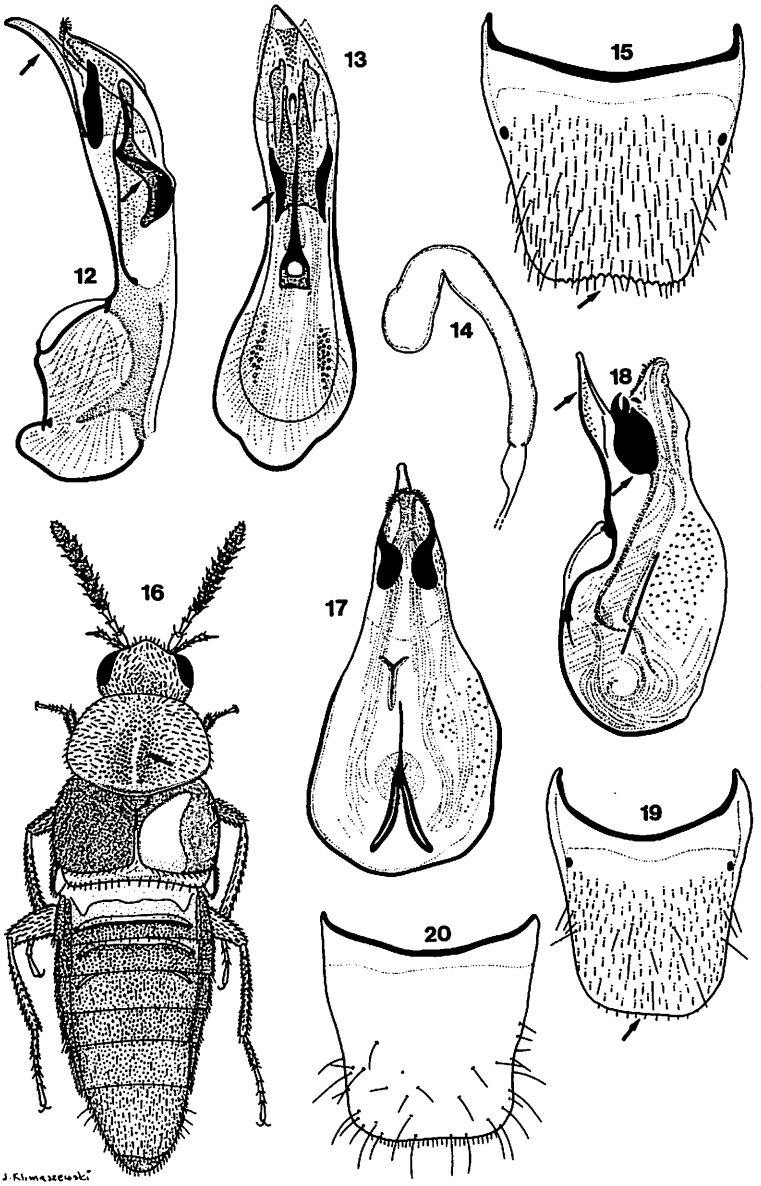
Aleochara (Aleochara s. str.*) daubentoniae* PACE, 1999 : 233.
Holotype (male) : Madagascar Ouest, Ouest de Tsaramandroso, Ampijoroa (NHP).

Diagnosis (based on male holotype)

Body large and robust, length 7.1 mm, glossy, black with elytra reddish-yellow bearing black lateral band; antennae black with basal segment brown-black, and two following ones reddish; tarsi reddish; punctation of head fine and those on pronotum and elytra coarse, the punctures on base of pronotum being particularly large. Male tergite VIII emarginate basally, emargination broadly V-shaped. Median lobe of aedeagus with moderately sized bulbus and narrowly elongate tubus, approximately straight ventrally and with slightly produced apex in lateral view; internal sac with two large, laterally sickle-shaped, subapical structures (for illustrations see PACE 1999 : 234, Figs 639, 640). Female unknown.

Bionomics

Unknown.



