

PRELIMINARY REVISION OF SOUTH AFRICAN *MELIGETHES*
SUBG. *LARIOPSIS* KIREJTSHUK
(Coleoptera, Nitidulidae, Meligethinae) (*)

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INTRODUCTION. The junior author of the present paper (Audisio in prep.), since 1990 has been engaged in a revision of the widespread pollen-beetle genus *Meligethes* Stephens, 1830, which includes more than 500 valid species worldwide. The following preliminary revision of the South African subg. *Lariopsis* Kirejtshuk, 1989, is a contribution towards the above mentioned project, after the recently published papers dealing with all 147 W-Palaeartic species (Audisio 1993) and with most of the nearly 70 so far known E-Palaeartic species (Kirejtshuk 1992).

subg. **Lariopsis** Kirejtshuk, 1989

Lariopsis Kirejtshuk, 1989: 86; Spornraft & Kirejtshuk, 1993: 48.

TYPE SPECIES: *Meligethes variabilis* Reitter, 1872; original designation by Kirejtshuk (1989).

SYSTEMATIC POSITION. The subg. *Lariopsis* (previously informally known as '*M. variabilis* species-group': Kirejtshuk & Easton 1988) has been recently established by Kirejtshuk (1989). This subgenus, in the meaning given in the present paper, is composed of about fifteen more or less closely related South African species which are readily distinguishable from all other known *Meligethes* species-groups and subgenera. As discussed below, two species which belong to a different phylogenetic lineage have hitherto been included in subg. *Lariopsis* erroneously (Kirejtshuk 1989; Spornraft & Kirejtshuk 1993). Their correct systematic position is restored in the present paper.

(*) Ricerche eseguite dal secondo autore con contributi M.U.R.S.T. (fondi 60 % e 40 %) e C.N.R.

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DIAGNOSIS. The representatives of subgenus *Lariopsis* have more or less elongate, moderately convex body; anterior margin of clypeus with or without border, more or less deeply arcuately emarginate (transversely truncate only in *M. odiosus* Reitter), with or without traces of frontoclypeal (tentorial) impressions; frontogenal furrows absent or present (figs 114-115); pronotum usually rounded at sides, with obtusely rounded to obtuse posterior angles; elytra without humeral longitudinal stria; front tibiae with a series of more or less large and subregular teeth on their outer edge (figs 74-85); intradenticular spinules of the anterior tibiae (figs 116-118) usually short and more or less rounded at apex, with simple (not strongly triangularly emarginate) base; fore tarsi usually narrow in both sexes; tarsal claws simple; relatively short and usually small antennae; anterior edge of prosternum simple or nearly so, usually without very distinct antennal furrows (figs 119-121); dorsal (i.e., inner) surface of prosternal process with relatively small coxal foramina, separated by wide median area (fig. 122); last abdominal sternite on each side with the typical arc-like impression of all known *Meligethes* usually reduced and, in some species, barely visible (figs 72-73, 123), strongly marked only in *M. odiosus* Reitter. In all species the caudal marginal line of the hind coxal cavity follows closely its posterior edge, turning back just before its outer end. Both external and genital structures of the group exhibit comparatively archaic characters, partly similar to those known in *Clypeogethes* of the mediterranean *elongatus*, *lepidii*, and *rotundicollis* species-groups.

GEOGRAPHICAL DISTRIBUTION. Most of the known species of the subgenus are confined to the southern regions of the Republic of South Africa (especially in the present-day Western Cape Province: figs 106-113), but a few species are present also in the northern and eastern regions (including the countries of Lesotho and Swaziland), in Southern Namibia, and in SE Angola.

BIOLOGY. All known host plants of members of the subgenus *Lariopsis* belong (Audisio unpublished; see below) to the (distantly related) botanical families Asteraceae (= Compositae) and Mesembryanthemaceae (= Aizoaceae; several botanists consider Aizoaceae as a separate family, here including a small group of closely related and primitive genera of Mesembryanthemaceae s.l.), both

previously not included in the list of families known as certain larval host plants of the holarctic, oriental, and ethiopian *Meligethes*.

MATERIAL. Much new or unnamed material has been loaned for study by several South African institutions, including the South African Museum, Cape Town (CTM), the Transvaal Museum, Pretoria (TMP), the National Collection of Insects, Plant Protection Institute, Pretoria (NCP), the National Museum, Bloemfontein (NMB); much other (mostly unnamed) material and the type specimens of all previously described species have kindly been made available for examination by various European Museums, such as the British Museum of Natural History, London (BML), the Muséum National d'Histoire Naturelle, Paris (MNP), the Zoological Museum of the University, Lund (ZML), the Museum für Naturkunde of the Humboldt University, Berlin (MHB), the Zoologisches Staatsammlung, Munich (ZSM), the Zoological Museum of the Russian Academy of Sciences, St. Petersburg (ZIP), the Zoological Museum of the Moskow University, Moskow (ZMM), and the Museo Civico di Zoologia, Rome (MZR). Finally, important additional material and most of the bionomic records have been obtained as result of intensive field work during several entomological trips to South Africa, independently conducted (during 1980-1994) by the junior author and by our German colleague Karl Spornraft, Penzberg (CSP). This last-mentioned material is mostly preserved in the Audisio's collection, Rome (CAR) and in ZSM.

The complete list of known records for each species dealt with but not described as new in the present paper, shall be published in a separate monograph including all known South African *Meligethes* (Audisio in prep.).

CHECK-LIST OF KNOWN SPECIES:

- 03. *arcuatus* Reitter, 1872
limbatus Reitter, 1872 (**syn. n.**)
- 06. *aurimaculatus* Kirejtshuk & Audisio, n.sp.
- 10. *cercoides* Reitter, 1872 (= ? *pulchellus* Reitter, 1872)
- 05. *endroedyi* Kirejtshuk & Audisio, n. sp.
- 08. *haagii* Reitter, 1872
- 07. *nebulosus* Reitter, 1872
curtus Grouvelle, 1919
- 15. *odiosus* Reitter, 1872
- 11. *pulchellus* Reitter, 1872 (= ? *cercoides* Reitter, 1872)

04. *rufiventris* Reitter, 1872
luridipennis Reitter, 1872 (**syn. n.**)
 13. *serrula* Kirejtshuk & Easton, 1988
 12. *serruloides* Kirejtshuk & Audisio, n. sp.
 09. *sphaeroideus* Kirejtshuk & Easton, 1988
 14. *thalycroides* Kirejtshuk & Audisio, n. sp.
 01. *variabilis* Reitter, 1872
confluens Reitter, 1872
suturalis Reitter, 1872
bimaculatus Reitter, 1872
 02. *vultuosus* Kirejtshuk & Audisio, n. sp.

SPECIES TO BE EXCLUDED (see pag. 252):

- Meligethes gibbulus* Spornraft & Kirejtshuk, 1993
Meligethes xyphosuroides Kirejtshuk, 1989

SPECIES-GROUPS

Combining both morphological and bionomic features, members of the subg. *Lariopsis*, can be arranged in the five following species-groups:

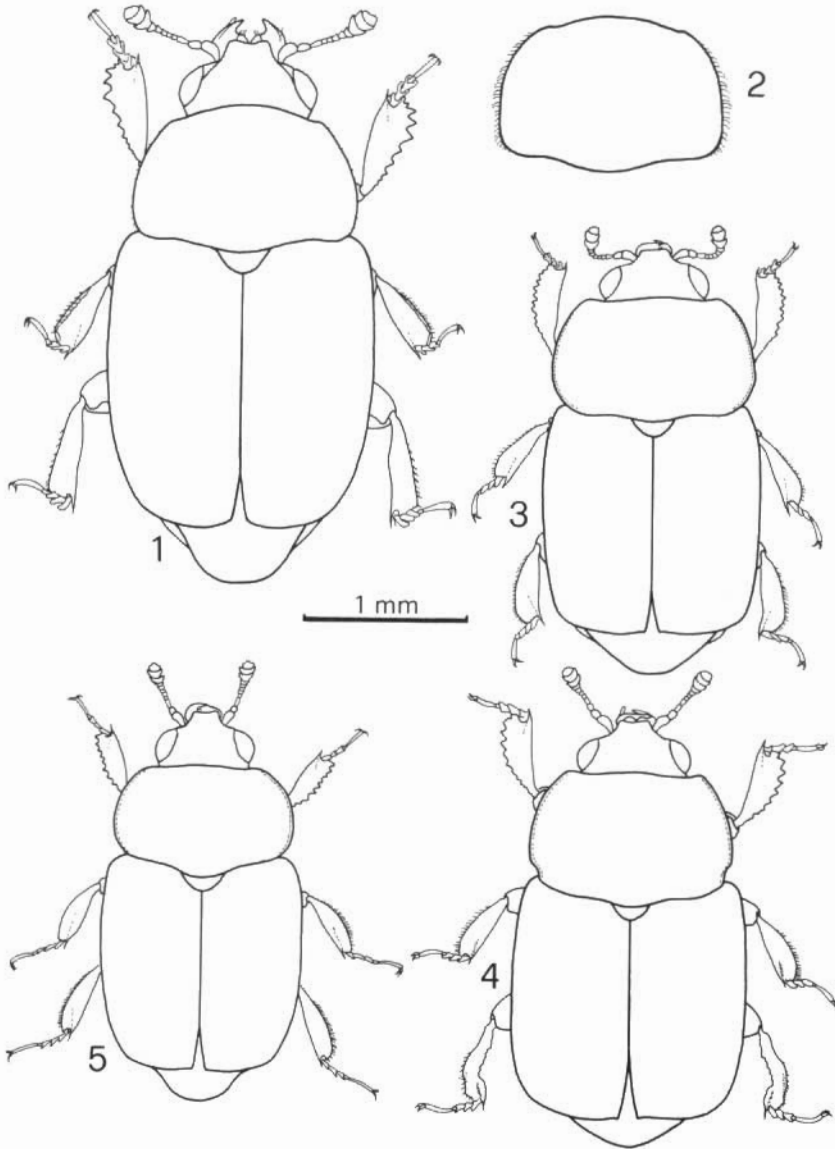
1. The *arcuatus* species-group: includes *M. arcuatus* Reitter, 1872, *M. rufiventris* Reitter, 1872, and *M. endroedyi* Kirejtshuk & Audisio, n. sp.; larval host-plants: Asteraceae.

2. The *nebulosus* species-group: includes *M. nebulosus* Reitter, 1872, *M. haagii* Reitter, 1872, *M. sphaeroideus* Kirejtshuk & Easton, 1988, and *M. aurimaculatus* Kirejtshuk & Audisio, n. sp.; larval host-plants: Mesembryanthemaceae (s. str.).

3. The *variabilis* species-group: includes *M. variabilis* Reitter, 1872, and *M. vultuosus* Kirejtshuk & Audisio, n. sp.; larval host-plants: Asteraceae.

4. The *cercoides* species-group: includes *M. cercoides* Reitter, 1872, *M. pulchellus* Reitter, 1872, *M. serruloides* Kirejtshuk & Audisio, n. sp., *M. serrula* Kirejtshuk & Easton, 1988, and *M. thalycroides* Kirejtshuk & Audisio, n. sp.; larval host-plants: Mesembryanthemaceae (s. str.).

5. The *odiosus* species-group (more closely related to the preceding one): includes the single *M. odiosus* Reitter, 1872; larval host-plants: Mesembryanthemaceae (mostly Aizoaceae).



Figs 1-5 – Habitus (1, 3-5) of *Meligethes (Lariopsis)* spp.; *M. variabilis* Reitter (male from South Africa, Cape Town) (1); *M. rufiventris* Reitter (male from South Africa, Cape Town) (3); *M. arcuatus* Reitter (male from South Africa, Cape Town) (4); *M. endroedyi* n. sp. (female paratype from South Africa, Franschhoek Pass) (5); outline of pronotum of *M. vultuosus* n. sp. (male paratype from South Africa, Scarborough), with lateral pubescence (2).

01. **Meligethes variabilis** Reitter, 1872

Meligethes variabilis Reitter, 1872: 248; Grouvelle, 1913: 61; Kirejtshuk & Easton, 1988: 53; Kirejtshuk, 1989: 86;

Meligethes variabilis var. *confluens* Reitter, 1872: 249;

Meligethes variabilis var. *suturalis* Reitter, 1872: 249;

Meligethes variabilis var. *bimaculatus* Reitter, 1872: 249.

TYPE LOCALITY: "Cape of Good Hope".

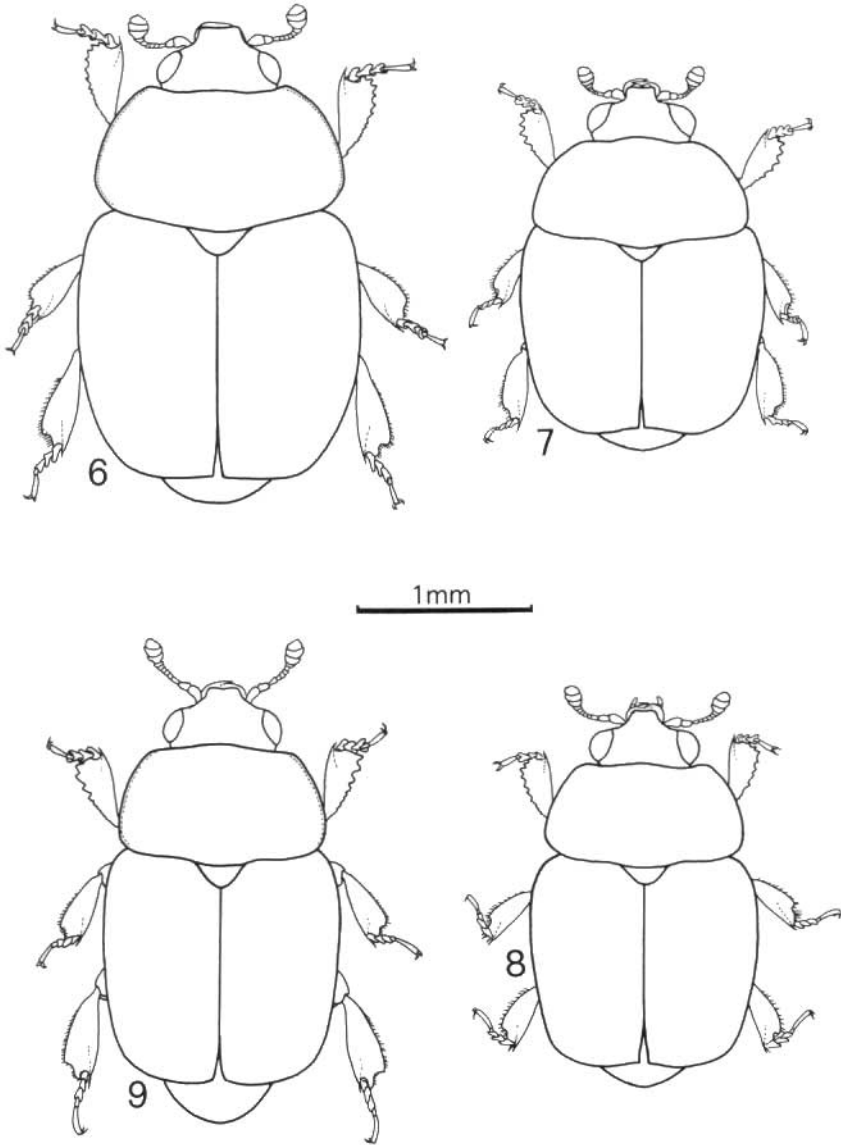
TYPE MATERIAL: "C. B. Esp." (= Cap de Bonne Espoire), "Typ, Reitter", one male, coll. A. Grouvelle (MNP), Lectotype, P. Audisio des., 1981. Other syntypes are preserved in both Grouvelle's and Oberthur's collections (MNP), as well as in MHB; all belong to the same species, included is the type material (lectotypes Audisio des., 1993) of the three varieties listed above. The female lectotype (Audisio des., 1993) of *Meligethes variabilis* var. *luridipennis* Reitter, 1872 is conspecific with *M. rufiventris* Reitter, 1872 (**n. syn.**), as discussed below.

DESCRIPTION. Elongate, oval, moderately convex, middle- to large-sized (length: 2.30-3.45 mm; width: 1.21-1.81 mm); usually dark brown, with yellowish to pale brown legs and antennae, and strongly variable elytral colour (from entirely yellow with darker suture to entirely blackish; frequently as in fig. 124).

Pubescence golden to yellowish, short and recumbent dorsally, much longer and erect ventrally. Hairs on lateral margin of pronotum and elytra short, barely visible, shorter than fourth antennal segment.

Head with rather deep punctures usually larger than eye facets, separated by half to one diameter, surface between them finely polygonally reticulate, dull; front margin of clypeus widely and rather strongly emarginate, narrowly bordered, with side angles rounded (fig. 1); frontogeneal furrows narrow but clearly distinct. Frons without traces of tentorial impressions. Antennae short, the club is very small and has short pubescence (fig. 1); third antennal segment slender, as long as or slightly longer than the second.

Pronotum moderately convex, 1.55-1.58 times as wide as long, rounded at sides, more strongly narrowed anteriorly than posteriorly, broadest at posterior third (figs 1, 124); sides narrowly bordered, not explanate; posterior angles rounded. Posterior margin distinctly sinuate on either side of scutellum; discal punctures rather deep, larger than eye facets, separated by nearly one diameter, surface between them usually dull and reticulate as on head, rarely moderately shining. Scutellum rather large, almost entirely punctate; surface usually as on pronotum.



Figs 6-9 - Habitus of *Meligethes (Lariopsis)* spp.; *M. haagii* Reitter (male from South Africa, De Rust) (6); *M. sphaeroideus* Kirejtshuk & Easton (female from South Africa, Mossel Bay) (7); *M. nebulosus* Reitter (male from South Africa, Garies) (8); *M. aurimaculatus* n. sp. (male paratype from South Africa, Cape Town) (9).

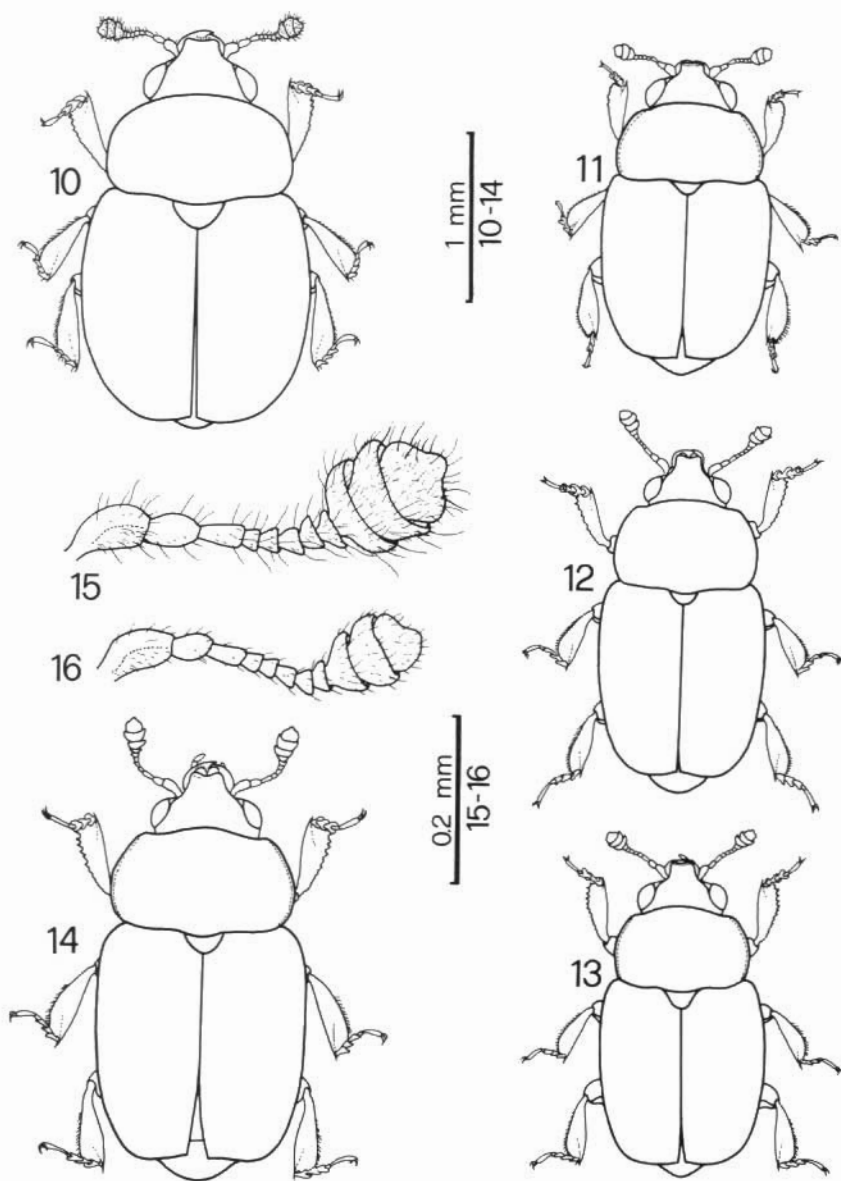
Elytra 1.09-1.11 times as long as wide, oval, broadest at basal second fifth, 1.13-1.15 times as wide as pronotum; shoulders moderately raised; punctures as on pronotum, but spaces between them usually showing only a faint trace of microscopic reticulation, so resulting more shining than (rarely as dull as) on pronotum.