Figs 12-20. *Aleochara* sp. : 12-15 : *A. (Aleochara* s. str.*) aepyornithidorum* PACE. 12 : median lobe of aedeagus in lateral view; 13 : median lobe of aedeagus in ventral view; 14 : spermatheca; 15 : male tergum VIII. 16-20 : *A. (Madagaschara) subsulcata* PACE. 16 : habitus (right elytron showing color pattern; punctation and pubescence not shown); 17 : median lobe of aedeagus in ventral view; 18 : median lobe of aedeagus in lateral view; 19 : male tergum VIII; 20 : male sternum VIII. Arrows indicate taxonomically important characters.

Geographic distribution
Known from a single locality in western Madagascar.

Aleochara (Aleochara s. str.*) dilatata* ERICHSON
Figs 9, 10, 11

Aleochara (A. s. str.*) dilatata* ERICHSON, 1839 : 160; FENYES 1920 : 402; BERNHAUER & SCHEERPELTZ, 1926 : 777; LIKOVSKY, 1983 : 12; PACE 1999 : 231.
Lectotype (male) : Madagascar, [J.] Goudot, No. 5558 (ZMB). Designated by PACE 1999 : 231.
Paralectotypes (3 females) : labelled as the lectotype (ZMB). Present designation.
Aleochara (A. s. str.*) madegassa* LIKOVSKY, 1983 : 3. As synonym of *A. dilatata* ERICHSON : PACE 1999 : 232.
Holotype (female) Madagascar Centre, Ambositra, coll. Likovsky (ZLC). Not examined.

Diagnosis
Body spindle-shaped, moderately convex, length 6.0-7.0 mm, glossy to strongly glossy on abdomen, forebody moderately densely pubescent and abdomen sparsely so, brown to dark brown; legs, 2-3 basal antennal segments, tip of abdomen and two diffuse, pale elytral spots, each located centrally near the suture, all rust-brown; elytra with moderately coarse punctation and pubescence directed approximately straight posteriorly; abdomen with first three visible terga deeply impressed basally, impressions glabrous; abdomen elsewhere with punctation coarse, round or longitudinally elongate; antennal segments VII to X strongly transverse, each segment at least 2.5 times broader than long. Male tergum VIII with apex slightly emarginate and with fine serration, sternum VIII broadly rounded apically. Median lobe of aedeagus with narrowly elongate tubus, lateral edges not produced inwards in ventral view (Fig. 9), tubus slightly curved in lateral view (Fig. 10). Female (**new description**) tergum VIII truncate apically and not serrated, sternum VIII as in male. Spermatheca elongate and straight posteriad (Fig. 11). Specimens are extremely similar to those of *A. keiseri*, but differ by their large body, the tubus of the median lobe of the aedeagus lacking inward-projecting lateral edges, and the elongate (not sinuate) spermatheca.

Bionomics
This species, similarly to *A. keiseri*, is mainly associated with carrion and faeces (see KLIMASZEWSKI & JANSEN 1994b).

Geographic distribution
Central, eastern and northern Madagascar (PACE 1999). LIKOVSKY (1983) reported *A. dilatata* from Comoro Islands, Gabon, Congo, Zaire and Kenya. The records from Zaire and Gabon are apparently based on BERNHAUER & SCHEERPELTZ (1926). His records of this species might be correct but could

not be verified. PACE (1986b) recorded one male of this species from Tanganyika. BERNHAUER & SHEERPELTZ (1926) recorded *A. dilatata* var. *comma* WOLLASTON, from the Cap Verde Islands but we have not examined his material. LIKOVSKY (1983) regarded *A. dilatata* var. *comma* WOLLASTON as a distinct species - *A. comma*. PACE (1986a) reported *Aleochara dilatata* from Malaysia and suspects that it is conspecific with *A. croceipennis* MOTSCHULSKY. We cannot confirm either of PACE'S statements but it is rather unlikely that this species has such a broad range of distribution and additionally, both species appear to be rather dissimilar according to the description of *A. croceipennis* by CAMERON (1939).

Material examined

Madagascar, #74938 (ZMB) 1 male; Madagascar, Maroantsetra, coll. Schubert (ZMB) 1 male; Madagascar, no other data, Goudot (NMP) 1 male, possibly belongs to the syntypes; Type series : (ZMB) 4 females.

Records (PACE 1999) : Madagascar Nord, Joffreville, Y. Gomy; Montagne d'Ambre, Ch. Alluaud; Madagascar Est, Maroantsetra, VI. 1945, J. Vadon; Madagascar Centre, Ambositra, coll. Likovsky.

Comments

Adults of *Aleochara dilatata* and *A. keiseri* are very similar externally. Characters of the median lobe of the aedeagus (Figs 9, 30) however leave no doubt about the identity of the two species. PACE (1999) listed *A. keiseri* as a synonym of *A. dilatata* but we believe that it is a distinct species and had resurrected it from synonymy. We have followed PACE (1999) in regarding *A. madegassa* as a synonym of *A. dilatata*. We were not able to examine the holotype of the former species because several attempts to borrow it have been unsuccessful.

Aleochara (*Aleochara* s. str.) *keiseri* SCHEERPELTZ
Figs 28-31

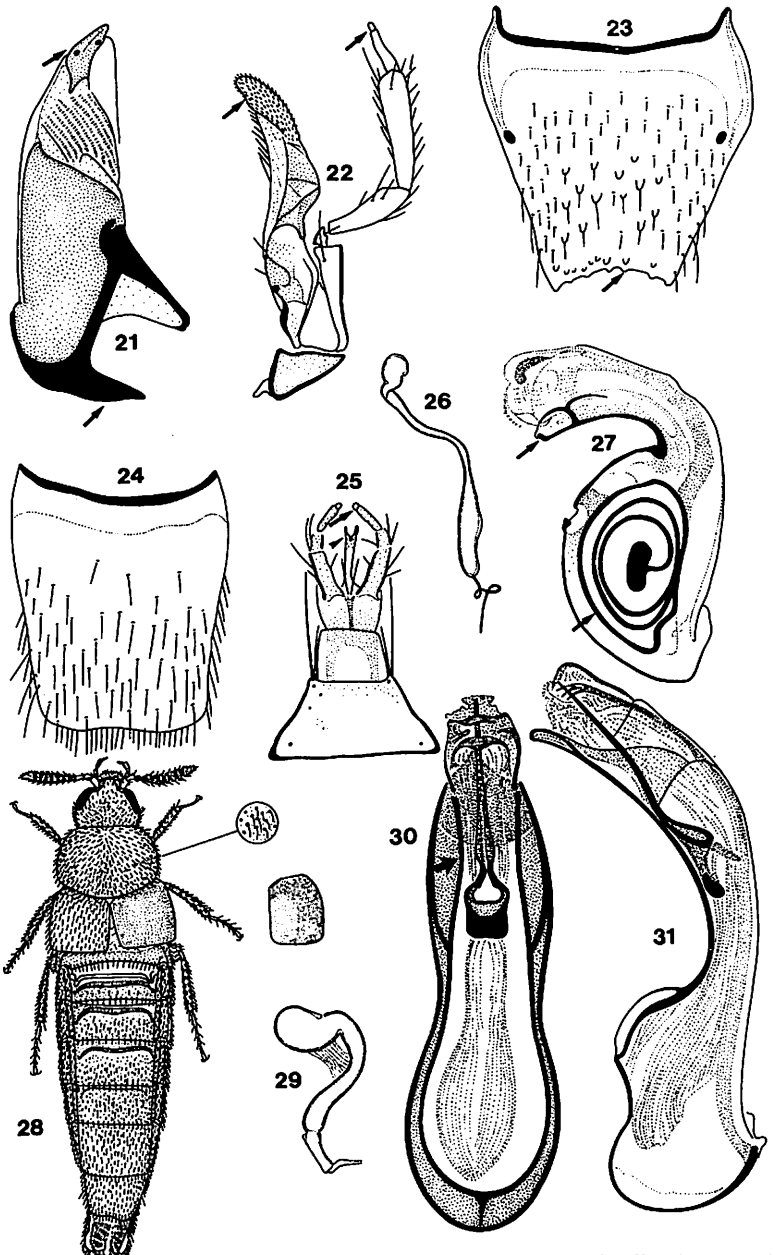
Aleochara (*Baryodma*) *picipennis* EPPELSHEIM, 1885, *nec* GYLLENHAL, 1827 : 489 (name preoccupied).