Prosternal antennal furrows weakly marked (fig. 119). Prosternal process 1.7-1.8 times as wide as antennal club, with apex triangularly rounded (fig. 70); punctures deep, almost equal in size to eye facets, separated by much less than one diameter; surface smooth. Mesosternum with hind edge straight. Metasternum strongly and widely impressed in males, almost flat in females, with punctures rather deep, nearly as large as eye facets, shallower posteriorly, separated by one diameter or more, surface between smooth and shining. Last abdominal sternite in males with posterior edge distinctly emarginate in the middle, here with a scarcely raised and inverse T-shaped ridge (fig. 72); simple in females. Arc-like lateral impressions on last abdominal sternite large and clearly visible (fig. 72).

Front tibiae large and rather wide towards the apex, their outer edge strongly serrate, with 5-7 large, triangular teeth, very wide at base (fig. 74); inner edge simple, almost straight. Male front tarsi nearly two thirds as wide as antennal club, slightly narrower in female. Tarsi normally shaped, the posterior ones much shorter than antennae (figs 1, 124). Male hind tibiae relatively narrow, their inner edge slightly but clearly sinuate (fig. 86), simple and almost straight in females; their outer edge rather straight, spinulate, and obliquely emarginate towards the apex in both sexes. Middle and posterior femora simple in both sexes, without teeth or projections (fig. 97).

Tegmen (fig. 19) subrectangular, with apex truncate, very distinctly setose, apical excision small and barely distinct; median lobe of aedeagus elongate (fig. 20), parallel-sided, narrowed immediately before the obtusely truncate apex.

Ovipositor as figured (fig. 47), large, yellowish with much darker, rather obtuse apex, here with usually dark, long and large styli; outer subdivision of coxites long and narrow; 'central point' centrally placed, without distinct ventral spicule; transverse suture almost straight; external angles of basicoxites acute.



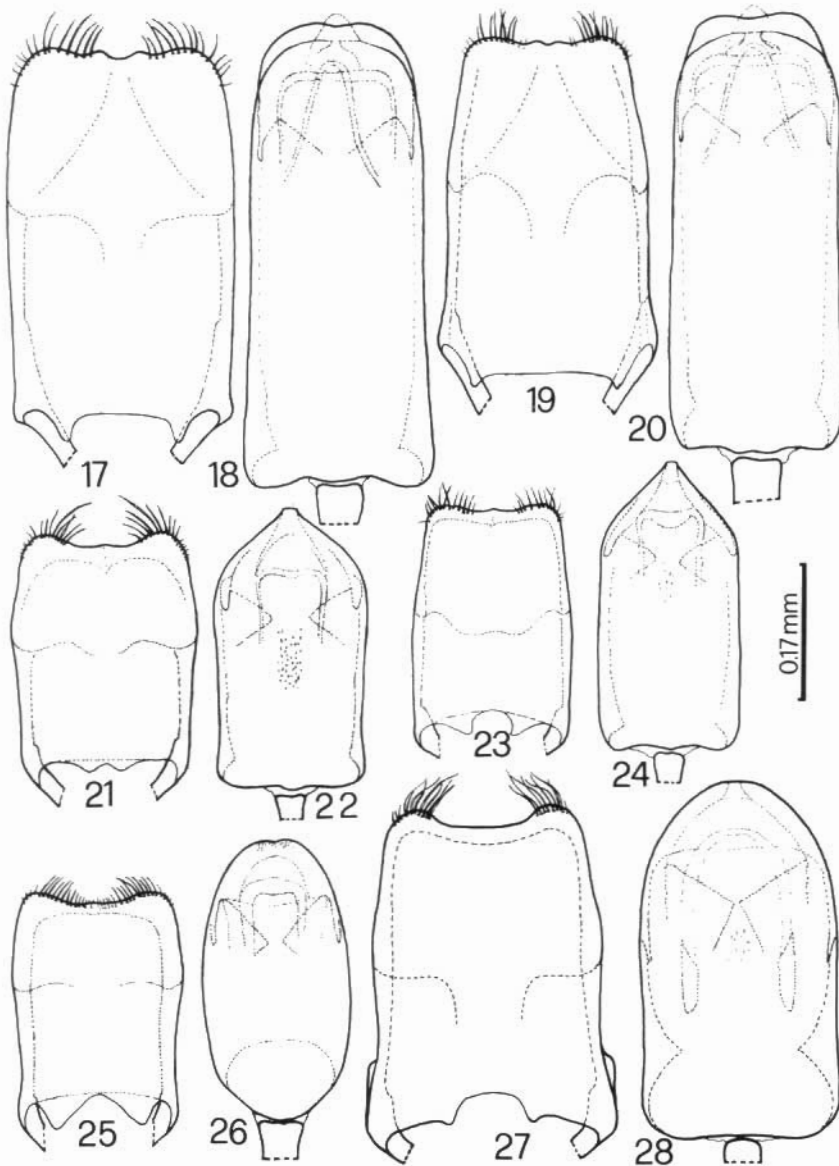
Figs 10-16 – Habitus (10-14) of *Meligethes (Lariopsis)* spp.; *M. thalyeroides* n. sp. (female paratype from South Africa, Scarborough) (10); *M. odiosus* Reitter (male from South Africa, Cape Town) (11); *M. pulchellus* Reitter (male from Lesotho, Maseru) (12); *M. cercoides* Reitter (male from South Africa, Langebaan) (13); *M. serrula* Kirejtshuk & Easton (male holotype from Lesotho, Mount Moroosi) (14); right antennae (15-16) of *Meligethes (Lariopsis)* spp.; *M. thalyeroides* n. sp. (female paratype from South Africa, Scarborough) (15); *M. cercoides* Reitter (male from South Africa, Langebaan) (16).

COMPARATIVE NOTES. This species is very closely related only to the sometimes syntopic *M. vultuosus* n. sp., described below; *M. variabilis* has different dorsal colouration, much shorter dorsal and lateral pubescence, less elongate body shape, with pronotum narrower at sides towards the head. In spite of its great variability, the species is well characterised, and readily distinguished from all other similar species of the group, by the peculiar shape of its front tibiae (with few but very large teeth), by the hind male tibiae (with slightly sinuate inner edge), and by the male genitalia.

BIOLOGICAL NOTES. *M. variabilis* is strictly associated with inflorescences of the botanical family Asteraceae (= Compositae) for its larval development. Larvae have been collected (and reared for a few days) on and inside inflorescences of several different species, but mainly on *Arctotis* spp., *Arctotheca* spp., and related genera; more rarely also on *Osteospermum* spp. and *Othonna* spp. *Arctotis acaulis* L. and *Arctotheca calendula* (L.) Levyns are probably the most frequently used host-plants in SW South Africa. Larvae develop inside the tubular part of the inflorescence, but, when present in great number on the same flower-head, some of them are usually visible also on its external surface. The reproductive period is coincident with the flowering of its host-plants, in most of its distribution area this is usually between August and November. The species has been frequently collected in company with *Meligethes arcuatus* Reitter, *M. rufiventris* Reitter, and *M. endroedyi* n. sp., on the same flowers-heads.

M. variabilis is particularly common in coastal and subcoastal areas with Sandveld and low Fynbos vegetation, on disturbed soil, in sandy flats and lower slopes; present from sea level up to 1200-1300 m. In inner areas with dry Karoo and Karroid Bushveld dominant vegetation the species limits its presence mostly to river banks and small damp places.

GEOGRAPHIC DISTRIBUTION. *M. variabilis* is widespread throughout southern parts of South Africa (fig. 106), northwards to the mouth of the Orange River in Namibia, eastwards at least to Amatole Mts (nearly 100 Km NW East London), with a few records in Central Great Karoo (between Beaufort West and Victoria West).



Figs 17-28 – Tegmen and aedeagus of *Meligethes (Lariopsis)* spp.; *M. vultuosus* n. sp. (male paratype from South Africa, Scarborough) (17-18); *M. variabilis* Reitter (male from South Africa, Cape Town) (19-20); *M. arcuatus* Reitter (male from South Africa, Cape Town) (21-22); *M. rufiventris* Reitter (male from South Africa, Cape Town) (23-24); *M. aurimaculatus* n. sp. (male paratype from South Africa, Cape Town) (25-26); *M. endroedyi* n. sp. (male paratype from South Africa, S Yzerfontein) (27-28).

Very common in most of the Western Cape Province, relatively rarer elsewhere.

02. **Meligethes vultuosus** n. sp.

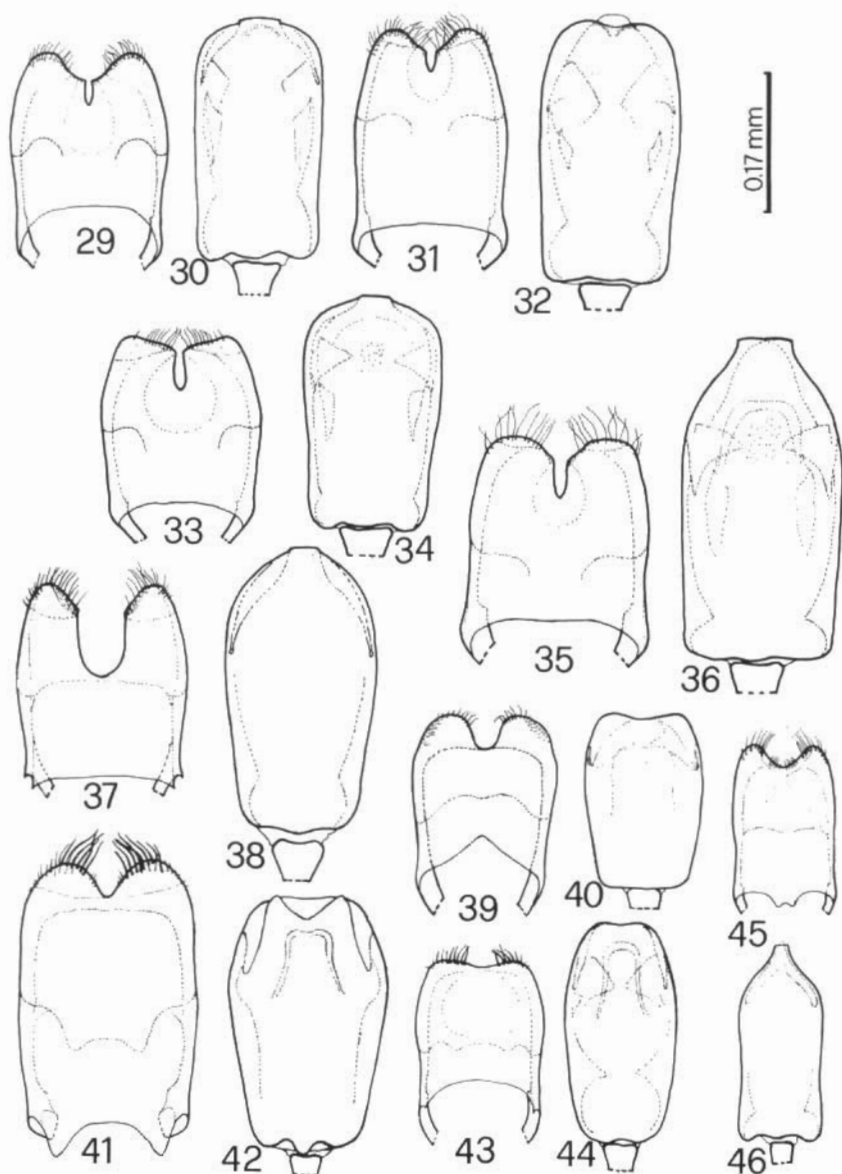
DIAGNOSIS. Large-sized (length 2.8-3.5 mm) pale brown species, with yellowish legs and antennae, and long whitish pubescence. In general appearance similar to elongate specimens of *M. variabilis*, but easily distinguished by the more parallel-sided pronotum and elytra, by the much longer and whitish dorsal pubescence, and by the usually pale brown pronotum (normally dark brown to blackish in *M. variabilis*).

TYPE MATERIAL. Holotype, ♂: Republic of South Africa, Eastern Cape Province, Port St. Johns ("Pondoland, Port John, SA/27", on the original label), 25-31.III.1923, R.E.Turner leg. (BML). Paratypes: same data as holotype, 1 spec. (BML); Republic of South Africa, Western Cape Province, Plettenberg Bay (37 Km E Knysna), XII.1950, Niemejr leg., 5 spec. (TMP, CAR); Republic of South Africa, Western Cape Province, coastal sand dunes of Stilbaai (34° 25' S, 21° 25' E), 1.XI.1988, E. Colonnelli leg., 8 spec. (MZR, CAR); Republic of South Africa, Western Cape Province, Hermanus (loc. N 94), 22.XII.1950, Brink & Rudebeck leg., 17 spec. (ZML, ZIS); Republic of South Africa, Western Cape Province, Hermanus Lagoon (loc. N 51), 20.XII.1950, Brink & Rudebeck leg., 10 spec. (ZML, ZIS); Republic of South Africa, Western Cape Province, Cape Peninsula, Scarborough, mouth of Schuster's River (34° 12' S, 18° 22' E), sand dunes, 22.IX.1994, P. Audisio leg., on *Arctotheca populifolia* (Bergius) Norlindh (Asteraceae), 39 spec. (CAR, TMP, NCP, CSP); same locality, but 27.X.1988, E.Colonnelli leg., 9 spec. (MZR, CAR); Republic of South Africa, Western Cape Province, Cape Peninsula, Hout Bay (34° 03' S, 18° 21' E), coastal sand dunes, 26.X.1988, E. Colonnelli leg., 1 spec. (CAR); Republic of South Africa, Western Cape Province, Malmesbury coast, Rondeberg 718 (part 1) farm (33° 27' S, 18° 14' E), coastal sand dunes, 25.X.1987, S. Louw leg., 1 spec. (NMB). Other examined material: Republic of South Africa, "Natal, Pt. Sheps." (evidently Port Shepstone; without more detailed records), Dr. Martin leg., 1 spec. (MNP).

DESCRIPTION. Elongate, subparallel, moderately convex, large-sized species (length: 2.80-3.50 mm; width: 1.37-1.71 mm). Usually yellowish to pale brown dorsally, with head and ventral surface castaneous to blackish, and yellowish legs and antennae (fig. 125); pronotum, scutellum, and pygidium reddish-brown to castaneous in darkest specimens.

Pubescence whitish, very long and rather recumbent dorsally, more erect ventrally. Hairs on lateral margin of pronotum and elytra very long and clearly visible, usually longer than fourth antennal segment.

Head, pronotum and elytra always with surface between punctures finely polygonally reticulate, and dull.



Figs 29-46 – Tegmen and aedeagus of *Meligethes (Lariopsis)* spp.; *M. pulchellus* Reitter (male from Lesotho, Maseru) (29-30); *M. thalycroides* n. sp. (male paratype from South Africa, Langebaan) (31-32); *M. cercooides* Reitter (male from South Africa, Langebaan) (33-34); *M. serruloides* n. sp. (male paratype from South Africa, Rooihoogte Pass) (35-36); *M. serrula* Kirejtshuk & Easton (male holotype from Lesotho, Mount Morooosi) (37-38); *M. sphaeroideus* Kirejtshuk & Easton (male from South Africa, Swartkops) (39-40); *M. haagii* Reitter (male from South Africa, De Rust) (41-42); *M. nebulosus* Reitter (male from South Africa, Garies) (43-44); *M. odiosus* Reitter (male from South Africa, Cape Town) (45-46).

Pronotum moderately convex, 1.48-1.50 times as wide as long, rather parallel-sided, strongly arcuately narrowed anteriorly only from distal third, broadest from its posterior third to the middle (figs 2, 125).

Elytra 1.15-1.17 times as long as wide, subparallel-sided, broadest at basal second fifth, 1.10-1.12 times as wide as pronotum.

All other external characters in both sexes as in the above described *M. variabilis*.

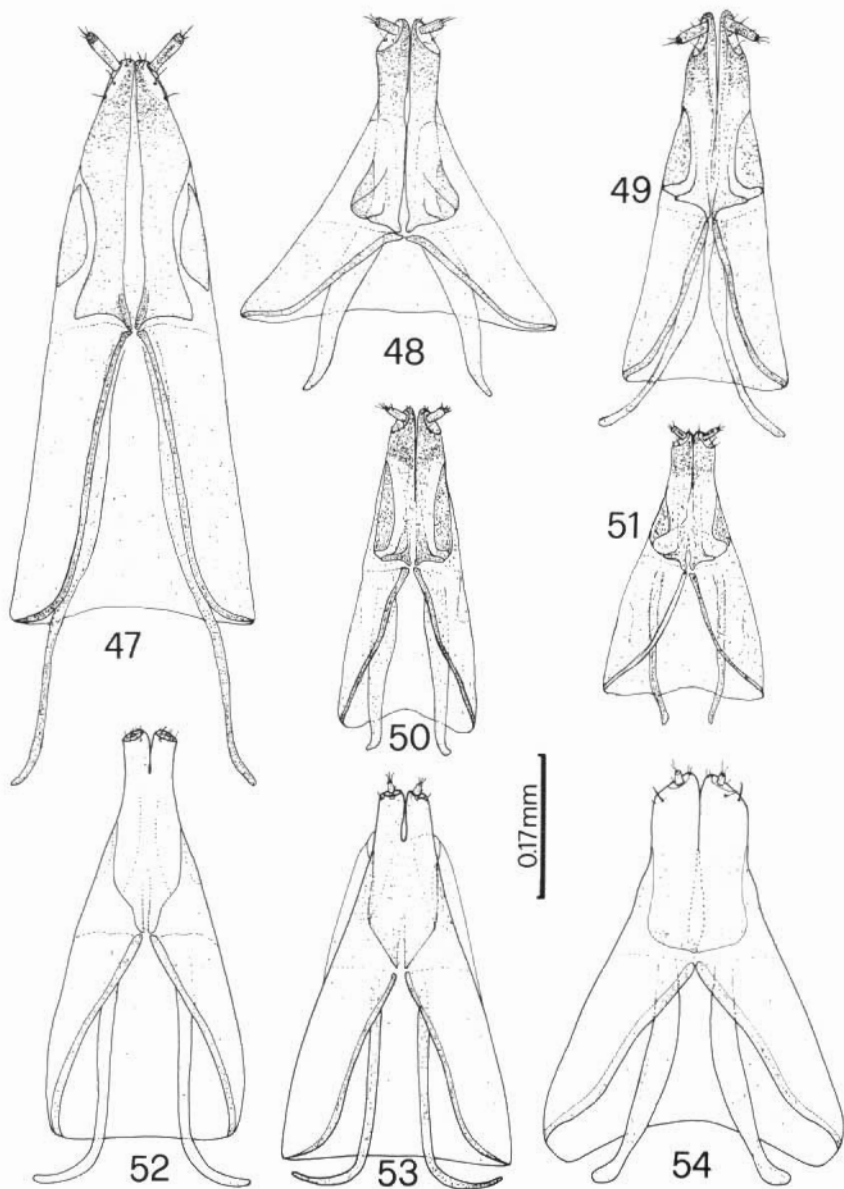
Tegmen (fig. 17) subrectangular, with apex truncate, very distinctly setose, apical excision small and barely distinct; median lobe of aedeagus elongate (fig. 18), parallel-sided, with sinuately and obtusely truncate apex.

Ovipositor yellowish with slightly darker apex, similar in shape to that of *M. variabilis* (fig. 47).