Lectotype (male) : West-Africa, Adda, Gold Küste, leg. Kopp; c. Epplsh.[heim], Steind. D, #10 (NHW). Paralectotype (female) : labelled as the lectotype. Designated by KLIMASZEWSKI & JANSEN 1994a : 103.

Aleochara (Baryodma) eppelsheimi LIKOVSKY, 1983 : 14, (replacement name for *A. picipennis*); KLIMASZEWSKI & JANSEN 1994a : 103; PACE 1999 : 233 (As valid species).

Aleochara (*Aleochara* s. str.) *keiseri* SCHEERPELTZ, 1961 : 263. PACE 1999 : 231 (As synonym of *A. dilatata*). For details on *A. eppelsheimi* see also KLIMASZEWSKI & JANSEN 1994a : 103. Replacement name for *A. eppelsheimi*.

Holotype (male) : Madagascar, Tam., Moramanga, 18.12.1957, F. Keiser (NHB).



Figs 21-31. *Palaeochara* and *Aleochara* sp.; 21-27 : *Palaeochara amplicollis* (ERICHSON). 21 : paramere (setae of apical lobe broken); 22 : maxilla; 23 : male tergum VIII; 24 : male sternum VIII; 25 : labium; 26 : spermatheca; 27 : median lobe of aedeagus in lateral view (based on the lectotype). 28-31 : *Aleochara (Aleochara* s. str.*) keiseri* LIKOVSKY. 28 : habitus; 29 : spermatheca; 30 : median lobe of aedeagus in ventral view; 31 : median lobe of aedeagus in ventral view. Arrows indicate taxonomically important characters.

Diagnosis

Extremely similar to *A. dilatata* (Fig. 28). Characters distinguishing *A. keiseri* from *A. dilatata* : body generally smaller, length 2.5-7.0 mm, dark brown to black with four basal antennal segments, maxillary palpi, tibiae and/or tarsi and postero-inner corner of each elytron reddish-brown, in some specimens elytra appear uniformly black (Fig. 28); tubus of median lobe of aedeagus strongly curved in lateral view (Fig. 31), subapical part narrowly elongate; tubus broadly curved with inwardly expanding lateral edges in ventral view (Fig. 30); spermatheca sinuate in form (Fig. 29).

Bionomics

This species in South Africa is mainly associated with carrion and faeces in grassland, bushveld and native forests (KLIMASZEWSKI & JANSEN 1994b).

Geographic distribution

KLIMASZEWSKI & JANSEN (1994a) reported this species (as *A. eppelsheimi*) from South Africa, Zaire, West Africa and Madagascar. LIKOVSKY (1983) reported it from Ghana, West and Central Africa, and Madagascar. We have new records of this species from the Comores.

Material examined

Madagascar, Annaudrivo, leg. Sikora (NHM) 1 male, 1 female; Tanarious, Eppelsheim, Steinedd. (NHW) 2 females; Grandidier, 2855-90 (NHP) 1 male, 1 female; Madagascar, Tananarive, coll. Scheerpeltz (NHW) 1 female; Tananarive (IRSNB) 1 male, Tananarive, Gde. Comore (IRSNB) 1 male; forêt de Moramanga (IRSNB) 2 females [1 female without label]; Suberbieville (IRSNB) 1 male.

Comments

Aleochara keiseri was recognized as conspecific with *A. picipennis* and represents the oldest available synonym of the latter species. According to the ICZN (1985), the oldest available synonym of a rejected homonym becomes the valid name of the taxon under consideration, and in this case the valid name is *A. keiseri*. The replacement name *A. eppelsheimi* has to be considered as a junior synonym. For further comments see under *A. dilatata*.

Aleochara keiseri was described on a single male specimen, which was originally labelled as holotype by SCHEERPELTZ. The original description confirms that it was based on a single specimen, misidentified as a female. SCHEERPELTZ frequently misidentified the sex of the specimens in his original descriptions. PACE (1999) incorrectly indicated that the holotype of this species is a female. He has either misidentified the sex of the holotype or studied and designated the wrong specimen.

Subgenus *Madagaschara* new

Diagnosis

Madagaschara, based on *Aleochara subsulcata*, shares general characteristics of the subgenus *Aleochara* s. str., but differs in the following combination of features : pronotum irregularly coarsely punctate with large punctures concentrated basally on either side of middle line of disc (Fig. 16); elytra with pubescence of central part of disc directed obliquely latero-posteriad (Fig. 16); antennal segments V to X moderately broad, no more than twice as broad as long (Fig. 16); mesosternum not carinate; mesocoxae broadly separate; aedeagus distinctive with expanded bulbus, short flagellum, and membrane of internal sac evenly sculptured with minute dents (Figs 17, 18). Habitat of adults and larvae unknown.

Aleochara (Madagaschara) subsulcata PACE, **new combination**
Figs 16-20

Aleochara subsulcata PACE 1999 : 235 (As subgenus *Aleochara* s. str.).
Holotype (male) : Madagascar Est, Vatomandry, J. Vadon (NHP).

Diagnosis

Body narrowly oval, robust, flattened (Fig. 16), 4.0-8.0 mm long, strongly glossy, sparsely pubescent; punctation dense, round and coarse on forebody (Fig. 16), round or longitudinally elongate on abdomen (Fig. 16); brown or dark brown to nearly black, with three basal antennal segments, maxillary palpi, legs, tip of abdomen and central part of elytra rust-brown (Fig. 16); elytral punctation dense, large and round; pubescence inconspicuous, directed straight posteriad on lateral parts of elytra and obliquely postero-laterad elsewhere (Fig. 16); first two visible abdominal terga deeply impressed basally, two following ones shallowly impressed, impressions glabrous (Fig. 16); antennal segments VII to X transverse, each at most twice as broad as long. Male tergum VIII and sternum VIII as in Figs 19, 20. Median lobe of aedeagus with enlarged bulbus (Fig. 17), tubus with apical part triangularly elongate (Fig. 18), internal sac with two apical sclerites (Figs 17, 18). Female tergum VIII similar in shape to that of male but with shallow apical emargination; sternum VIII as in male but slightly broader and with distinct pubescence, including fringe of pubescence at apex. Spermatheca not found.

Bionomics

Unknown.

Geographic distribution

Presently known from eastern Madagascar.

Material examined

Madagascar, Maroantsetra, coll. Schubert (ZMB), 8 males, 5 females; Anta-

nambé, baie d'Antougil, III. IV. 97, A. Mocquerys (IRSNB) 3 males, 2 females.

Records (PACE 1999) : Eastern Madagascar, Maroantsetra, J. Vadon; Est de Maroantsetra, Andranofotsy, J. Vadon; Vatomandry, J. Vadon.

Comments

The 5 specimens from IRSNB are from Fauvel's collection, and the first specimen of the series bears locality data and his identification label as "*subsulcata* Fvl." As far as we know Fauvel never published a description of this species and his name should be considered as *in litteris*. Pace (1999) described this species as *A. subsulcata*, the same name as Fauvel's unpublished name.

Subgenus *Maseochara* SHARP

Maseochara SHARP, 1883 : 154. Redefined by KLIMASZEWSKI, 1984 : 103, and KLIMASZEWSKI & JANSEN, 1994c : 165.

Type species : *Maseochara opacella* SHARP, 1883 : 153; fixed by FENYES, 1918 : 23, by subsequent designation.

Diagnosis

Body flattened, narrowly elongate and subparallel, pronotum broadest in middle part, sides arcuate; forebody or only head and pronotum with flatly impressed setigerous pores and transversely meshed microsculpture; mesosternum not carinate; male tergum VIII with distinct serration. The only species with known host records, *A. valida* LeConte, is reported to parasitize syrphid flies (KLIMASZEWSKI & JANSEN 1994c, MAUS *et al.*, 1998).

Aleochara (Maseochara) hova PACE
Figs 642-644 (PACE 1999)

Aleochara (Maseochara) hova PACE, 1999 : 237.

Holotype (male) : Madagascar Est, Perinet, 13.II.1967 (MHP).

Diagnosis

Body narrowly elongate, subparallel, brown and slightly glossy, length 3.8 mm, pronotum approximately round, elytra slightly broader than pronotum, pubescence directed obliquely posteriorly; abdomen with three basal terga bearing strong basal impressions, tergum VIII serrate apically. Median lobe of aedeagus with long and narrow tubus, apex slightly produced ventrally in lateral aspect (PACE 1999 : 236, Figs 643, 644). Female unknown.