COMPARATIVE NOTES. The species is very closely related only to the sometimes syntopic *M. variabilis* Reitter; *M. vultuosus* n. sp. has different dorsal colouration, much longer dorsal and lateral pubescence, more elongate body shape, with pronotum more parallel-sided. Genitalia are very similar in both species. The two taxa seem to have only recently speciated, *M. vultuosus* having probably originated from populations of *variabilis* isolated during a Late Pleistocene Glaciation in eastern coastal districts of the present-day Republic of South Africa. The evolutionary and bionomic relationships of these two species strongly parallel those of the North African *M. opacus* Rosenhauer and *M. capucinus* Robert, recently discussed by Audisio (1993).

BIOLOGICAL NOTES. *M. vultuosus* n. sp. is apparently associated only with inflorescences of *Arctotheca populifolia* (Bergius) Norlindh (Asteraceae; known as 'sea pumpkin' in Afrikaans), and appears to be strictly monophagous.

Larvae develop inside the tubular part of the inflorescence, but, being usually present in great numbers on the same flower-head, several of them are often visible also on its external surface, even climbing to the apex of non-flowering buds. The reproductive period is coincident with the flowering one of its host-plants, in most of its distribution area this is usually between July and December. The species has been collected in the same locality in company with *Meligethes arcuatus* Reitter, *M. rufiventris* Reitter, and *M. variabilis*, but each on different host-plants.



Figs 47-54 – Ovipositors of *Meligethes (Lariopsis)* spp.: *M. variabilis* Reitter (female from South Africa, Cape Town) (47); *M. haagii* Reitter (female from South Africa, De Rust) (48); *M. aurimaculatus* n. sp. (female paratype from South Africa, Cape Town) (49); *M. sphaeroideus* Kirejtshuk & Easton (female from South Africa, Swartkops) (50); *M. nebulosus* Reitter (female from South Africa, Garies) (51); *M. arcuatus* Reitter (female from South Africa, Cape Town) (52); *M. rufiventris* Reitter (female from South Africa, Cape Town) (53); *M. endroedyi* n. sp. (female paratype from South Africa, S Yzerfontein) (54).

The new species is usually abundant in the localities where it is present; like its peculiarly shaped host-plant, it is confined to coastal sand dunes exposed to sea winds, where *Arctotheca populifolia* is one of the very few species able to colonise this mobile substrate.

GEOGRAPHIC DISTRIBUTION. *M. vultuosus* n. sp. is apparently widespread (although very local) throughout the sand coastal areas of South Africa, eastwards at least to southern Natal, and westwards at least to the Malmesbury district (fig. 106).

ETYMOLOGY. The name of the new species originates from the latin *vultuosus* (= affected, graceful), and refers to its long golden pubescence.

03. **Meligethes arcuatus** Reitter, 1872

Meligethes arcuatus Reitter, 1872: 252; Grouvelle, 1913: 32; Kirejtshuk & Easton, 1988: 54; Kirejtshuk, 1989: 86;

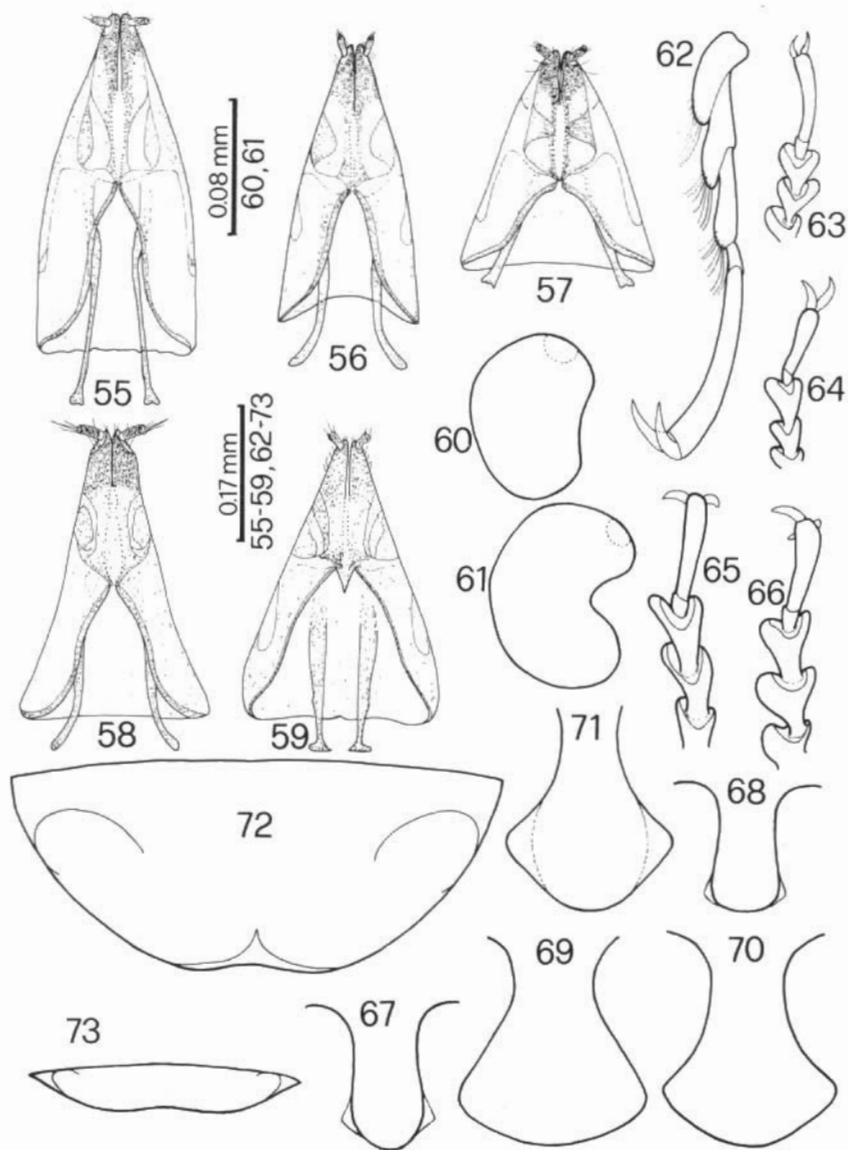
Meligethes limbatus Reitter, 1872: 252 (**syn. n.**); Grouvelle, 1913: 47; Kirejtshuk & Easton, 1988: 54; Kirejtshuk, 1989: 86.

TYPE LOCALITY: "Cape of Good Hope".

TYPE MATERIAL: "Cap" (= Cap de Bonne Espoire), "Typ, Reitter", one male, coll. Oberthur (MNP), Lectotype, P. Audisio des., 1981. Other syntypes with the same data are preserved in both Grouvelle's and Oberthur's collections (MNP), as well as in MHB; all belong to the same species. The type material of *Meligethes limbatus* Reitter, 1872 includes 7 female specimens ("Cap", "Typ, Reitter", in the Oberthur's collection) of a dark form of *Meligethes arcuatus* Reitter, 1872 (**syn. n.**); one of them has been selected as being the lectotype (Audisio des., 1993).

DESCRIPTION. Elongate, oval, moderately convex, small- to medium-sized (length: 1.80-2.60 mm; width: 0.93-1.35 mm); usually dark brown, with yellowish tibiae and antennae (femora and antennal club normally darker), and strongly variable clytral colour (from entirely yellow to entirely dark brown with paler posterior edge; frequently as in fig. 126). Pygidium and last abdominal sternite vary in colour from pale to dark brown in mature specimens.

Figs 55-73 – Ovipositors (55-59) of *Meligethes (Lariopsis)* spp.; *M. cercooides* Reitter (female from South Africa, Langebaan) (55); *M. pulchellus* Reitter (female from Lesotho, Maseru) (56); *M. serruloides* n. sp. (female paratype from South Africa, E Swellendam) (57); *M. odiosus* Reitter (female from South Africa, Cape Town) (58); *M. thalycroides* n. sp. (female paratype from South Africa, Scarborough) (59); spermatheca of *M. cercooides* Reitter (female from South Africa, Langebaan) (60); the same, of *M. pulchellus* Reitter (female from Lesotho, Maseru) (61); hind tarsus of *M. endroedyi* n. sp. (male paratype from South Africa, S Yzerfontein) (62); front tarsi (63-66) of *Meligethes (Lariopsis)* spp.; *M. rufiventris* Reitter (male from South Africa, Cape Town) (63);



M. nebulosus Reitter (male from South Africa, Garies) (64); *M. haagii* Reitter (male from South Africa, De Rust) (65); *M. aurimaculatus* n.sp. (male paratype from South Africa, Cape Town) (66); outline of prosternal process (67-71) of *Meligethes (Lariopsis)* spp.; *M. cercoides* Reitter (male from South Africa, Langebaan) (67); *M. odiosus* Reitter (male from South Africa, Cape Town) (68); *M. arcuatus* Reitter (male from South Africa, Cape Town) (69); *M. variabilis* Reitter (male from South Africa, Cape Town) (70); *M. haagii* Reitter (male from South Africa, De Rust) (71); last abdominal sternite of *M. variabilis* Reitter (male from South Africa, Cape Town) (72); the same, of *M. cercoides* Reitter (male from South Africa, Langebaan) (73).

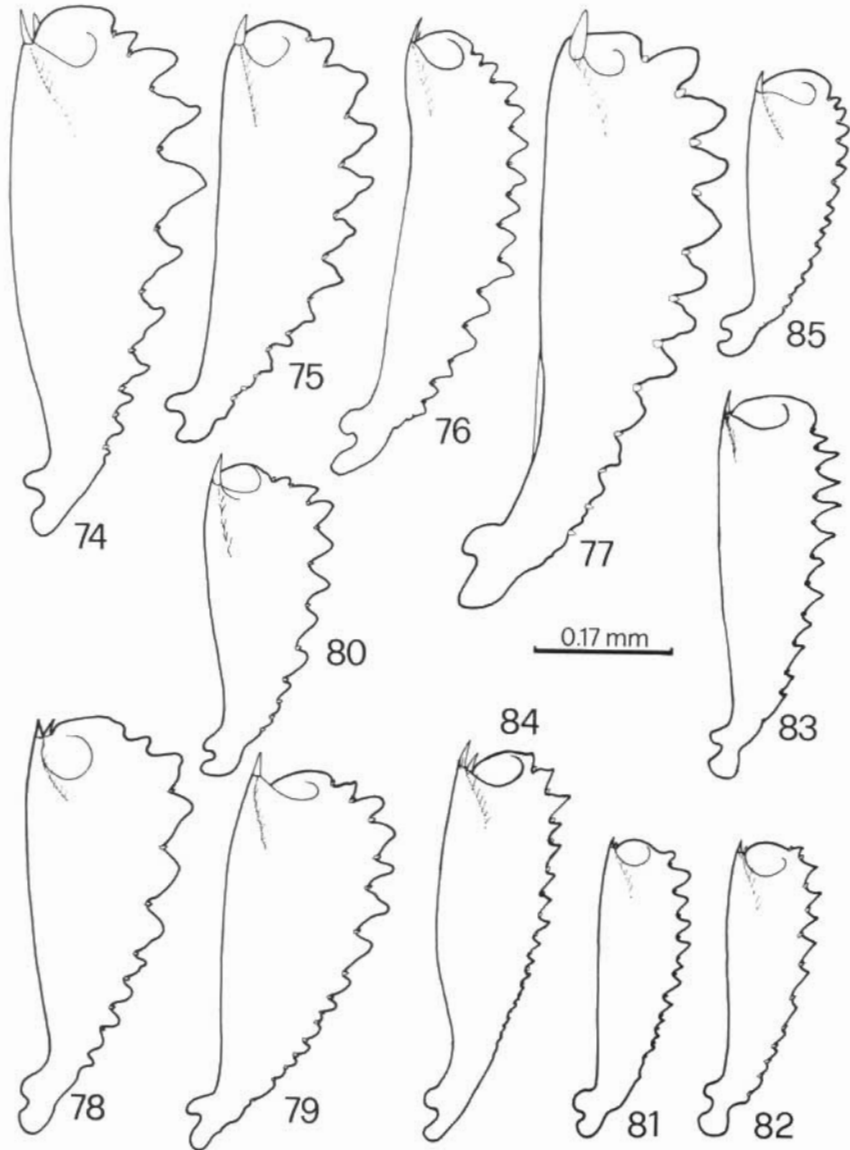
Pubescence golden to pale yellow, very variable in length, usually rather long and distinct, recumbent both dorsally and ventrally. Hairs on lateral margin of pronotum and elytra usually well visible but rather variable in length (normally longer than fourth antennal segment).

Head with moderately deep punctures usually as large as eye facets, separated by half to one diameter, surface between them indistinctly reticulate, usually rather shining; front margin of clypeus shallowly and arcuately emarginate, not bordered, with side angles rather sharp (as in fig. 114); frontogeneal grooves absent. Frons without traces of tentorial impressions. Antennae short, the club is small and has short pubescence (fig. 4); third antennal segment slender, nearly as long as the second one.

Pronotum moderately convex, 1.56-1.59 times as wide as long, rounded at sides, more strongly narrowed anteriorly than posteriorly, broadest at posterior third (figs 4, 126), normally more or less abruptly sinuate and narrowed at posterior fifth, in front of the obtuse but usually distinct posterior angles, or, less frequently, with posterior angles completely rounded, without sinuation; sides very narrowly bordered, not explanate. Posterior margin distinctly sinuate on either side of scutellum; discal punctures as on head or slightly larger, surface between them variable, from moderately reticulate and dull to rather shining, as on head. Scutellum rather large, almost entirely punctate; surface usually as on pronotum.

Elytra 1.03-1.10 times as long as wide, rather parallel-sided (rarely more arcuate at sides), broadest at basal second fifth, 1.10-1.15 times as wide as pronotum; shoulders moderately raised; punctures usually shallower and slightly finer than on pronotum, and spaces between them usually showing more distinct trace of microscopic reticulation.

Prosternal antennal furrows very weak and barely visible. Prosternal process nearly 2 times as wide as antennal club, with apex arcuately rounded (fig. 69); punctures deep, almost equal in size to eye facets, separated by less than one diameter; surface smooth. Mesosternum with hind edge straight. Posterior half of metasternum widely but shallowly triangularly impressed in males (metasternum almost flat in females), with punctures rather shallow, smaller than eye facets, shallower anteriorly, separated by one diameter or more, surface between rather smooth and shining. Posterior edge of last abdominal sternite simple in both sexes, only slightly but very widely



Figs 74-85 – Right front tibiae of *Meligethes* (*Lariopsis*) spp.; *M. variabilis* Reitter (male from South Africa, Cape Town) (74); *M. arcuatus* Reitter (male from South Africa, Cape Town) (75); *M. rufiventris* Reitter (male from South Africa, Cape Town) (76); *M. endroedyi* n. sp. (male paratype from South Africa, S Yzerfontein) (77); *M. aurimaculatus* n. sp. (male paratype from South Africa, Cape Town) (78); *M. haagii* Reitter (male from South Africa, De Rust) (79); *M. nebulosus* Reitter (male from South Africa, Garies) (80); *M. cercoides* Reitter (male from South Africa, Langebaan) (81); *M. pulchellus* Reitter (male from Lesotho, Maseru) (82); *M. serrula* Kirejtshuk & Easton (male holotype from Lesotho, Mount Moroosi) (83); *M. thalycroides* n. sp. (male paratype from South Africa, Langebaan) (84); *M. odiosus* Reitter (male from South Africa, Cape Town) (85).

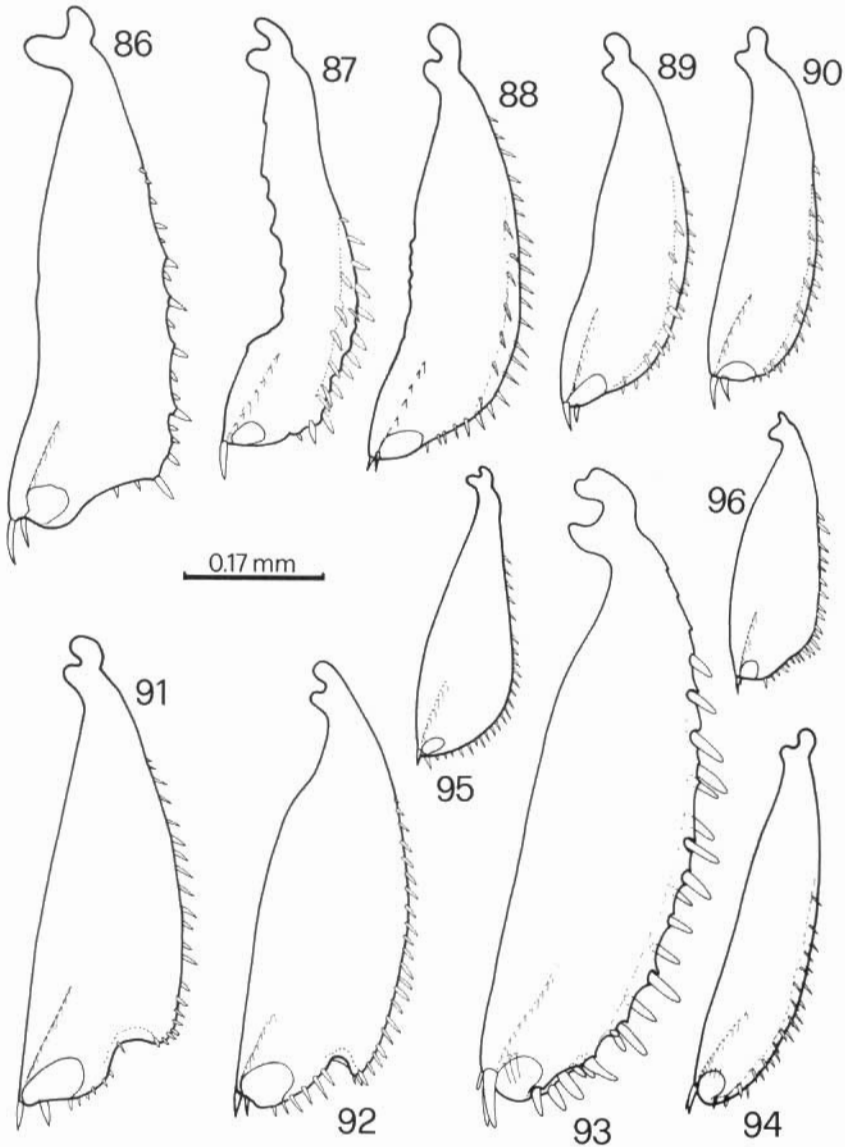
emarginate in males, regularly arcuate in females. Arc-like lateral impressions on last abdominal sternite almost completely effaced (as in fig. 123).

Front tibiae small and rather narrow, their outer edge strongly serrate, with a series of 5-8 moderately large, triangular teeth, wide at base, although very variable (fig. 75); their inner edge with a slight (more or less distinct) curve at distal fourth in males, simple and almost straight in females. Male front tarsi nearly as wide as first antennal segment (nearly as in fig. 63), slightly narrower in female. Tarsi normally shaped, the posterior ones much shorter than antennae (figs 4, 126). Male hind tibiae relatively narrow, their inner edge strongly arcuate (fig. 87), simple and almost straight in females (fig. 89); outer edge of both middle and posterior tibiae regularly arcuate and spinulate in both sexes. Middle and posterior femora almost simple in both sexes, without strong teeth or projections, the male posterior femora bearing only two or three small, rather variable, and barely distinct tubercles along their posterior edge (fig. 101).

Tegmen (fig. 21) subrectangular, with apex subtruncate, barely arcuately emarginate, very distinctly setose; median lobe of aedeagus elongate (fig. 22), parallel-sided, strongly narrowed at its anterior third, with apparently sharp but in fact truncate apex.

Ovipositor as figured (fig. 52), unicolorous yellowish, rather small, apex truncate and with very short and barely distinct styli; outer subdivision of coxites small and narrow; 'central point' centrally placed, without distinct ventral spicule; transverse suture narrowly V-shaped.

COMPARATIVE NOTES. The species is very closely related only to the frequently syntopic *M. rufiventris* Reitter, described below; *M. arcuatus* as a rule has the pygidium and last abdominal sternite darker coloured, strongly arcuate male posterior tibiae (nearly simple in *rufiventris*), and outer edge of front tibiae with uneven and less numerous teeth. *M. endroedyi* n. sp., described below, has longer and more erect dorsal and lateral pubescence, posterior tibiae simple in the male, much longer and thinner tarsi and very different male and female genitalia. Readily distinguished from all other relatively similar species of the group, by the peculiar shape of the male posterior tibiae and of the male and female genitalia.