Bionomics

The holotype specimen was collected in February. No other data available.

Geographic distribution

Eastern Madagascar.

Tribe Hoplandriini FENYES

Diagnosis

Tarsal formula usually 4, 5, 5; maxillary and labial palpi with terminal pseudosegment, body moderately narrowly elongate, convex, glossy, usually sparsely pubescent except for densely pubescent elytra; pronotal pubescence directed obliquely postero-laterad or approximately straight medially, elytral and abdominal pubescence usually directed approximately straight posteriad; each elytron deeply emarginate laterally, and in males often bearing median tubercular projection near suture; antennal segments VI to X each usually as broad as long or slightly transverse and rarely more than 1.3 times as broad as long; paramere usually with reticulated velum.

There is no clear division between the tribes Aleocharini and Hoplandriini based on tarsal formula (not consistent in the two tribes, although usually 5-5-5-segmented in Aleocharini and 4-5-5-segmented in Hoplandriini), and the shared presence of terminal pseudosegments of maxillary and labial palpi. Further investigations are needed to redefine the tribes.

Genus *Palaeochara* BERNHAUER

Palaeochara BERNHAUER, 1901a : 161 (as a subgenus of *Aleochara*); PACE 1999 : 152 (as distinct genus of Athetini). Type species : *P. amplicollis* (ERICHSON), by monotypy.

Diagnosis

See diagnosis of *P. amplicollis*.

Comments

BERNHAUER (1901a) erected the subgenus *Palaeochara* for *Aleochara amplicollis*. We believe however, that on the basis of the characteristics described above, the subgenus and species belong to the tribe Hoplandriini.

Palaeochara amplicollis (ERICHSON)
Figs 21-27

Aleochara amplicollis ERICHSON 1839 : 171; FENYES 1921 : 415. - As subgenus *Palaeochara* : BERNHAUER 1901a : 161; BERNHAUER & SCHEERPELTZ 1926 : 795; LIKOVSKY 1983 : 17. As genus *Palaeochara* : PACE 1999 : 152.
Holotype (male) : Madagas. [car], Goud [ot], *amplicollis* Er[ichson]; Type; #5581 (ZMB).

Diagnosis

Body 4.0-5.0 mm long; head and pronotum with fine punctation and inconspicuous, transversely meshed microsculpture; pronotum very broad; elytra with dense, coarse to moderately fine longitudinally elongate punctation; body dark brown with head and base of abdomen nearly black and 3-4 basal anten-

nal segments, maxillary palpi, legs and tip of abdomen rust-brown; abdomen with two basal terga moderately deeply to deeply and third one shallowly impressed basally, basal impressions glabrous; remainder of abdomen punctate, punctures bearing moderately long setae and forming in combination with impressions appearance of scale-shaped surface sculptures. Male tergum VIII broadly emarginate apically with small, rasp-like granulations (dents) posteriad (Fig. 23). Sternum VIII truncate apically (Fig. 24). Median lobe of aedeagus with enlarged bulbus bearing multiply coiled flagellum (Fig. 27). Female tergum VIII slightly emarginate apically but without dentation (4 + 4 setal formula). Sternum VIII broadly rounded posteriad with long apical pubescence. Spermatheca as in Fig. 26.

Bionomics

One specimen was collected in November by sweeping vegetation and another in December at elevation of 2000 m. No other data available.

Geographic distribution

Probably restricted to Madagascar.

Material examined

Madagascar, no other data (ZMB) 1 male; Madagascar, Tananarive Prov., Andasibe (Périnet) 2-4.X.1984, R. W. Brooks (SEM) 1 female; Madagascar, Annanarivo, Sikora (NHM) 1 male; Madagascar, Tananarive, coll. Scheerpeltz (NHW), 1 male.

Records (PACE 1999) : Northern Madagascar, Montagne d'Ambre, 1969 (H. Franz); Eastern Madagascar, Fort-Dauphin (coll. Palson); Central Madagascar, Massif de l'Andringitra, Andringitra Est, Marositry, Est de la rivière Antsifotra, 2000 m, 2/5 December 1970, (A. Descarpentries).

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