Figs 86-96 – Right hind tibiae of *Meligethes* (*Lariopsis*) spp.; *M. variabilis* Reitter (male from South Africa, Cape Town) (86); *M. arcuatus* Reitter (male from South Africa, Cape Town) (87); *M. rufiventris* Reitter (male from South Africa, Cape Town) (88); *M. arcuatus* Reitter (female from South Africa, Cape Town) (89); *M. rufiventris* Reitter (female from South Africa, Cape Town) (90); *M. aurimaculatus* n. sp. (male paratype from South Africa, Cape Town) (91); *M. haagii* Reitter (male from South Africa, De Rust) (92); *M. endroedyi* n. sp. (male paratype from South Africa, S Yzerfontein) (93); *M. endroedyi* n. sp. (female paratype from South Africa, Franschoek Pass) (94); *M. cercoides* Reitter (male from South Africa, Langebaan) (95); *M. odiosus* Reitter (male from South Africa, Cape Town) (96).

BIOLOGICAL NOTES. *M. arcuatus* is intimately associated with inflorescences of the botanical family Asteraceae (= Compositae) for its larval development. Larvae have been collected (and reared for a few days) on and inside inflorescences of several different species, but mainly on *Arctotis* spp., *Osteospermum* spp., *Dimorphoteca* spp., *Ursinia* spp. and related genera. Larvae develop inside the tubular part of the inflorescence, but, when present in great number on the same flower-head, some of them are usually visible also on its external surface. The reproductive period is coincident with the flowering of its host-plants, in most of its distribution area this is usually between August and November. The species has been frequently collected in company with *M. rufiventris* Reitter, *M. variabilis* Reitter, and *M. endroedyi* n. sp., on the same inflorescences.

M. arcuatus is particularly common in coastal and subcoastal areas with Sandveld and low Fynbos vegetation, on disturbed soil, in sandy flats and lower slopes; present from sea level up to 1300-1400 m.

GEOGRAPHIC DISTRIBUTION. *M. arcuatus* is widespread throughout the southern parts of South Africa (fig. 107), northwards to the mouth of the Orange River in Namibia, eastwards at least as far as Port Elizabeth, with a few records in the Little Karoo. Very common in coastal and subcoastal areas of the Western Cape Province and in Namaqualand, relatively rarer elsewhere.

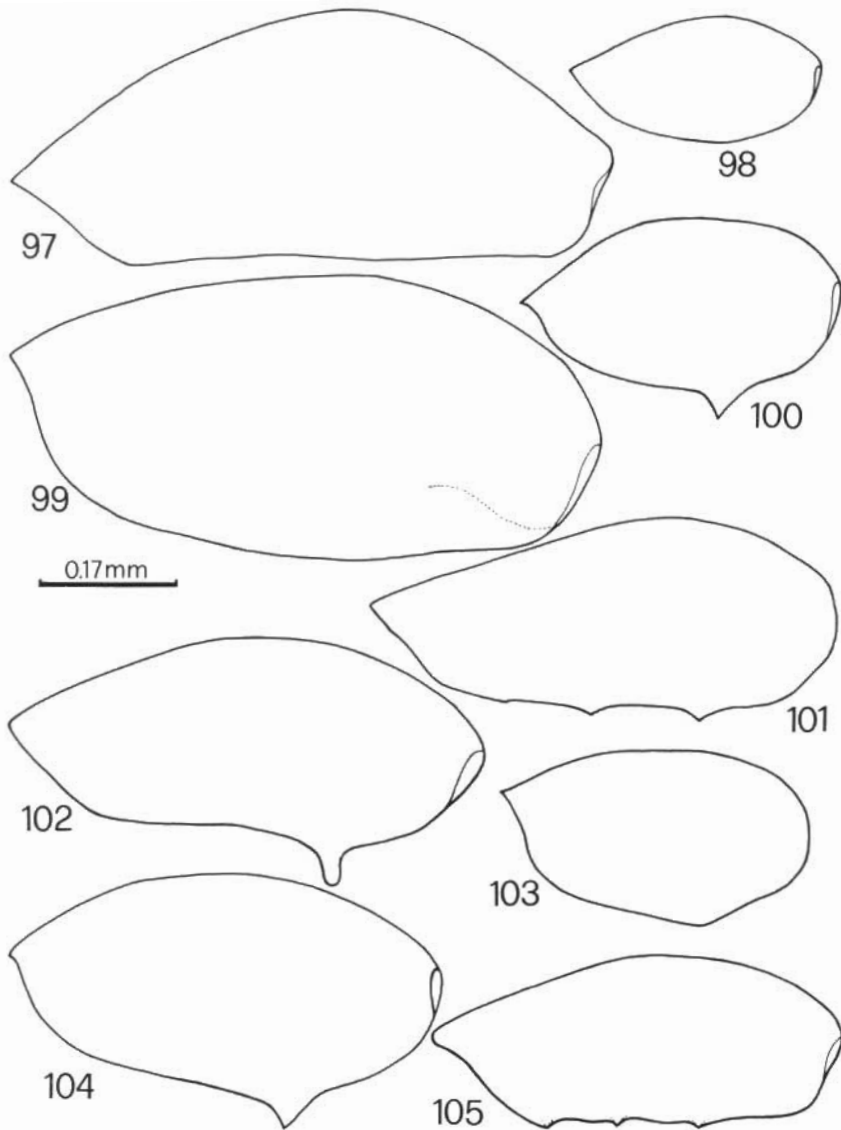
04. *Meligethes rufiventris* Reitter, 1872

Meligethes rufiventris Reitter, 1872: 251; Grouvelle, 1913: 56; Kirejtshuk & Easton, 1988: 53; Kirejtshuk, 1989: 86;

Meligethes variabilis var. *luridipennis* Reitter, 1872: 249 (**syn. n.**); Grouvelle, 1913: 61.

TYPE LOCALITY: "Cape of Good Hope".

TYPE MATERIAL: "Cap", "Typ, Reitter", one female, coll. Oberthur (MNP), Lectotype, P. Audisio des., 1993. A dozen female syntypes of *Meligethes rufiventris*, all bearing the same meagre data, are preserved in both Grouvelle's and Oberthur's collections (MNP), as well as in MHB. They belong to three different species: most are *M. arcuatus* Reitter, one is *M. aurimaculatus* n. sp., and one is conspecific with the above designed lectotype. Two female syntypes of *Meligethes variabilis* var. *luridipennis* Reitter, 1872 have been studied in the Grouvelle's



Figs 97-105 – Left hind femora of *Meligethes (Lariopsis)* spp.; *M. variabilis* Reitter (male from South Africa, Cape Town) (97); *M. odiosus* Reitter (male from South Africa, Cape Town) (98); *M. endroedyi* n. sp. (male paratype from South Africa, S Yzerfontein) (99); *M. nebulosus* Reitter (male from South Africa, Garies) (100); *M. arcuatus* Reitter (male from South Africa, Cape Town) (101); *M. aurimaculatus* n. sp. (male paratype from South Africa, Cape Town) (102); *M. sphaeroides* Kirejtshuk & Easton (female paratype from South Africa, Mossel Bay) (103); *M. haagii* Reitter (male from South Africa, De Rust) (104); *M. rufiventris* Reitter (male from South Africa, Cape Town) (105).

collection (MNP); the first one, designed as being the lectotype ("Cap", "Typ, Reitter", P. Audisio des., 1993), is conspecific with the lectotype of *Meligethes rufiventris* Reitter, 1872 (**syn. n.**), while the second one, bearing the same data, is *M. arcuatus* Reitter.

DESCRIPTION. Elongate, oval, moderately convex, small- to medium-sized (length: 1.70-2.60 mm; width: 0.90-1.33 mm); usually dark brown, with yellowish tibiae and antennae (antennal club sometimes slightly darker), and strongly variable elytral colour (from entirely yellow to entirely dark brown with paler posterior edge; frequently as in fig. 127). Pygidium and last abdominal sternite usually pale yellow, rarely pale brown to brown (only in specimens having dark elytra).

Pubescence (usually whitish), dorsal and ventral characters (except legs) as in *M. arcuatus*, above described.

Front tibiae relatively narrow, their outer edge strongly serrate, with a series of 10-12 regular and subequal, moderately large, triangular teeth, wide at base, moderately pointed at apex (fig. 76); their inner edge with a more or less distinctly bent distal fourth in males (this character is usually more developed than in males of *M. arcuatus*), simple and almost straight in females. Male front tarsi nearly as wide as first antennal segment, slightly narrower in female. Tarsi normally shaped, the posterior ones much shorter than antennae (figs 3, 127). Male hind tibiae relatively narrow, their inner edge almost simple and straight, only with a very slight median emargination (fig. 88), simple in females (fig. 90); outer edge of both middle and posterior tibiae regularly arcuate and spinulate in both sexes. Middle femora almost simple in both sexes, as in *M. arcuatus*; male hind femora as in fig. 105, with small and slightly variable tubercles along their posterior edge.

Tegmen (fig. 23) subrectangular, with apex subtruncate, barely arcuately emarginate, very distinctly setose; median lobe of aedeagus elongate (fig. 24), parallel-sided, strongly narrowed at its anterior third, with apparently sharp but in fact truncate apex.

Ovipositor as figured (fig. 53), unicolorous yellowish, rather small, apex subtruncate, here with short but distinct styli; outer subdivision of coxites small and narrow; 'central point' centrally placed, without distinct ventral spicule; transverse suture narrowly V-shaped.

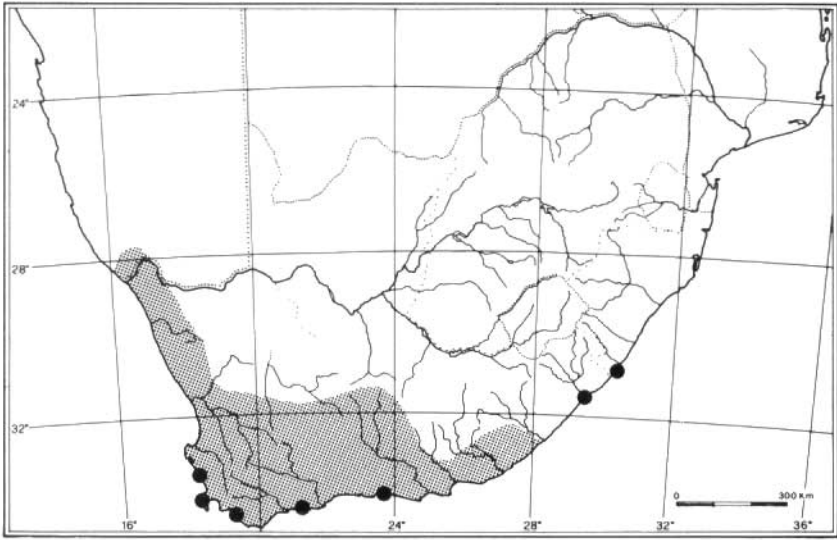


Fig. 106 – Known geographic distribution of *Meligethes variabilis* Reitter (shaded) and of *M. vultuosus* n. sp. (black circles).

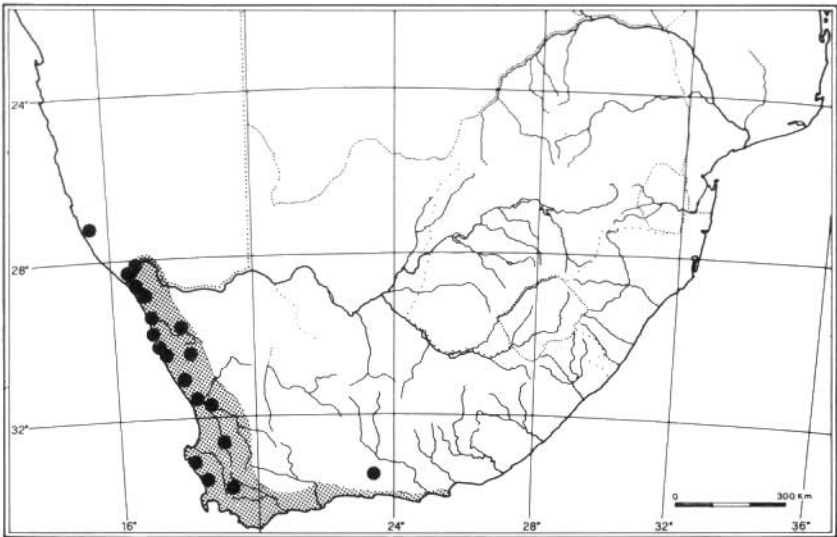


Fig. 107 – Known geographic distribution of *Meligethes arcuatus* Reitter (shaded) and of *M. endroedyi* n. sp. (black circles).

COMPARATIVE NOTES. The species is very closely related only to the frequently syntopic *M. arcuatus* Reitter, described above; *M. rufiventris* as a rule has paler colouration of pygidium and last abdominal sternite, male posterior tibiae almost simple (strongly arcuate in males of *arcuatus*), and outer edge of front tibiae with more even and numerous teeth. Male genitalia of *rufiventris* and *arcuatus* are rather similar, those of *rufiventris* being slightly more parallel-sided; ovipositors, too, are similar, but in *rufiventris* the styli are longer and more distinct. *M. endroedyi* n. sp., described below, has longer and more erect dorsal and lateral pubescence, simple male posterior tibiae, much longer and thinner tarsi and very different male and female genitalia. Readily distinguished from all other relatively similar species of the group by the peculiar shape of the male posterior tibiae and of the male and female genitalia.

BIOLOGICAL NOTES. *M. rufiventris* appears to share the same host plants with *M. arcuatus*, in company of which it has been frequently observed (see above).

GEOGRAPHIC DISTRIBUTION. *M. rufiventris* is widespread throughout the southern parts of South Africa roughly as *M. arcuatus* (fig. 108), northwards to the mouth of the Orange River in Namibia, eastwards at least to the eastern Little Karoo. Very common in coastal and sub-coastal areas of the Western Cape Province and in Namaqualand, relatively rarer elsewhere.

05. *Meligethes endroedyi* n. sp.

DIAGNOSIS. Small- to large-sized (length 1.8-3.6 mm) dark brown species, with elytra yellowish to dark brown (posterior edge usually paler), pygidium and last abdominal sternite yellowish to orange-brown, legs and antennae yellowish to orange, and long whitish to golden pubescence. In general appearance similar to *M. arcuatus*, but easily distinguished by the more convex body, the simple male posterior tibiae, the exceptionally long and thin tarsi, the longer and more erect dorsal pubescence, as well as by the very different aedeagus.

TYPE MATERIAL. Holotype, ♂: Republic of South Africa, Northern Cape Province, Richtersveld, Farm Grootderm (28°.31' S, 16°.38' E; E.-Y. loc. nr. 1211), on sandy hillside, 3.IX.1976, S. Endrödy-Younga leg. (TMP). Paratypes: same data as holotype, 2 spec. (TMP, ZIS); Namibia, Klinghardt Mountain (27°.18' S, 15°.42' E), 22.VIII.1989, Endrödy-Younga & Klimaszen leg., 1 spec. (TMP); Namibia, Obib Dunes (28°.10' S,

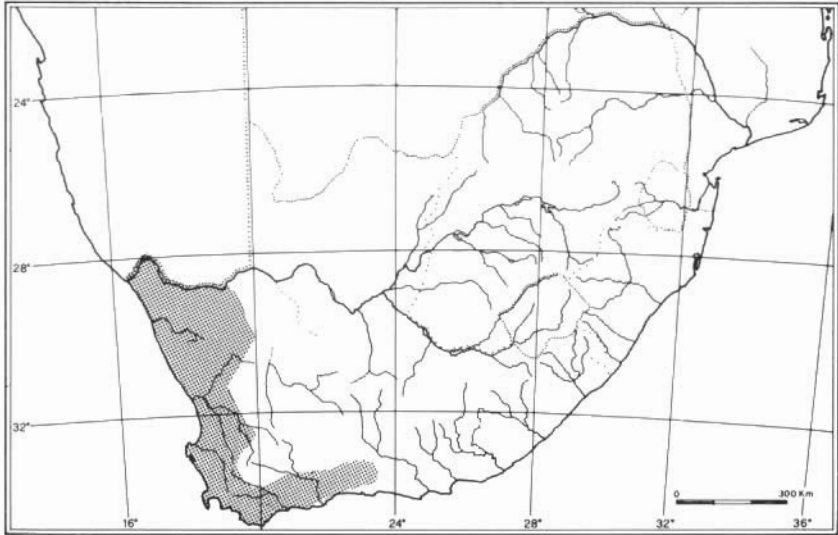


Fig. 108 – Known geographic distribution of *Meligethes rufiventris* Reitter.

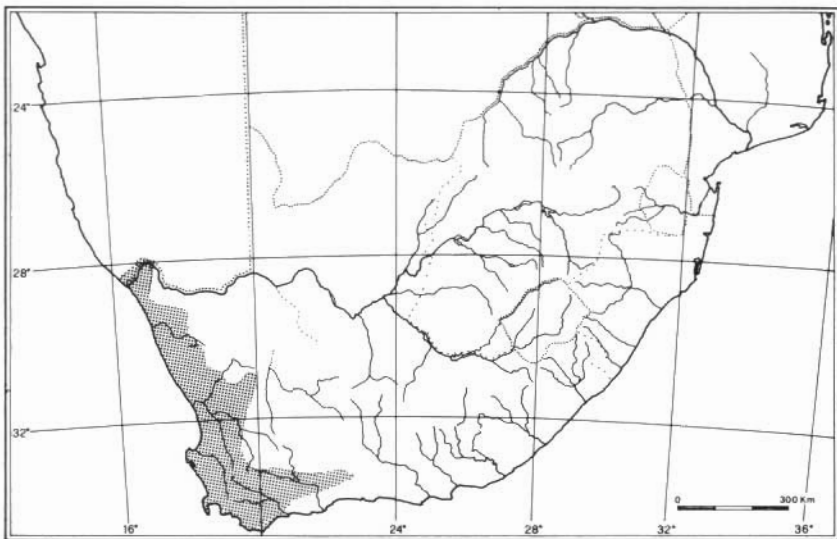


Fig. 109 – Known geographic distribution of *Meligethes aurimaculatus* n. sp.

16°.48' E), 17.IX.1973, S. Endrödy-Younga leg., 2 spec. (TMP, CAR); Republic of South Africa, Northern Cape Province, Richtersveld, Rietfontein Gate (28°.31' S, 16°.38' E), 3.IX.1976, S. Endrödy-Younga leg., 4 spec. (TMP, ZIS); Republic of South Africa, Northern Cape Province, Richtersveld, 16 Km E Hoolgat (28°.56' S, 16°.58' E), 25.VIII.1989, Endrödy-Younga & Klimaszyn leg., 1 spec. (TMP); Republic of South Africa, Northern Cape Province, Richtersveld, near Porth Nolloth (29°.14' S, 16°.57' E), 5.X.1976, S. Endrödy-Younga leg., 12 spec. (TMP, ZIS); Republic of South Africa, Northern Cape Province, Richtersveld, 8-11 Km ESE Porth Nolloth (29°.16' S, 16°.58' E), 15.IX.1984, C. Bellamy leg., 3 spec. (TMP, CAR); Republic of South Africa, Northern Cape Province, near Porth Nolloth-Kleinsee (29°.32' S, 17°.06' E), 10.IX.1985, S. Endrödy-Younga leg., 2 spec. (TMP, CAR); Republic of South Africa, Northern Cape Province, near Kleinsee (29°.37' S, 17°.19' E), 10.IX.1986, R. Oberprieler leg., 1 spec. (NCP); Republic of South Africa, Northern Cape Province, 11 miles SW Springbok, 17.IX.1967, Brown leg., 1 spec. (NCP); Republic of South Africa, Northern Cape Province, Hondeklipbaai (30°.19' S, 17°.17' E), sand dunes, 14.IX.1986, R. Oberprieler leg., 2 spec. (NCP, CAR); Northern Cape Province, 20 Km ESW Hondeklipbaai (30°.22' S, 17°.28' E), 11.IX.1987, S. Endrödy-Younga leg., 2 spec. (TMP, CAR); Northern Cape Province, near Garies (30°.34' S, 18°.00' E), 11.IX.1987, S. Endrödy-Younga leg., 3 spec. (TMP, CAR); Northern Cape Province, near Kotzesrus (30°.57' S, 17°.50' E), 23.VIII.1979, S. Endrödy-Younga leg., 6 spec. (TMP, ZIS); Republic of South Africa, Western Cape Province, Olyfheuwel near Vredendal (31°.37' S, 18°.23' E), 22.IX.1985, S. Louw leg., on *Othomma* sp. (Asteraceae), 5 spec. (NMB, CAR); Republic of South Africa, Western Cape Province, Wiedou Farm near Vanrhynsdorp, Gifberg (31°.45' S, 18°.47' E), 17.IX.1986, R. Oberprieler leg., 1 spec. (NCP); Republic of South Africa, Western Cape Province, Nortier Farm (near Lambert's Bay: 32°.03' S, 18°.19' E), 25.VIII.1981, S. Endrödy-Younga leg., 2 spec. (TMP, CAR); Republic of South Africa, Western Cape Province, Grootdrif Farm (nearly 50 Km N Vredenburg: 32°.24' S, 18°.27' E), 29.VIII.1981, S. Endrödy-Younga leg., 2 spec. (TMP, CAR); Republic of South Africa, Western Cape Province, Grootdrif Farm (nearly 80 Km N Ceres: 32°.49' S, 19°.27' E), 17.IX.1985, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, 3 Km E Langebaan (33°.06' S, 18°.05' E), 2.XI.1983, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, 22 Km S Yzerfontein (33°.28' S, 18°.20' E), m 30, 10.IX.1994, P. Audisio, M.A. Bologna & M. Biondi leg., on flowers of *Othomma coronopifolia* L. (Asteraceae), 59 spec. (CAR, ZIS, CSP); Republic of South Africa, Western Cape Province, Franschhoek Bosreserve (Franschhoek Pass, 15 miles SE Paarl), 4.VII.1951, Swedish S.Afr.Exp., 1 spec. (ZML); Republic of South Africa, Eastern Cape Province, Willowmore, VIII.1916, H. Brauns leg., 1 spec. (TMP); same locality, but IX.1920, H. Brauns leg., 1 spec. (CAR); Republic of South Africa, "Cape Bon. Sp.", "*Meligethes flaviventris*, det. Motschulsky", coll. V. Motschulsky, 1 spec. (ZMM).

DESCRIPTION. More or less elongate, oval, convex, small- to large-sized (length: 1.85-3.60 mm; width: 0.95-2.10 mm); usually dark brown, with yellowish to orange legs and antennae, and strongly variable elytral colour (from entirely yellow to entirely dark brown with paler posterior edge; frequently as in fig. 128). Pygidium and last abdominal sternite vary in colour from pale yellow to orange brown in mature specimens.

Pubescence golden to whitish, slightly variable in length, usually long and very distinct, moderately erect to recumbent dorsally, more erect ventrally. Hairs on lateral margin of pronotum and elytra normally as long as third antennal segment.

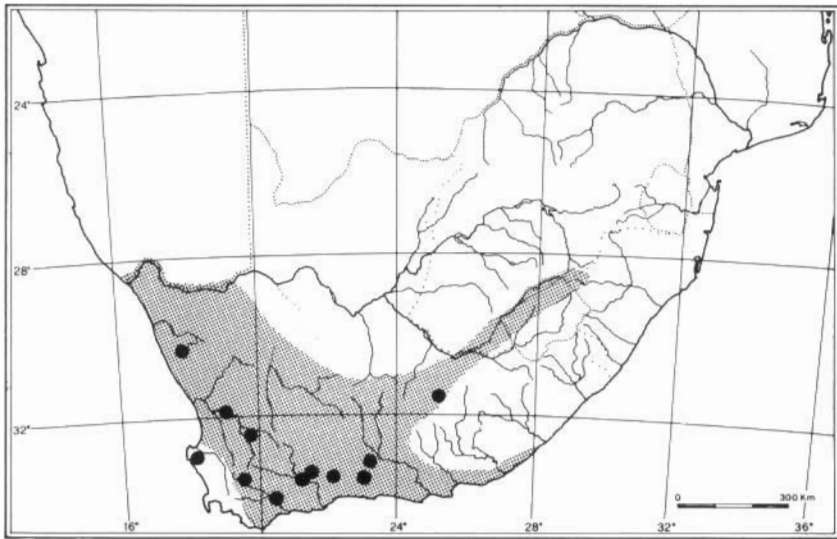


Fig. 110 – Known geographic distribution of *Meligethes nebulosus* Reitter (shaded) and of *M. haagii* Reitter (black circles).

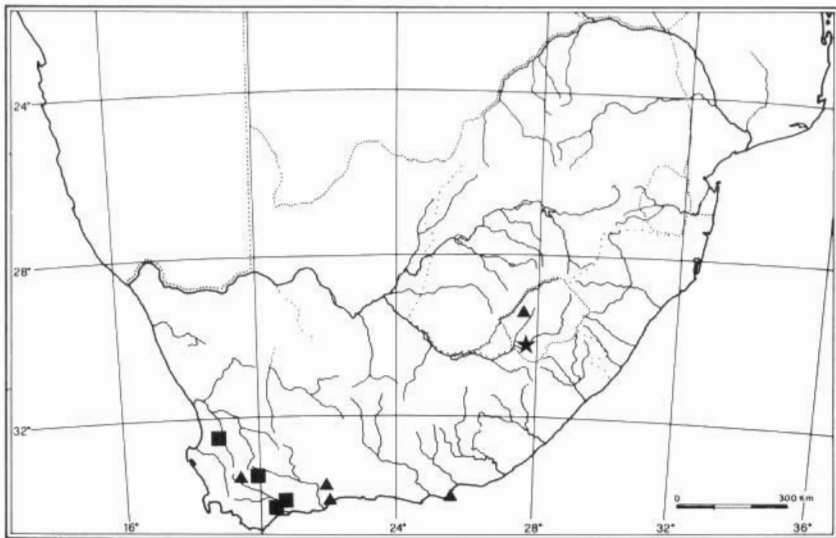


Fig. 111 – Known geographic distribution of *Meligethes sphaeroides* Kirejtshuk & Easton (triangles), *M. serrula* Kirejtshuk & Easton (star) and *M. serruloides* n. sp. (squares).

Head with very variable punctures (shallow to moderately deep; as large as to distinctly smaller than eye facets) separated by half to one diameter, surface between them more or less distinctly reticulate, or (frequently) rather shining; front margin of clypeus moderately deeply and arcuately emarginate, not bordered, with side angles rather sharp (fig. 114); frontogenal furrows absent. Frons with a couple of very shallow and barely distinct tentorial impressions. Antennae short, the club is small and has short pubescence (fig. 5); third antennal segment slender, nearly as long as the second.

Pronotum rather convex, 1.57-1.69 times as wide as long, rounded at sides, more strongly narrowed anteriorly than posteriorly, broadest at posterior third (figs 5, 128), normally with posterior angles completely rounded; sides very narrowly bordered, not explanate. Posterior margin distinctly sinuate on either side of scutellum; discal punctures as on head or slightly larger, surface between them variable, from moderately reticulate and dull to rather shining, as on head. Scutellum rather large, almost entirely punctate; surface usually as on pronotum.

Elytra 0.96-1.05 times as long as wide, more or less arcuate at sides, truncate at apex, broadest in the middle, 1.12-1.21 times as wide as pronotum; shoulders moderately raised; punctures and spaces between them usually as on pronotum.

Prosternal antennal furrows very weak and poorly visible. Prosternal process slightly less than twice as wide as antennal club, with apex narrowly rounded (nearly as in fig. 69); punctures deep, almost equal in size to eye facets, separated by less than one diameter; surface smooth. Mesosternum with hind edge straight. Metasternum almost flat in both sexes, in males only with a faint longitudinal and very shallowly impressed stria in its posterior half; punctures rather shallow, smaller than eye facets, shallower anteriorly, separated by one diameter or more, surface between smooth and shining. Posterior edge of last abdominal sternite simple in both sexes, only slightly but very widely emarginate in males, regularly arcuate in females. Arc-like lateral impressions on last abdominal sternite almost completely effaced (fig. 123).

Front tibiae rather narrow, their outer edge strongly serrate, with a series of 8-10 more or less large, triangular, relatively even teeth (fig. 77); their inner edge slightly (but more or less distinctly) bent at basal third in males, simple and almost straight in females.

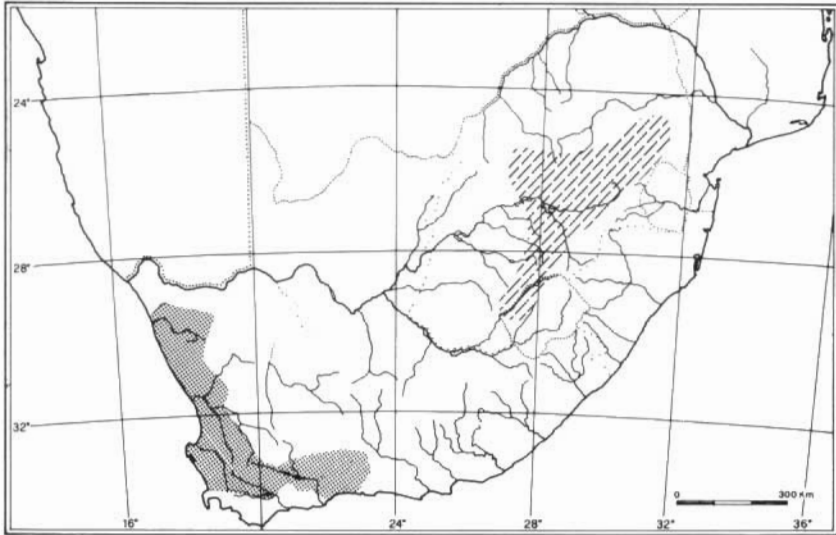


Fig. 112 – Known geographic distribution of *Meligethes cercooides* Reitter (shaded) and of *M. pulchellus* Reitter (dashed).

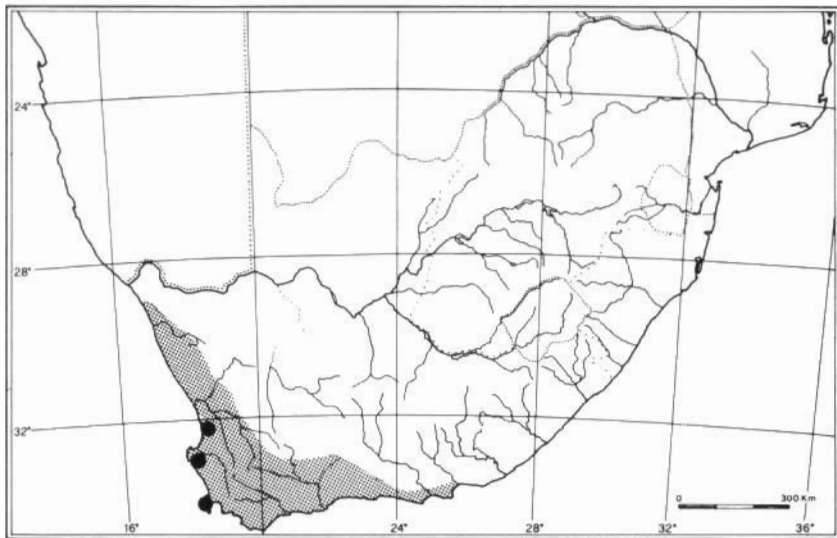


Fig. 113 – Known geographic distribution of *Meligethes odiosus* Reitter (shaded) and of *M. thalyroides* n. sp. (black circles).

Front tarsi in both sexes nearly as wide as third antennal segment. Tarsi peculiarly shaped, all being very long, narrow and thin, the posterior ones being nearly as long as antennae (figs 5, 62). Hind tibiae relatively narrow, their inner edge simple and almost straight in both sexes (figs 93-94); outer edge of both middle and posterior tibiae regularly arcuate and spinulate in both sexes. Middle and posterior femora almost simple in both sexes, without teeth or projections along their posterior edge (fig. 99).

Tegmen (fig. 27) subrectangular, with apex subtruncate, barely arcuately emarginate, very distinctly setose; median lobe of aedeagus elongate (fig. 28), parallel-sided, arcuately narrowed and obtusely rounded at apex.

Ovipositor as figured (fig. 54), unicolorous yellowish, rather small, with coxites peculiarly short and wide, apex widely subtruncate, here with short and barely distinct styli; outer subdivision of coxites small and narrow; 'central point' nearly centrally placed, without distinct ventral spicule; transverse suture widely arcuate.

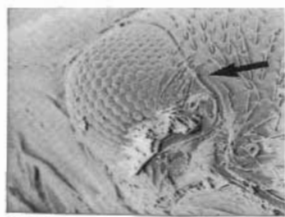
COMPARATIVE NOTES. The species is closely related only to the frequently syntopic *M. rufiventris* Reitter and *M. arcuatus* Reitter, above described. *M. endroedyi* n. sp. has longer and more erect dorsal and lateral pubescence, simple male posterior tibiae, much longer and thinner tarsi and very different male and female genitalia. Readily distinguished also from all other relatively similar species of the group by the peculiar shape of its tarsi and of its male and female genitalia.

BIOLOGICAL NOTES. *M. endroedyi* n. sp. is associated with inflorescences of the botanical family Asteraceae (= Compositae) for its larval development. Adults have been collected on and inside inflorescences of at least two different species of the genus *Othonna*, near Yzerfontein particularly on *O. coronopifolia* L. Larvae develop probably inside the tubular part of the inflorescence. The reproductive period is probably between July and October. The species has been collected in company with *M. arcuatus* Reitter, *M. rufiventris* Reitter, and *M. variabilis* Reitter, sometimes on the same flowers.

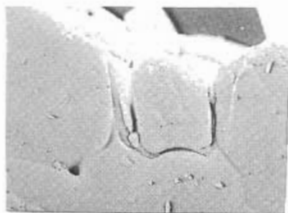
Figs 114-123 - SEM photos of *Meligethes (Lariopsis)* spp.; right anterior portion of head (arrow indicates frontogeneal area) of *M. endroedyi* n. sp. (male from South Africa, S Yzerfontein) (114); the same, of *M. cercooides* Reitter (male from South Africa, Langebaan) (115); interdenticular "spinule" of the outer edge of front tibiae of *M. variabilis* Reitter (male from South Africa, Cape Town) (116); the same, of *M. aurimaculatus* n.sp. (male from South Africa, Citrusdal) (117); the same, of *M. cercooides* Reitter (male from South Africa, Langebaan) (118); anterior edge of prosternum (left portion; arrow indicates the position of the antennal furrow) of *M. variabilis* Reitter (male from South



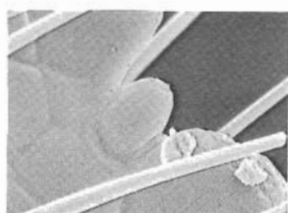
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115



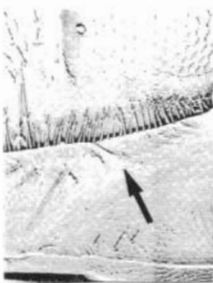
116



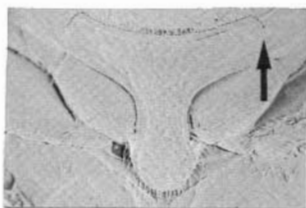
117



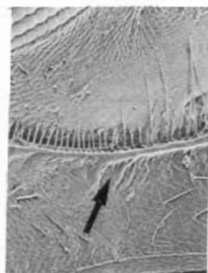
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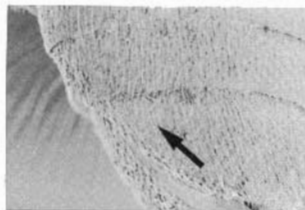
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122



123

Africa, Cape Town) (119); the same, of *M. cercoides* Reitter (male from South Africa, Langebaan) (120); the same (right portion), of *M. aurimaculatus* n. sp. (male from South Africa, Citrusdal) (121); dorsal view of prosternal process of *M. variabilis* Reitter (male from South Africa, Cape Town) (122); right portion of last abdominal sternite (arrow indicates the barely visible arc-like impression) of *M. endroedyi* n.sp. (male from South Africa, S Yzerfontein) (123). Scale bar = 0.51 mm (123); = 0.48 mm (114); = 0.34 mm (120, 122); = 0.30 mm (115, 119); = 0.24 mm (121); = 0.02 mm (116-118).

M. endroedyi n. sp. is present from sea level up to 900-1100 m, mainly in coastal and subcoastal areas with Sandveld and low Fynbos vegetation, particularly on sandy flats, sandy slopes, and sand dunes.

GEOGRAPHIC DISTRIBUTION. Widespread throughout the southern parts of western South Africa and SW Namibia (fig. 107), northwards to the southern parts of the Namib Desert, eastwards at least to the SW Karoo near Willowmore. *M. endroedyi* n. sp. is a rare species, but may sometimes be abundant in certain localities; relatively more common in Namaqualand and in the Richtersveld, apparently much rarer elsewhere.

ETYMOLOGY. The species is named after Sebastian Endrödy-Younga, head of the Department of Coleoptera of the Transvaal Museum, Pretoria, the well known specialist in African Tenebrionidae and Nitidulidae, who graciously put at the disposal of the authors the large *Meligethes* collection of this institution, including several specimens of the new species.

06. ***Meligethes aurimaculatus*** n. sp.

DIAGNOSIS. Medium-sized (length 2.0-2.8 mm) dark brown species, with elytra yellowish to orange brown, pygidium and last abdominal sternite yellowish to pale-brown, yellowish to orange legs and antennae, and short, recumbent, whitish to golden pubescence. In general appearance similar to *M. haagii* Reitter, 1872, but easily distinguished by the entirely different elytral colouration, the usually blunter protibial teeth, the much longer and finger-like male metafemoral spurs, as well as by the markedly different aedeagus. Superficially similar also to *M. arcuatus* and *rufiventris*, but easily distinguished by the more convex and oval-shaped body, the simple male posterior tibiae, the long and finger-like male metafemoral spurs, as well as by the strongly different form of male and female genitalia.

TYPE MATERIAL. Holotype, ♂: Republic of South Africa, Western Cape Province, Clanwilliam (32°.09' S, 18°.53' E), 16.IX.1985, S. Endrödy-Younga leg. (TMP). Paratypes: same data as holotype, 1 spec. (CAR); Republic of South Africa, Northern Cape Province, Richtersveld, 5 Km SW Stinkfontein (28°.51' S, 17°.18' E), 8.IX.1976, S. Endrödy-Younga leg., 9 spec. (TMP, CAR, ZIS); Republic of South Africa, Northern Cape Province, Richtersveld, Holgat River Mouth (28°.58' S, 16°.43' E), 6.X.1976, S. Endrödy-Younga leg., 2 spec. (TMP); Republic of South Africa, Northern Cape Province, Richtersveld, 30 Km NE Steinkopf (29°.02' S, 17°.50' E), 8.IX.1986, R.



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Figs 124-127 – Colour photos of *Meligethes (Lariopsis)* spp.; *M. variabilis* Reitter (male from South Africa, Cape Town; length 3.2 mm) (124); *M. vultuosus* n. sp. (male paratype from South Africa, Scarborough; length 3.3 mm) (125); *M. arcuatus* Reitter (male from South Africa, Cape Town; length 2.4 mm) (126); *M. rufiventris* Reitter (male from South Africa, Cape Town; length 2.3 mm) (127).

Oberprieler leg., 1 spec. (NCP); Republic of South Africa, Northern Cape Province, Bushmanland, Pofadder, 3 spec. (TMP); Republic of South Africa, Northern Cape Province, Richtersveld, near Porth Nolloth (29°.14' S, 16°.57' E), 5.X.1976, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Northern Cape Province, Richtersveld, 18 Km N Grootmis (50 Km S Porth Nolloth), 13.IX.1994, P. Audisio leg., 3 spec. (CAR); Republic of South Africa, Northern Cape Province, Richtersveld, Aninaus Pass (8 Km W Steinkopf), 800 m, 13.IX.1994, P. Audisio, M. Biondi & M. Bologna leg., sandy hillside, on *Cephalophyllum* sp. (Mesembryanthemaceae), 10 spec. (CAR, CSP); Republic of South Africa, Northern Cape Province, Nababeep (29°.36' S, 17°.46' E), VIII.1961, L.Schulze leg., 13 spec. (TMP, ZIS); Republic of South Africa, Northern Cape Province, 5 Km W Springbok, 900 m, 13.IX.1994, P. Audisio leg., 1 spec. (CAR); Republic of South Africa, Northern Cape Province, Springbok (29°.40' S, 17°.53' E), 2.IX.1987, S. Endrödy-Younga leg., 3 spec. (TMP, CAR); Republic of South Africa, Northern Cape Province, 10 miles E Springbok, III.1958, G. van Son leg., 2 spec. (TMP); Republic of South Africa, Northern Cape Province, road Springbok-Mesklip (29°.49' S, 17°.52' E), 30.VIII.1976, S. Endrödy-Younga leg., 9 spec. (TMP, CAR); Republic of South Africa, Northern Cape Province, Vogelklip Farm (29°.50' S, 17°.46' E), 27.VIII.1977, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Northern Cape Province, 10-15 Km N Kamieskroon (30°.07' S, 17°.54' E), 15.IX.1987, S. Endrödy-Younga leg., 6 spec. (TMP, CAR); Republic of South Africa, Northern Cape Province, 4 Km N Bailey's Pass (30°.07' S, 18°.14' E), 12.IX.1986, R. Oberprieler leg., 2 spec. (NCP, CAR); Republic of South Africa, Northern Cape Province, Olienfontein near Kamieskroon (30°.14' S, 18°.02' E), 18-20.IX.1987, S. Louw leg., 6 spec. (NMB, CAR); Republic of South Africa, Northern Cape Province, Hondeklipbaai (30°.19' S, 17°.17' E), sand dunes, 14.IX.1986, R. Oberprieler leg., 2 spec. (NCP, CAR); Republic of South Africa, Northern Cape Province, Karkams (27 Km N Garies), 700 m, 14.IX.1994, P. Audisio leg., 2 spec. (CAR); Republic of South Africa, Western Cape Province, Rooidam Farm (31°.04' S, 17°.48' E), 26.VIII.1979, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, 2 Km ENE Hoekbaai (31°.11' S, 17°.47' E), 27.VIII.1979, S. Endrödy-Younga leg., 2 spec. (TMP); Republic of South Africa, Western Cape Province, 20 Km E Soutpan (31°.12' S, 18°.06' E), 13.IX.1985, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, Vanrhyn's Pass 10 Km W Nieuwoudtville (31°.23' S, 19°.02' E), 14.IX.1985, S. Endrödy-Younga leg., 2 spec. (TMP, CAR); Republic of South Africa, Western Cape Province, Papendorp dunes (31°.38' S, 18°.22' E), 22.VIII.1981, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, Seweputs Farm (31°.39' S, 18°.22' E), 23.VIII.1981, S. Endrödy-Younga leg., 2 spec. (TMP); Republic of South Africa, Western Cape Province, Seweputs Coast (31°.39' S, 18°.17' E), 28.VIII.1981, S. Endrödy-Younga leg., 8 spec. (TMP, CAR); Republic of South Africa, Western Cape Province, Wiedouw Farm near Vanrhynsdorp (31°.43' S, 18°.43' E), 18.VIII.1983, S. Endrödy-Younga leg., 3 spec. (TMP, CAR); same locality, but 20-23.IX.1982, S. Louw leg., 3 spec. (NMB); same locality, but 20-24.IX.1985, S. Louw leg., 2 spec. (NMB); Republic of South Africa, Western Cape Province, 15 Km S Doringbaai, (31°.58' S, 18°.17' E), 19.VIII.1983, S. Endrödy-Younga leg., 1 spec. (TMP, CAR); Republic of South Africa, Western Cape Province, Nortier Farm (near Lambert's Bay: 32°.03' S, 18°.19' E), 25.VIII.1981, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, N Lambert's Bay (32°.04' S, 18°.19' E), 25.VIII.1981, S. Endrödy-Younga leg., 13 spec. (TMP, CAR); Republic of South Africa, Western Cape Province, Groot Fontein near Vredendal (32°.04' S, 18°.39' E), 20-22.X.1987, S. Louw leg., 3 spec. (NMB); Republic of South Africa, Western Cape Province, Pakhuispass near Clanwilliam (32°.06' S, 19°.05' E), 21.IX.1985, S. Louw leg., 1 spec. (NMB); Republic of South Africa, Western Cape Province, E Lambert's Bay (32°.07' S, 18°.17' E), 16.IX.1985, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, 12 Km N Clanwilliam (32°.08' S, 18°.40' E), 27.IX.1973, S. Endrödy-Younga leg., 4 spec. (TMP, ZIS); Republic of South Africa, Western Cape Province, Elandsbay forestry (32°.18' S, 18°.21' E), 28.VIII.1981, S. Endrödy-Younga



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Figs 128-131 – Colour photos of *Meligethes (Lariopsis)* spp.; *M. endroedyi* n. sp. (male from South Africa, S Yzerfontein; length 3.4 mm) (128); *M. aurimaculatus* n. sp. (male from South Africa, Citrusdal; length 2.5 mm) (129); *M. haagii* Reitter (male from South Africa, De Rust; length 2.6 mm) (130); *M. cercoides* Reitter (male from South Africa, Langebaan; length 1.8 mm) (131).

leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, Verlovei Farm (32°19' S, 18°22' E), 28.VIII.1981, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, Cederberg, Boshof (32°20' S, 18°59' E), 17.IX.1985, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, Cederberg, East Track (32°23' S, 19°24' E), 650 m, 21.VIII.1983, S. Endrödy-Younga leg., 1 spec. (TMP); same locality, but m 800 (32°29' S, 19°22' E), 21.VIII.1983, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, Cederberg, 27 Km N Citrusdal, towards the Nieuwoudt Pass, 200 m, 15.IX.1994, P. Audisio leg., on *Cephalophyllum* sp. (Mesembryanthemaceae), 13 spec. (CAR, CSP); South Africa, Western Cape Province, Olifants River, 15 Km N Citrusdal, 150 m, 11.IX.1994, M. Bologna leg., on *Carpobrotus* sp. (Mesembryanthemaceae), 13 spec. (CAR, CSP); Republic of South Africa, Western Cape Province, Citrusdal, 2.XII.1973, F. Honiball leg., 17 spec. (TMP, ZIS); Republic of South Africa, Western Cape Province, Koomplanskloof, 10 Km S Citrusdal (32°40' S, 19°01' E), 20-270 m, 4-8.X.1994, R. Danielsson leg., 40 spec. (ZML, CAR); Republic of South Africa, Western Cape Province, Brakfontein Farm (32°56' S, 18°15' E), 23.VIII.1983, S. Endrödy-Younga leg., 3 spec. (TMP); Republic of South Africa, Western Cape Province, 65 Km N Cape Town (33°21' S, 18°15' E), 30.VIII.1983, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, Rondeberg near Malmesbury (33°24' S, 18°16' E), 24-26.X.1987, S. Louw leg., 1 spec. (NMB); Republic of South Africa, Western Cape Province, 22 Km S Yzerfontein, 30 m, 10.IX.1994, P. Audisio leg., on *Carpobrotus edulis* (L.) N. E. Br. (Mesembryanthemaceae), 2 spec. (CAR); Republic of South Africa, Western Cape Province, 10 Km E Melkbosstrand (30 Km N Cape Town), 30 m, 13.IX.1994, P. Audisio leg., on *Cephalophyllum* sp. (Mesembryanthemaceae), 11 spec. (CAR); Republic of South Africa, Western Cape Province, Cape Town, Table Mountain, VII.1906, W. Bevins leg., 6 spec. (BML, MNP, CAR); same locality, but VIII.1912, 2 spec. (BML, CAR); Republic of South Africa, Western Cape Province, Cape Town, Fink-Hoek A., XI.1953, Peczek leg., 1 spec. (ZSM); Republic of South Africa, "Cap B. Esp.", 1 spec. (MNP); Republic of South Africa, Western Cape Province, Heuningues River (34°42' S, 20°02' E), 28.X.1983, S. Endrödy-Younga leg., 1 spec. (TMP); Republic of South Africa, Western Cape Province, Karoo, Zwartskraal Farm (33°10' S, 22°32' E), 5.IX.1979, Oosthuizen leg., 3 spec. (TMP, CAR); Republic of South Africa, Eastern Cape Province, Tsitsikammaberger, Bloukrans Pass, by Vargrivier (40 Km E Plettenberg Bay: 33°57' S, 23°38' E), 14-16.X.1994, R. Danielsson leg., 2 spec. (ZML, CAR).

DESCRIPTION. Scarcely elongate, oval, convex, medium-sized (length: 2.00-2.84 mm; width: 1.12-1.60 mm); usually dark brown, with yellowish to orange legs and antennae, reddish clypeus, and moderately variable elytral colour (from entirely pale yellow to entirely orange brown with darker circum-scutellar area; elytra frequently brown with an orange discal spot, or as in fig. 129). Pygidium and last abdominal sternite vary in colour from yellow to orange brown in mature specimens.

Pubescence usually golden, slightly variable in length, relatively short (slightly longer ventrally), more recumbent dorsally than ventrally. Hairs on lateral margin of pronotum and elytra shorter than fourth antennal segment.

Head with shallow punctures of smaller diameter than eye facets, separated by half to one diameter, surface between them reticulate



Figs 132-135 – Colour photos of *Meligethes (Lariopsis)* spp.; *M. serruloides* n. sp. (male holotype from South Africa, Rooihooigte Pass; length 2.1 mm) (132); *M. pulchellus* Reitter (female from Lesotho, Maseru; length 1.9 mm) (133); *M. thalycroides* n. sp. (female paratype from South Africa, Scarborough; length 1.9 mm) (134); *M. odiosus* Reitter (male from South Africa, Cape Town; length 1.7 mm) (135).

and dull; front margin of clypeus shallowly arcuately emarginate, with side angles rather blunt (fig. 9); frontogenal furrows absent. Frons with a couple of very shallow and barely distinct tentorial impressions. Antennae short, the club is small and has short pubescence (fig. 9); third antennal segment slender, nearly as long as the second.

Pronotum rather convex, 1.74-1.80 times as wide as long, rounded at sides, more strongly narrowed anteriorly than posteriorly, broadest at posterior fourth (figs 9, 129), with posterior angles completely rounded; sides very narrowly bordered, not explanate. Posterior margin distinctly sinuate on either side of scutellum; discal punctures as on head or slightly larger, surface between them isodiametrically reticulate and dull, as on head. Scutellum rather large, almost entirely punctate; surface usually as on pronotum.

Elytra 1.02-1.05 times as long as wide, more or less arcuate at sides, arcuately narrowed at apex, broadest in the middle, 1.15-1.20 times as wide as pronotum; shoulders moderately raised; punctures and spaces between them usually as on pronotum.

Prosternal antennal furrows very weak and only barely visible (fig. 121). Prosternal process slightly less than 2 times as wide as antennal club, with apex narrowly rounded (as in fig. 71); punctures moderately deep, smaller than eye facets, separated by less than one diameter; surface smooth. Mesosternum with hind edge straight. Metasternum almost flat, in both sexes with a longitudinal and shallowly impressed stria, but in males also with a faint pentagonal impression in its posterior two thirds; punctures rather granulate, moderately deep, nearly as large as eye facets, separated by one diameter or more, surface between smooth and shining. Posterior edge of last abdominal sternite simple in both sexes. Arc-like lateral impressions on last abdominal sternite not very distinct (as in fig. 123).

Front tibiae rather wide and short, their outer edge strongly serrate, with a series of 6-9 more or less large, triangular, relatively even teeth, usually rather blunt at their apex (fig. 78); inner edge of front tibiae simple and almost straight in both sexes. Front tarsi in males nearly as wide as first antennal segment, slightly narrower in females. Tarsi normally shaped, all being rather short, the posterior ones being much shorter than antennae (figs 9, 66). Hind tibiae moderately elongate, their inner edge simple and almost straight in both sexes (fig.

91); outer edge of both middle and posterior tibiae angulately emarginate at distal fourth (fig. 91) in both sexes. Middle femora almost simple in both sexes, without teeth or projections along their posterior edge. Posterior margin of male hind femora with a long and finger-like spur (fig. 102), reduced to a barely distinct callosity in females.

Tegmen (fig. 25) subrectangular, with apex subtruncate, barely arcuately emarginate, very distinctly setose; median lobe of aedeagus elongate (fig. 26), moderately arcuate at sides, and obtusely rounded at apex.

Ovipositor as figured (fig. 49), yellowish with much darker apex, relatively small, its apex rather pointed with usually dark, very long large styli; outer subdivision of coxites long and narrow; 'central point' placed at basal three sevenths, without distinct ventral spicule; transverse suture almost straight; external angles of basicoxites very acute.

COMPARATIVE NOTES. The species is closely related to the frequently syntopic *M. nebulosus* Reitter and *M. haagii* Reitter, both redescribed below. *M. aurimaculatus* n. sp. has different elytral colouration, usually blunter protibial teeth, smaller antennal club but longer antennae with longer third antennal segment, much longer and finger-like male metafemoral spurs, and markedly different aedeagus. The general colouration makes the new species superficially similar also to *M. arcuatus*, *M. rufiventris*, and *M. endroedyi* n. sp., which are easily distinguished by the simple outer edge of middle and posterior tibiae, the absence of male metafemoral spur, as well as by the markedly different form of male and female genitalia.

BIOLOGICAL NOTES. *M. aurimaculatus* n. sp. is associated with flowers of the botanical family Mesembryanthemaceae (= Aizoaceae) for its larval development. Adults and larvae have been collected on and inside the large flowers of various different species of the genera *Carpobrotus* (mostly on *C. edulis* (L.) N. E. Br.) and *Cephalophyllum*; probably also members of other more or less closely related genera (such as, e.g., *Herrea* spp.) could represent potential alternative host-plants. Larvae develop inside the central part of the flower. The reproductive period is probably between July and October. The species has been collected in company with adults of *M. arcuatus* Reitter, *M. rufiventris* Reitter, and *M. variabilis* Reitter, sometimes on the same flowers.

M. aurimaculatus n. sp. is rather common in spring in coastal and subcoastal areas with Sandveld and low Fynbos vegetation, on disturbed soil, in sandy flats and lower slopes; present from sea level up to 900-1100 m.

GEOGRAPHIC DISTRIBUTION. Widespread throughout the SW parts of South Africa (fig. 109), northwards to the Richtersveld, eastwards at least to the SE Karoo, north of George, and to the Tsitsikamma Mts. *M. aurimaculatus* n. sp. is a rather common species, particularly frequent in Namaqualand and in the Western Cape Province, apparently much rarer and local elsewhere.

ETYMOLOGY. The name of the new species refers to its usually golden-yellow elytral colouration.

07. ***Meligethes nebulosus*** Reitter, 1872

Meligethes nebulosus Reitter, 1872: 247; Grouvelle, 1895: 162; 1913: 51; Kirejtshuk & Easton, 1988: 53, 54; Kirejtshuk, 1989: 86;

Meligethes curtus Grouvelle, 1919: 52; Kirejtshuk & Easton, 1988: 54.

TYPE LOCALITY: "Cape of Good Hope".

TYPE MATERIAL: "Cap" (= Cap de Bonne Espoire), "Typ. Reitter", one male, coll. A. Grouvelle (MNP), Lectotype, P. Audisio des., 1981. Other conspecific syntypes are preserved in both Grouvelle's and Oberthur's collections (MNP). As discussed in Kirejtshuk & Easton (1988) and confirmed by the junior author of the present paper, the male lectotype (Easton des., 19??: "Orange River Colony, Kimberley, T. H. Power", in Oberthur's collection, MNP) of *Meligethes curtus* Grouvelle (1919) is conspecific with *M. nebulosus* Reitter, 1872.

DESCRIPTION. Short, oval (fig. 8), moderately convex, small- to medium-sized (length: 1.40-2.35 mm; width: 0.90-1.46 mm); usually unicolorous dark brown, with yellowish to dark brown legs and antennae (as in *M. haagii* Reitter: fig. 130); rarely with a discal orange-brown spot on each elytra. In specimens with dark legs the front tibiae are normally paler, orange-brown.

Pubescence golden to pale yellow, rather short and recumbent dorsally, slightly longer ventrally. Hairs on lateral margin of pronotum and elytra very short and barely visible.

Head with shallow punctures of smaller diameter than eye facets, separated by half to one diameter, surface between them usually reticulate and dull; front margin of clypeus shallowly arcuately emarginate.

nate, with side angles rather blunt (fig. 8); frontogeneral furrows absent. Frons with a couple of very shallow and barely distinct tentorial impressions. Antennae short, club medium-sized and with short pubescence (fig. 8); third antennal segment slender, but shorter than the second.

Pronotum rather convex, 1.75-1.80 times as wide as long, rounded at sides, more strongly narrowed anteriorly than posteriorly, broadest at posterior fourth (fig. 8), with posterior angles completely rounded; sides very narrowly bordered, not explanate. Posterior margin distinctly sinuate on either side of scutellum; discal punctures as on head or slightly larger, surface between them isodiametrically reticulate and dull, as on head, rarely more shining. Scutellum rather large, almost entirely punctate; surface usually as on pronotum.

Elytra 0.90-1.00 times as long as wide, more or less arcuate at sides, arcuately narrowed towards the subtruncate apex, broadest in the middle or at basal two fifths, 1.12-1.20 times as wide as pronotum; shoulders moderately raised; punctures and spaces between them usually as on pronotum.

Prosternal antennal furrows reduced to a faint, barely visible trace. Prosternal process nearly 1.5 times as wide as antennal club, with apex narrowly rounded (as in fig. 71); punctures moderately deep, smaller than eye facets, separated by less than one diameter; surface smooth. Mesosternum with hind edge straight. Metasternum almost flat, in males only with a longitudinal and shallowly impressed stria, with a faint pentagonal impression in its posterior two thirds, simple in females; punctures rather granulate, moderately deep, nearly as large as eye facets, separated by one diameter or more, surface between rather smooth and shining. Posterior edge of last abdominal sternite simple in both sexes. Arc-like lateral impressions on last abdominal sternite barely distinct (as in fig. 123).

Front tibiae rather wide and short, their outer edge strongly serrate, with a series of 6-9 more or less large, triangular, relatively even, and usually pointed teeth (fig. 80); inner edge of front tibia simple and almost straight in both sexes. Front tarsi in males nearly as wide as first antennal segment (fig. 64), slightly narrower in females. Tarsi normally shaped, all being rather short, the posterior ones being much shorter than the antennae (fig. 8). Hind tibiae moderately elongate, their inner edge simple and almost straight in both sexes (fig. 8); outer edge of both middle and posterior tibiae angulately emarginate

at distal fourth (as in fig. 92) in both sexes. Male middle femora with a small projection along their posterior edge, simple in females. Posterior margin of male hind femora with a relatively long triangular projection (fig. 100), reduced to a barely distinct callosity (as in fig. 103) in females.

Tegmen (fig. 43) subrectangular, with apex subtruncate, barely arcuately emarginate, distinctly setose; median lobe of aedeagus relatively long and narrow (fig. 44), subparallel to moderately arcuate at sides, sinuately truncate at apex.

Ovipositor as figured (fig. 51), yellowish with much darker apex, small, apex obliquely truncate and with usually dark, moderately long styli; outer subdivision of coxites rather short; 'central point' centrally placed, without distinct ventral spicule; transverse suture almost straight; external angles of basicoxites very acute.

COMPARATIVE NOTES. The species is closely related to the frequently syntopic *M. haagii* Reitter, *M. sphaeroideus* Kirejtshuk & Easton, and *M. aurimaculatus* n. sp. *M. aurimaculatus* n. sp. has different elytral colouration, usually blunter protibial teeth, smaller antennal club but longer antennae with longer third antennal segment, much longer and finger-like male metafemoral spurs, and markedly different aedeagus. *M. haagii* and *M. sphaeroideus* have markedly different tegmen and slightly different body shape (figs 6-8).

BIOLOGICAL NOTES. *M. nebulosus* is associated with flowers of the botanical family Mesembryanthemaceae (= Aizoaceae) for its larval development. Adults and larvae have been collected on and inside the relatively small flowers of several different species of the genera *Ruschia*, *Dorotheanthus*, *Drosanthemum*, *Delosperma*, and *Lampranthus*, particularly on species having pale pink to magenta flowers. Larvae develop inside the central part of the flower. The reproductive period is probably between July and November, although in the eastern part of its wide distribution area it has occasionally been collected between January and March. The species has been frequently collected in company with adults of *M. cercoides* Reitter, *M. odiosus* Reitter and *M. haagii* Reitter, sometimes on the same flowers.

M. nebulosus is common in spring in subcoastal areas with Sandveld and low Fynbos vegetation, on disturbed soil, in sandy flats and lower slopes, in xeric limestone rocky places, but it is particularly

abundant in flats with Karoo and Karoo-like vegetation; present from sea level up to 1600 m, particularly common between 100 m and 700 m.

GEOGRAPHIC DISTRIBUTION. Widespread throughout most of southern and central parts of South Africa (fig. 110), northwards and westwards to the Richtersveld, to the mouth of the Orange River in Namibia, and to the central-northern Great Karoo, eastwards at least to Port Elizabeth and East London (Eastern Cape Province), with a few, probably relict, localities in xeric rocky places of the W. Natal (Van Reenen Pass area). *M. nebulosus* is particularly frequent throughout the Northern Cape Province (especially in Namaqualand and in the Great Karoo), and the Western Cape Province, apparently rarer and more local elsewhere.

08. **Meligethes haagii** Reitter, 1872

Meligethes haagii Reitter, 1872: 253.

Meligethes haagi: Grouvelle, 1913: 44; Kirejtshuk & Easton, 1988: 54; Kirejtshuk, 1989: 86.

The species has been named "*Haagii*" in the original description; according to the latest edition (1985) of the International Code of Zoological Nomenclature, art. 33 d, the subsequent above mentioned use of the name "*haagi*" by Grouvelle, (1913) and Kirejtshuk & Easton (1988) is an incorrect subsequent spelling.

TYPE LOCALITY: "Cape of Good Hope".

TYPE MATERIAL: "C. B. Sp., Hagen" (= Caput Bonae Spei), "Typ, Reitter", "*Nitidula puberula* Chevr.", one male, coll. A. Grouvelle (MNP), Lectotype, A. G. Kirejtshuk des., 1983. Two conspecific syntypes (male and female) with the same data are preserved in Oberthur's collection (MNP).

DESCRIPTION. Rather short, subparallel (fig. 6), moderately convex, medium-sized species (length: 2.00-2.80 mm; width: 1.17-1.65 mm). Usually unicolorous dark brown with yellowish to orange-brown legs and antennae (fig. 130), rarely with a paler (orange-brown) discal spot on each elytron.

Pubescence golden-yellowish, moderately long and recumbent dorsally, more erect ventrally.

Head, pronotum and elytra usually with the surface between punctures finely polygonally reticulate, and dull; rarely with only faint

trace of reticulation and moderately shining. Punctures on pronotum and elytra on average slightly larger and deeper than in *M. nebulosus*.

Pronotum moderately convex, 1.66-1.71 times as wide as long, rounded at sides, with completely rounded posterior angles (figs 6, 130).

Elytra 0.98-1.03 times as long as wide, subparallel-sided, broadest in the middle, 1.10-1.13 times as wide as pronotum (figs 6, 130), subtruncate at apex.

Prosternal process: fig. 71. Metasternum in males with a shallow but distinct triangular impression in its posterior half, simple in females.

Front tibiae (fig. 79) similar to those of *M. nebulosus*. Hind tibiae: fig. 92. Male front tarsi: fig. 65.

All other external characters in both sexes as in the above described *M. nebulosus*.

Tegmen (fig. 41) subrectangular, very distinctly setose at apex, apical excision rather deep, V-shaped; median lobe of aedeagus elongate (fig. 42), widest at distal third, with obtusely truncate apex.

Ovipositor as figured (fig. 48), yellowish with much darker apex, similar in shape to that of *M. nebulosus*, but usually larger and wider, with longer styli.

COMPARATIVE NOTES. The species is very closely related to the sometimes syntopic *M. nebulosus* Reitter, and to the rare and partly vicariant *M. sphaeroideus* Kirejtshuk & Easton; *M. haagii* is readily distinguished from both by its larger body size, and by the more parallel-sided, more truncate at apex, and on the average more elongate elytra. Male genitalia are markedly different from those of *nebulosus* (figs 43-44), being more like that of *sphaeroideus*, the latter having more shortly setose tegmen and more sinuately truncate apex of the aedeagus (figs 39-40).

BIOLOGICAL NOTES. *M. haagii* is apparently associated only with small shrubs of the closely related genera *Lampranthus* and *Delosperma* (Mesembryanthemaceae), belonging to a few species (so far unidentified) with cream-coloured flowers. Larvae develop inside the central portion of the flowers. The reproductive period is coincident with the flowering of its host-plants, in most of its distribution area this is usually between August and December.

This *Meligethes* appears to be typically associated with the sparse xeric maquis of the Karoo vegetation; sometimes found in company with the much more common and more widely distributed *M. nebulosus*, is one of the relatively few members of its genus inhabiting these subdesert environments. Almost exclusively present in open sandy and rocky flats, nearly from sea level (rarely, and only in southern Namaqualand), up to 700-800 m.

GEOGRAPHIC DISTRIBUTION. *M. haagii* is widespread (although rather local and uncommon) throughout the Karoo and Karoo-like areas of the South Africa (fig. 110), eastwards at least to the Willowmore and Middelburg districts in the Eastern Cape Province, westwards and northwards at least to the Garies district in Namaqualand (Northern Cape Province). Relatively more common in the Little Karoo and in the southern parts of the Great Karoo.

09. ***Meligethes sphaeroideus*** Kirejtshuk & Easton, 1988

Meligethes sphaeroideus Kirejtshuk & Easton, 1988: 54; Kirejtshuk, 1989: 86 (sub "*sphaeroides*", lapsus calami).

TYPE LOCALITY: Republic of South Africa, Western Cape Province, Mossel Bay.

TYPE MATERIAL: Republic of South Africa, Western Cape Province, Mossel Bay, 15-28.III.1922, R. E. Turner leg., one male holotype and six paratypes (BML, ZIS) with the same data. Other paratypes (BML, ZIS; Kirejtshuk & Easton 1988) are known from the Robinson Pass (erroneously indicated as Robertson Pass by Kirejtshuk & Easton 1988) above Mossel Bay, and from Worcester.

DESCRIPTION. Very short and wide, strongly rounded at sides (fig. 7), moderately convex, small-sized species (length: 1.58-2.00 mm; width: 1.05-1.33 mm). Usually unicolorous dark brown with yellowish to orange-brown legs and antennae.

Pubescence golden-yellowish, rather short and recumbent dorsally, more erect ventrally.

Pronotum moderately convex, very wide, 1.85-1.90 times as wide as long, rounded at sides, with completely rounded posterior angles (fig. 7).

Elytra 0.85-0.90 times as long as wide, moderately arcuate at sides, broadest at the basal two fifths, 1.15-1.20 times as wide as pronotum (fig. 7), subtruncate at apex.

Metasternum in males with a shallow but distinct triangular impression in its posterior half, simple in females.

All other external characters in both sexes as in the above described *M. nebulosus*.

Tegmen (fig. 39) small, subrectangular, with short setae at apex, apical excision rather deep, U-shaped; median lobe of aedeagus moderately elongate (fig. 40), widest at distal third, with sinuately truncate apex.

Ovipositor as figured (fig. 50), yellowish with much darker apex, similar in shape to that of *M. nebulosus*, but usually larger and slightly wider at apex, with longer styli.

COMPARATIVE NOTES. The species is very closely related to the partly vicariant *M. haagii* Reitter and to the sometimes sympatric *M. nebulosus* Reitter; *M. sphaeroideus* is readily distinguished from both by its wider and shorter body shape. Male genitalia are markedly different from those of *nebulosus* (figs 43-44), being more similar to those of the much larger *M. haagii*, the latter having more setose tegmen and less sinuately truncate apex of the aedeagus (figs 41-42).

BIOLOGICAL NOTES. The biology of *M. sphaeroideus* is so far unknown; it is very likely to be associated with flowers of certain genera of the family Mesembryanthemaceae, as are all the allied species. Judging from the collecting data of those few known specimens, its reproductive period is probably mainly between December and April.

This *Meligethes* appears to be associated with stony and sandy flats, especially near the sea. Known from sea level, up to 1100-1200 m.

GEOGRAPHIC DISTRIBUTION. *M. sphaeroideus* is widespread (although apparently rare and local) throughout SE areas of the South Africa (fig. 111), westwards at least to the Worcester district in the Western Cape Province, eastwards and northwards at least to Port Elizabeth (Swartkops: NCP, CAR) and to the Maseru area in western Lesotho (Spornraft, unpublished: CSP).

10. ***Meligethes cercoides*** Reitter, 1872

Meligethes cercoides Reitter, 1872: 248; Grouvelle, 1913: 36; Kirejtshuk & Easton, 1988: 53; Kirejtshuk, 1989: 86.

TYPE LOCALITY: "Cape of Good Hope".

TYPE MATERIAL: "Cap" (= Cap de Bonne Espoire), "Typ, Reitter", one female, coll. Oberthur (MNP), Lectotype, P. Audisio des., 1981. Other conspecific female syntypes are preserved in Oberthur's collection.

DESCRIPTION. Elongate, oval (fig. 13), moderately convex, small-sized (length: 1.60-2.15 mm; width: 0.85-1.15 mm); unicolorous metallic pale brown, with yellowish legs and antennae, or more frequently, metallic brown with paler (yellowish) elytra and darker antennal club (fig. 131).

Pubescence golden to whitish, rather distinct but sparse and recumbent dorsally, slightly longer ventrally. Hairs on lateral margin of pronotum and elytra barely visible.

Head with shallow to moderately deep punctures as large as or slightly larger than eye facets, separated by half to one diameter, surface between very variable, from reticulate and dull to moderately smooth and shining; front margin of clypeus distinctly and rather widely bordered, shallowly but distinctly emarginate in the middle, with side angles rather blunt (fig. 115); fronto-geneal grooves clearly distinct. Frons without tentorial impressions. Antennae rather long, club medium-sized and with short pubescence (fig. 16); third antennal segment slender, nearly as long as the second.

Pronotum scarcely convex, 1.58-1.63 times as wide as long, rounded at sides, more strongly narrowed anteriorly than posteriorly, broadest in the middle or at posterior two fifths (figs 13, 131), with posterior angles obtuse but always distinct; sides distinctly bordered, narrowly explanate. Posterior margin slightly sinuate on either side of scutellum; discal punctures as on head or slightly larger, surface between them variable as on head, or more shining. Scutellum rather large, almost entirely punctate; surface usually as on pronotum.

Elytra 1.15-1.18 times as long as wide, scarcely arcuate at sides, narrowed towards the arcuately subtruncate apex, broadest in the middle or at basal two fifths, 1.15-1.20 times as wide as pronotum; shoulders moderately raised; punctures as on pronotum, spaces between them more frequently smooth and shining.

Prosternal antennal furrows short, but clearly visible (fig. 120). Prosternal process subparallel, nearly as wide as antennal club, with apex narrowly rounded (fig. 67); punctures moderately deep, smaller than eye facets, separated by less than one diameter; surface smooth.

Mesosternum with hind edge straight. Metasternum almost flat, only in males with a longitudinal and shallowly impressed stria, and a faint triangular impression in its posterior two thirds, simple in females; punctures rather granulate, moderately deep, on average larger than eye facets, separated by one diameter or less, surface smooth and shining. Posterior edge of last abdominal sternite simple in females, in males in the middle with a faint and wide inverse U-shaped callosity, almost indistinctly raised, smooth and shining. Arc-like lateral impressions on last abdominal sternite moderately distinct (fig. 73).

Front tibiae rather long and narrow, their outer edge minutely serrate, with a series of 8-11 small, spine-like, relatively even teeth (fig. 81); inner edge of front tibiae simple and almost straight in both sexes. Front tarsi in both sexes nearly as wide as first antennal segment. Tarsi of normal shape, all being medium-sized, the posterior ones being much shorter than antennae (figs 13, 131). Hind tibiae elongate, narrow, their inner edge simple and almost straight in both sexes (fig. 95); outer edge of both middle and posterior tibiae arcuately and regularly shaped (fig. 95) in both sexes. Middle and posterior femora with simple posterior edge in both sexes, as in *M. odiosus* (fig. 98).

Tegmen (fig. 33) small, poorly sclerotized, subrectangular, with apex obliquely truncate and with short setae, with a narrow but deep median excision; median lobe of aedeagus relatively long (fig. 34), subparallel to moderately arcuate at sides, strongly narrowed and minutely truncate at apex.

Ovipositor as figured (fig. 55), yellowish with darker apex, medium-sized, apex moderately pointed and with usually dark, moderately long styli; outer subdivision of coxites rather long and narrow; 'central point' centrally placed, with very small and barely distinct ventral spicule; transverse suture almost straight; external angles of basicoxites acute. Spermatheca usually rather uniformly egg-shaped (fig. 60).

COMPARATIVE NOTES. The species is very closely related to the apparently vicariant *M. pulchellus* Reitter and *M. serrula* Kirejtshuk & Easton, and to the sympatric *M. serruloides* n. sp. *M. pulchellus* has similar tegmen but usually uniform darker colouration; *M. serruloides* and *M. serrula* are on the average slightly larger (length: 2.0-2.2 mm), with uniform orange-brown metallic colouration, deeper and coarser

dorsal punctures, more erect dorsal pubescence and clearly different male genitalia (figs 35-38).

The true taxonomic position of some populations from the Cape Peninsula, from the Bredasdorp area, and from the Transvaal (at the present-day known from a few mostly immature and female specimens), having general habitus rather similar to that of both *cercoides* and *pulchellus*, and similar male and female genitalia, is still unclear. Probably it exists as a complex of similar and more or less isolated populations, whose taxonomic relationships and rank need to be further investigated using larger sample of material, but in this scenario the specific identity of both *cercoides* and *pulchellus* is not to be excluded. The lectotype and the whole syntypical series of *M. cercoides* are certainly identical to the abundant populations known to us from the Namaqualand and Western Cape Province.

M. cercoides and *M. pulchellus* are probably semi-species or subspecies, now confined to apparently distinct geographic and bioclimatic areas: the former mainly in the dry, semidesert and mostly low flats and low hills of southern and western provinces, the latter in the "highvelds" and savanna-like landscapes of the central-eastern and northern provinces of the South Africa. A third, closely related, and probably new species, is known from the SE Angola (Kirejtshuk in prep.).

BIOLOGICAL NOTES. *M. cercoides* is associated with flowers of the botanical family Mesembryanthemaceae (= Aizoaceae) for its larval development. Adults and larvae have been collected on and inside the small flowers of several different species of the genus *Ruschia*, particularly on species having pale pink to magenta flowers. Larvae develop inside the central part of the flower. The reproductive period is probably between August and October, although this species has been occasionally collected in July and November too. The species has been frequently collected in company with adults of *M. nebulosus* Reitter and *M. odiosus* Reitter, sometimes on the same flowers.

M. cercoides is common in spring in subcoastal areas with Sandveld and low Fynbos vegetation, on disturbed soil, in sandy flats and lower slopes, in xeric limestone rocky places; present from sea level up to 1200 m, particularly common between 100 m and 700 m.

GEOGRAPHIC DISTRIBUTION. Widespread throughout most of the SW parts of South Africa (fig. 112), northwards and westwards to the Richtersveld and to the western margins of the Great Karoo, eastwards at least to George and to the Swartbergs, NE Oudtshoorn. The species is frequent and locally very abundant (at least in spring) in coastal and subcoastal areas of the western Atlantic coast and in Namaqualand.

11. *Meligethes pulchellus* Reitter, 1872

Meligethes pulchellus Reitter, 1872: 247; Kirejtshuk & Easton, 1988: 53; Kirejtshuk, 1989: 86.

TYPE MATERIAL. The type material of this species (probably based on single specimen) is apparently missing from all the classic collections where we have so far tried to find it; in MNP is present only a (dull and uniformly reddish-brown) single female specimen from "Cap" with Grouvelle's subsequent identification label, lacking any Reitter's type-label, which, although belonging to the above discussed *cercoides*-complex, clearly does not fit the original description of the species. Clearly it is necessary to establish a neotype for nomenclatural stability; we select as being the neotype a male specimen labelled as follows:

'Lesotho, Maseru, 6.XI.1993, P. Audisio leg. (TMP), *Meligethes pulchellus* Reitter, 1872, Neotype, Audisio & Kirejtshuk des., 1995'.

DESCRIPTION. Small-sized (length: 1.65-2.00 mm; width: 0.88-1.06 mm; figs 12, 133), uniformly blackish to brown, with yellowish to brown legs (front tibiae yellowish to pale brown) and antennae.

Pubescence rather short, golden to pale brown, sparse and recumbent dorsally.

Head and pronotum with very variable punctures, those of the elytra usually orange-peel like, on the average distinctly (1.3-1.5 times) larger than eye facets, rather coarse and deep, separated by nearly one diameter, usually coarser than those on pronotum; space between punctures moderately shining to distinctly reticulate and dull on head and pronotum, smooth and shining on elytra.

Metasternum in males with a shallow distinct triangular impression in its posterior half, simple in females.

Front tibiae: fig. 82.

All other external characters in both sexes as in the above described *M. cercoides*.

Tegmen (fig. 29) small, weakly sclerotized, subrectangular, with apex obliquely truncate, moderately setose, with a narrow but deep median excision; median lobe of aedeagus relatively long (fig. 30).

subparallel to moderately arcuate at sides, strongly narrowed and minutely truncate at apex.

Ovipositor as figured (fig. 56), similar in shape and colour to that of *M. cercoides*; transverse suture barely V-shaped. Spermatheca usually more arcuate (fig. 61) than in *M. cercoides*.

COMPARATIVE NOTES. As discussed above, this species is very closely related to the apparently vicariant *M. cercoides* Reitter and to the probably at least partly sympatric *M. serrula* Kirejtshuk & Easton; from the former is barely distinguished by the usually darker colouration, by the coarser and deeper elytral punctures, as well as by the slightly different spermatheca (fig. 61), from the latter by the markedly different form of male genitalia (figs 29-30, 37-38), and by the usually darker colouration (fig. 133). The similar *M. serruloides* n. sp. has paler colouration, clearly different aedeagus (fig. 36), and longer, paler, and more erect dorsal and antennal pubescence.

Refer to the comments given above about *M. cercoides*, as regards the taxonomic position of some populations of the "*cercoides-pulchellus* complex" from Transvaal, the Bredasdorp area, and the Cape Peninsula, as well as for the still unclear biogeographic and taxonomic relationships between these two presumed semi-species.

BIOLOGICAL NOTES. The biology of *M. pulchellus* is so far unknown; very likely it is associated with flowers of certain genera of the family Mesembryanthemaceae, as is the very closely related *M. cercoides*. Judging from the few specimens so far known, its reproductive period is probably during the summer (December-March ?).

This *Meligethes* appears to be associated with stony and rocky places and hill slopes, rising in middle-altitude grasslands. Known from 1000 m to 1700 m.

GEOGRAPHIC DISTRIBUTION. So far known only from a relatively few localities in western Lesotho and western Natal, Orange Free State, North West Province, and Eastern Transvaal (fig. 112).

12. ***Meligethes serruloides*** n. sp.

DIAGNOSIS. Small (length 2.0-2.1 mm) metallic reddish brown species, with yellowish legs and antennae, and rather long, sparse but

suberect whitish pubescence. In general appearance similar to the common *M. cercoides* Reitter, 1872, but easily recognised by the longer and more erect dorsal pubescence, the antennal club bearing longer hairs, the much coarser and deeper dorsal punctures, the slightly larger (on the average) body size, as well as by the markedly different aedeagus. Easily distinguished from *M. serrula* Kirejtshuk & Easton by the markedly different form of male genitalia.

TYPE MATERIAL. Holotype, ♂: Republic of South Africa, Western Cape Province, road between Swellendam and Heidelberg (34° 06 S, 20° 46 E), 21.IX.1985, S. Endrödy-Younga leg. (TMP). Paratypes: same data as holotype, 1 ♂, 2 ♀♀ (TMP, CAR); Republic of South Africa, Western Cape Province, S slope of the Rooihooft Pass (nearly 40 Km NW Montagu), 1000 m, xeric rocky slope, on *Aspalathus* sp. (Fabaceae), 16.IX.1994, P. Audisio leg., 1 ♂ (CAR); Republic of South Africa, Western Cape Province, Piekenaarskloof, 15 Km S Citrusdal (32° 38 S, 18° 57 E), 370 m, 4.X.1994, R. Danielsson leg., 1 ♂ (CAR); Republic of South Africa, Western Cape Province, Malgas, (40 Km SE Swellendam: 34° 20 S, 20° 30 E), 40 m, 11-13.X.1994, R. Danielsson leg., 1 ♂ (ZML).

DESCRIPTION. Small-sized (length: 1.96-2.08 mm; width: 1.03-1.09 mm), uniformly metallic reddish brown, with yellowish legs and antennae (fig. 132).

Pubescence rather long, whitish, sparse but suberect dorsally. Antennal club and funiculus with relatively long and erect hairs (nearly as in fig. 15).

Head, pronotum and elytra with orange-peel like punctures, distinctly (1.5-2 times) larger than eye facets, rather coarse and deep (particularly on pronotum and elytra), separated by nearly one diameter; space between punctures smooth and shining.

Metasternum in males with a shallow distinct triangular impression in its posterior half, simple in females.

All other external characters in both sexes as in the above described *M. cercoides*.

Tegmen (fig. 35) small, moderately sclerotized, subrectangular, with apex separately obtusely truncate, very distinctly setose, with a narrow but deep median excision; median lobe of aedeagus unusually large (fig. 36), parallel-sided, strongly narrowed from the distal fourth, with narrowly truncate apex.

Ovipositor as figured (fig. 57), yellowish with darker apex, similar in shape to that of *M. cercoides*, but slightly smaller and wider, with more V-shaped transverse suture of the coxites.

COMPARATIVE NOTES. The species is closely related to the vicariant *M. serrula* Kirejtshuk & Easton and to the partly sympatric *M. cercooides* Reitter; from the former is easily distinguished by the markedly different form of male genitalia (figs 35-38), from the latter by the longer and more erect dorsal pubescence, the antennal club bearing longer hairs, the much coarser and deeper dorsal punctures, as well as by the clearly different aedeagus and ovipositor (figs 33-36, 55, 57). The similar *M. pulchellus* Reitter has darker colouration, markedly different aedeagus and ovipositor (figs 30, 56), and shorter dorsal and antennal pubescence.

BIOLOGICAL NOTES. The biology of *M. serruloides* n. sp. is so far unknown; very likely it is associated with flowers of certain genera of the family Mesembryanthemaceae, as is the closely related *M. cercooides*. Judging from the sparse collecting data available, its reproductive period is probably during spring (September-October?).

This *Meligethes* appears to be associated with xeric stony and rocky places in Karoo-like vegetation zones. Known from 200 m to 1000 m.

GEOGRAPHIC DISTRIBUTION. So far known only from the four above mentioned localities of the Western Cape Province (fig. 111); the species is probably confined to the Little Karoo and to the SW parts of the Western Cape Province.

13. *Meligethes serrula* Kirejtshuk & Easton, 1988

Meligethes serrula Kirejtshuk & Easton, 1988: 53; Kirejtshuk, 1989: 86.

TYPE MATERIAL: Holotype, male, Lesotho, Mount Moorosi (nearly 110 Km SSW Maseru, and 15 miles NE Quthing; indicated as "Mont Morosi" on the original label, as well as in the original description), 7000 feet, 18.III.1951, Swedish South Africa Expedition, 1950-1951, Brink & Rudebeck leg. (BML; the holotype is formally property of the ZML, but, being on loan by the English specialist Dr. A. M. Easton before its description, the specimen has been subsequently included in the BML collections, with the rest of Easton's collection).

DESCRIPTION. Small-sized (fig. 14; length: 2.15 mm; width: 1.10 mm), uniformly reddish brown, with yellowish legs and antennae.

Pubescence distinct, golden.

Head and pronotum with punctures coarser than in *M. cercooides*, on the elytra usually orange-peel like, on average distinctly (nearly 1.5-2 times) larger than eye facets, rather coarse and deep, separated by

nearly one diameter, coarser than those on pronotum; space between punctures moderately shining on head, pronotum, and elytra.

Male metasternum with a shallow distinct pentagonal impression in its posterior two thirds.

Front tibiae: fig. 83.

All other external characters as in the above described *M. cercoides*.

Tegmen (fig. 37) moderately sclerotized, distinctly setose, with a wide and deep U-shaped median excision; median lobe of aedeagus rather large, long (fig. 38), subparallel-sided, strongly narrowed and minutely truncate at apex.

Female unknown.

COMPARATIVE NOTES. The species is closely related to the vicariant *M. serruloides* sp. n., and to the at least partly sympatric *M. pulchellus* Reitter; from both is distinguished by the male genitalia (figs 29-30, 35-38), from the former also by the shorter pubescence, from the latter also by the paler colouration. The relatively similar *M. cercoides* usually has paler elytral colouration, markedly different male genitalia (figs 33-34), and finer dorsal punctures.

BIOLOGICAL NOTES. The biology of *M. serrula* is so far unknown; very likely it is associated with flowers of certain genera of the family Mesembryanthemaceae, as is the closely related *M. cercoides*. Judging from the above mentioned collecting data, its reproductive period is probably during late summer (February-March ?).

This *Meligethes* is probably associated with stony places in moderately high altitude grasslands. Collected at 2100 m.

GEOGRAPHIC DISTRIBUTION. So far known only from the type locality, in SW Lesotho (fig. 111); probably rare and local.

14. **Meligethes thalyroides** n. sp.

DIAGNOSIS. Small-sized (length 1.9-2.1 mm), rather dull, dark brown to blackish species, with dark yellowish to brown legs and antennae, and rather recumbent golden to whitish moderately long pubescence. In general appearance similar to dull and relatively short specimens of the common *M. odiosus* Reitter, 1872, but easily recognised by the larger antennal club bearing much longer hairs, the coarser and deeper dorsal punctures, the elytral ones lacking traces of

transverse strigosity, by the slightly larger (on average) body size, as well as by the different form of male and female genitalia.

TYPE MATERIAL. Holotype, ♀: Republic of South Africa, Western Cape Province, Grootdrif Farm (32°24' S, 18°27' E), 29.VIII.1981, S.Endrody-Younga leg. (TMP). Paratypes: Republic of South Africa, Western Cape Province, 3 km SW Langebaan, 30 m, sandy roadside, by sweeping, 11.IX.1994, P. Audisio leg., 1 ♂ (CAR); Republic of South Africa, Western Cape Province, Cape Peninsula, 3 Km NW Scarborough, Witsand Bay, sand dunes, 24.IX.1993, P. Audisio leg., 1 ♀ (CAR); Republic of South Africa, Western Cape Province, Cape Peninsula, Noordhoek, Chapman's Bay, sand dunes, 22.IX.1994, M.Biondi leg., 1 ♀ (CAR).

DESCRIPTION. Small-sized (length: 1.92-2.08 mm; width: 1.11-1.22 mm), uniformly dark brown to blackish, with dark yellowish or castaneous legs and antennae (club darker) (figs 10, 134).

Pubescence moderately long, golden to whitish, rather recumbent. Antennal club and funiculus with unusually long and erect hairs (fig. 15). Hairs on lateral margin of pronotum and elytra barely visible.

Head with moderately deep punctures 1.1-1.3 times as large as eye facets, separated by nearly one diameter, surface between them reticulate and dull; front margin of clypeus distinctly bordered, distinctly emarginate in the middle, with side angles rather blunt (fig. 10). Fronto-geneal grooves clearly distinct. Frons without tentorial impressions. Antennae rather long, club large, wide, and strongly pubescent (fig. 15); third antennal segment slender, nearly as long as the second one.

Pronotum convex, 1.71-1.73 times as wide as long, rounded at sides, more strongly narrowed anteriorly than posteriorly, broadest at posterior two fifths (figs 10, 134), with posterior angles almost completely rounded; sides very narrowly bordered, not explanate. Posterior margin slightly sinuate on either side of scutellum; discal punctures as on head but larger, surface between them as on head. Scutellum rather large, almost entirely punctate; surface usually as on head.

Elytra 1.04-1.08 times as long as wide, convex, arcuate at sides, narrowed towards the arcuately subtruncate apex, broadest in the middle, 1.20-1.25 times as wide as pronotum; shoulders moderately raised; punctures as on pronotum or coarser, spaces between them orange-peel like, rather smooth and more shining.

Prosternal antennal furrows short but plainly visible. Prosternal process subparallel, moderately widened towards the narrowly roun-

ded apex, narrower than antennal club, with punctures moderately deep, smaller than eye facets, separated by nearly one diameter; surface smooth. Mesosternum with hind edge straight. Metasternum almost simple and flat in both sexes; punctures simple, moderately deep, on the average larger than eye facets, separated by 1.5-2 diameters, surface smooth and shining. Posterior edge of last abdominal sternite simple in females, in males in the middle with a faint and barely distinct emargination. Arc-like lateral impressions on last abdominal sternite moderately distinct (as in fig. 73).

Front tibiae moderately long, their outer edge minutely serrate, with a series of 9-11 very small, spine-like, relatively even teeth (fig. 84); inner edge of front tibiae simple and almost straight in both sexes. Front tarsi in both sexes slightly wider than first antennal segment. Tarsi normal, all being medium-sized, the posterior ones being much shorter than antennae (fig. 10). Hind tibiae elongate, their inner edge simple and almost straight in both sexes (fig. 10); outer edge of both middle and posterior tibiae arcuately and regularly shaped (as in fig. 95) in both sexes. Middle and posterior femora with simple posterior edge in both sexes (as in fig. 98).

Tegmen (fig. 31) small elongate, poorly sclerotized, subrectangular, with apex obliquely truncate, with short setae, and narrow but deep median excision; median lobe of aedeagus relatively long (fig. 32), subparallel, narrowed and slightly sinuately rounded at apex.

Ovipositor as figured (fig. 59), yellowish with darker apex, small, rather narrow and moderately pointed at apex, with usually dark moderately long styli; outer subdivision of coxites rather short; 'central point' placed at distal three sevenths, with small but distinct ventral spicule; transverse suture almost straight; external angles of basicoxites acute. Spermatheca arcuate, similar to *M. pulchellus* (fig. 61).

COMPARATIVE NOTES. The species is probably more closely related to the sympatric *M. cercoides* n. sp. and allied species, although being more similar in external habitus to the syntopic and much more common *M. odiosus* Reitter. *M. thalycroides* n. sp. is distinguished from other members of the *cercoides*-group by the uniform blackish colouration, the slightly wider front tibiae, the dull surface of head and pronotum with coarser elytral punctures, the relatively shorter and wider elytra (more rounded at sides and more distinctly wider than pronotum), the unusually wide and strongly pubescent antennal club, as well as by the markedly different form of male and female genitalia.

From the common *M. odiosus* easily distinguished by the larger antennal club bearing much longer hairs, the coarser and deeper dorsal punctures (the elytral ones lacking traces of transverse strigosity), the emarginate front margin of clypeus, the slightly larger (on average) body size, as well as by the different form of male and female genitalia.

BIOLOGICAL NOTES. The biology of *M. thalycroides* n. sp. is so far unknown; very likely it is associated with flowers of certain genera of the family Mesembryanthemaceae, as the related *M. cercoides* and *odiosus* are. Reproductive period unknown.

This new species appears to be intimately associated with coastal and subcoastal sand dunes and sandy areas.

GEOGRAPHIC DISTRIBUTION. So far known only from the few localities in the Western Cape Province recorded above (fig. 113); the species is probably confined to coastal areas of the SW Western Cape Province. Apparently one of the rarest South African *Meligethes*.

ETIMOLOGY. The name has been chosen in order to emphasize the convex-oval body, and the peculiarly large, rounded antennal club with long hairs, both characters suggesting members of the Holarctic Nitidulinae genus *Thalycra* Erichson.

15. **Meligethes odiosus** Reitter, 1872

Meligethes odiosus Reitter, 1872: 245; Grouvelle, 1913: 52; Kirejtshuk & Easton, 1988: 53; Kirejtshuk, 1989: 86.

TYPE LOCALITY: "Cape of Good Hope".

TYPE MATERIAL: "Cap" (= Cap de Bonne Espoire), "Typ. Reitter", one female, coll. Oberthur (MNP), Lectotype, A. G. Kirejtshuk des., 1988. Other conspecific female syntypes are preserved in Oberthur's collection.

DESCRIPTION. More or less elongate, oval (fig. 11), moderately convex, small-sized (length: 1.60-2.08 mm; width: 0.90-1.21 mm); unicolorous metallic dark brown, with yellowish front legs and antennae, middle and hind legs yellowish to castaneous (fig. 135).

Pubescence golden to whitish, rather distinct but short and recumbent. Hairs on lateral margin of pronotum and elytra barely visible.

Head with moderately deep punctures nearly as large as eye facets, separated by half to one diameter, surface between smooth and shining; front margin of clypeus transversely truncate and distinctly bordered, with side angles rather blunt (fig. 11). Fronto-geneal grooves clearly distinct. Frons without tentorial impressions. Antennae medium-sized, club small, elongate, and with short pubescence (fig. 11); third antennal segment scarcely elongate, shorter than the second.

Pronotum moderately convex, 1.78-1.82 times as wide as long, rounded at sides, more strongly narrowed anteriorly than posteriorly, broadest in the middle or at posterior third (figs 11, 135), with posterior angles almost completely rounded; sides narrowly bordered. Posterior margin slightly sinuate on either side of scutellum; discal punctures as on head or slightly larger, surface between them variable, usually smooth and shining, only rarely duller, with distinct traces of microreticulation. Scutellum rather large, almost entirely punctate; surface usually as on head.

Elytra 1.05-1.12 times as long as wide, scarcely arcuate at sides, arcuately narrowed towards the apex, broadest in the middle or at basal two fifths, 1.12-1.15 times as wide as pronotum; shoulders moderately raised; punctures as on pronotum or smaller, usually more elongate and aciculate (with faint trace of transverse strigosity), spaces between them smooth and shining.

Prosternal antennal furrows very short and barely visible. Prosternal process subparallel, moderately widened towards the narrowly rounded apex (fig. 68), nearly as wide as antennal club; punctures moderately deep, smaller than eye facets, separated by one diameter or less; surface smooth. Mesosternum with hind edge straight. Metasternum almost flat and simple in both sexes; punctures simple, moderately deep, on average as large as eye facets, separated by one diameter or more, surface smooth and shining. Posterior edge of last abdominal sternite almost simple in both sexes. Arc-like lateral impressions on last abdominal sternite strongly marked, as in *Meligethes* s. str.

Front tibiae rather long and narrow, their outer edge minutely serrate, with a series of 9-11 very small, narrowly triangular, relatively even teeth (fig. 85); inner edge of front tibiae simple and almost straight in both sexes. Front tarsi in both sexes nearly as wide as first antennal segment. Tarsi of normal shape, all being rather short, the

posterior ones being much shorter than antennae (fig. 11). Hind tibiae moderately elongate, their inner edge simple and almost straight in both sexes (fig. 96); outer edge of both middle and posterior tibiae arcuately and regularly shaped (fig. 11) in both sexes. Middle and posterior femora with simple posterior edge in both sexes (fig. 98).

Tegmen (fig. 45) small, subrectangular, with apex distinctly setose, and a wide deep V-shaped median excision; median lobe of aedeagus long (fig. 46), subparallel, strongly narrowed from its distal third, minutely truncate at apex.

Ovipositor as figured (fig. 58), yellowish with darker apex, medium-sized, apex obliquely subtruncate, and with dark, unusually long large styli, bearing very long sensorial hairs; outer subdivision of coxites rather small; 'central point' centrally placed, without distinct ventral spicule; transverse suture V-shaped; external angles of basicoxites acute.

COMPARATIVE NOTES. This species is rather isolated amongst other members of the subgenus *Lariopsis*. Easily recognised by the transversely truncate front margin of clypeus, its uniform dark brown metallic colouration with yellowish antennae and (at least anterior) legs, by the strongly marked arc-like impressions on last abdominal sternite, as well as by the characteristically shaped male and female genitalia. The superficial resemblance between *M. odiosus* and the strongly isolated *M. danielssoni* Audisio from the Western Cape Province (Audisio 1995) need to be further investigated.

BIOLOGICAL NOTES. *M. odiosus* is associated with flowers of the botanical family Mesembryanthemaceae (= Aizoaceae) for its larval development. Adults and larvae have been collected on and inside the small flowers of several different species of the genus *Tetragonia* (especially on the common and widespread *T. fruticosa* L.), adults have been collected also on numerous species of the genus *Ruschia*. Larvae develop inside the inner portion of the flower. The reproductive period is probably between August and October, although this species has been occasionally collected in July and November. This species has been frequently observed in company with adults and larvae of *M. nebulosus* Reitter and *M. cercoides* Reitter, sometimes on the same flowers.

M. odiosus is common in spring in coastal and subcoastal areas with Sandveld (sand dunes, sandy flats and lower sandy slopes) and

low Fynbos vegetation, and on disturbed soil; present from sea level up to 1300 m, particularly common near the sea.

GEOGRAPHIC DISTRIBUTION. Widespread throughout most of the southern parts of the South Africa (fig. 113), northwards and westwards to the Richtersveld and to the western margins of the Great Karoo, eastwards at least to Port Elizabeth. The species is frequent and locally very abundant (at least in spring) in most of its wide distribution area, especially on the western Atlantic coast, and in the Cape Peninsula.

EXCLUDED SPECIES

Meligethes xyphosuroides Kirejtshuk, 1989

Meligethes (Lariopsis) xyphosuroides Kirejtshuk, 1989: 88.

The junior author of the present paper has recently re-examined the male holotype (BML) of this peculiarly shaped species, known from the North West Province (Rustenburg, previously in SW Transvaal). As discussed elsewhere (Audisio in press), *Meligethes xyphosuroides* is not a *Lariopsis*, being on the contrary rather closely related to members of the distantly placed *M. convexus-spissus* species-group, whose known host-plants are all Lamiaceae (= Labiatae), and whose taxonomic position within the so far described subgenera is to be discussed in a separate paper (Audisio in prep.). The previous attribution of this species to the subgenus *Lariopsis* was based on a remarkable and rather odd series of coincidentally convergent characters.

Meligethes gibbulus Spornraft & Kirejtshuk, 1993

Meligethes (Lariopsis) gibbulus Spornraft & Kirejtshuk, 1993: 48.

The junior Author of the present paper has recently re-examined the male holotype and several paratypes (CSP, CAR) of this species, known to us from Natal, Orange Free State, and North West Province (Spornraft & Kirejtshuk 1993; Audisio in press). As discussed elsewhere (Audisio in press), this species, too, is not a *Lariopsis*, being also related to members of the *M. convexus-spissus* species-group, in company with the above discussed and closely related *M. xyphosuroides*.

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RIASSUNTO

Revisione preliminare dei Lariopsis sudafricani (Coleoptera, Nitidulidae, Meligethinae).

Nel presente lavoro vengono trattate le 15 specie sinora note del sottogenere sudafricano *Lariopsis* Kirejtshuk, 1989, appartenente al genere *Meligethes* Stephens, 1830. Cinque specie vengono descritte come nuove: *Meligethes (Lariopsis) vultuosus* n. sp. (coste del Sudafrica meridionale; affine a *M. variabilis* Reitter), *M. (L.) aurimaculatus* n. sp. (Sudafrica occidentale; affine a *M. nebulosus* Reitter), *M. (L.) endroedyi* n. sp. (Sudafrica occidentale e Namibia meridionale; affine a *M. arcuatus* Reitter), *M. (L.) serruloides* n. sp. (aree occidentali della Provincia Occidentale del Capo; affine a *M. cercooides* Reitter e specie vicine), e *M. (L.) thalycroides* n. sp. (coste del Sudafrica sudoccidentale; affine a *M. cercooides* Reitter e specie vicine). Tutte le restanti specie sono ridescritte e raffigurate, inquadrate in cinque gruppi di specie, con indicazioni sulle piante ospiti larvali, tutte incluse nelle famiglie Mesembryanthemaceae e Asteraceae. Vengono infine stabilite due nuove sinonimie: *Meligethes variabilis* var. *luridipennis* Reitter, 1872 = *Meligethes rufiventris* Reitter, 1872; *Meligethes limbatus* Reitter, 1872 = *Meligethes arcuatus* Reitter, 1872.

SUMMARY

In the present paper a preliminary revision of the Southern African subgenus *Lariopsis* Kirejtshuk, 1989 (in the genus *Meligethes* Stephens, 1830), is carried out. The fifteen so far known species (all using as larval host-plants members of the not closely related botanical families Mesembryanthemaceae and Asteraceae), are ranged in five distinct species-groups. Five species from South Africa and Southern Namibia are described as new: *Meligethes (Lariopsis) vultuosus* n. sp., *M. (L.) aurimaculatus* n. sp., *M. (L.) endroedyi* n. sp., *M. (L.) serruloides* n. sp., and *M. (L.) thalycroides* n. sp. Two new synonymies are established: *Meligethes variabilis* var. *luridipennis* Reitter, 1872 = *Meligethes rufiventris* Reitter, 1872; *Meligethes limbatus* Reitter, 1872 = *Meligethes arcuatus* Reitter, 1872.

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