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**A NEW GENUS OF ACMAEODERINAE
 (COLEOPTERA : BUPRESTIDAE)
 FROM SOUTH WEST AFRICA AND ITS SIGNIFICANCE FOR
 THE TRIBAL CLASSIFICATION OF THE SUBFAMILY**

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(with 16 figures)

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ABSTRACT

A new genus and species is described from South West Africa and illustrated. The genus combines features of the genera *Nothomorpha* from southwestern Africa and *Acmaeoderoides* from the southwestern USA and Mexico. The tribe Acmaeoderoidini (Cobos, 1955) is consequently synonymised with the tribe Nothomorphini (Cobos, 1955) and the latter tribe is re-defined. A key to the three genera is provided.

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I. INTRODUCTION

The genus *Nothomorpha* was described by Thomson (1978) for three species. Two additional species originally described under *Buprestis* and subsequently (together with a third) as *Amorphosoma*, and several new species were added subsequently. In the latest revision (Holm, 1976), six valid species are recognized in the genus. The genus is restricted to the southwestern parts of southern Africa. Cobos (1955) erected a tribe, Nothomorphini, within the 'Acmaeoderitae' for the genus *Nothomorpha*, and later (Cobos, 1980) implicitly included this monotypic tribe in the subfamily Acmaeoderinae.

The genus *Acmaeoderoides* was described by Van Dyke (1942) for a species previously described under *Acmaeodera*. In the latest revision (Nelson, 1968) 11 species are assigned to the genus. The distribution of these species is restricted to the southwestern United States and northern Baja California, Mexico. Cobos (1955) erected the tribe Acmaeoderoidini, also within the 'Acmaeoderitae' for this single genus. Nelson (1968) inadvertently revised the *Acmaeoderoides* spp. under the tribe Acmaeoderini, and later (Nelson, 1970) corrects the oversight by formally placing the genus in the tribe Acmaeoderoidini. In the same paper he summarises the differences between the tribes Nothomorphini, Acmaeoderini and Acmaeoderoidini. In the subfamilial key of Cobos (1980), the genus cannot be included in the Acmaeoderinae (because of the radial cell on the hindwing), neither does it conform to any other subfamily.

The new genus *Nothomorphoides* which is described here, combines characters of the tribes Acmaeoderoidini and Nothomorphini, while it leaves the differences between these two tribes together on the one hand and the tribe Acmaeoderini on the other unaffected. The tribal classification proposed here therefore places *Acmaeoderoides*, *Nothomorpha* and *Nothomorphoides* in the tribe Nothomorphini *sens. nov.*, while the tribe Acmaeoderini remains unaffected. The two tribes then constitute the subfamily Acmaeoderinae. The tribe Acmaeoderini has been extended considerably by the description of several new genera in recent years, and these new genera have invariably been based on faunas of restricted biogeographic regions. A comprehensive generic revision of the tribe Acmaeoderini is obviously due, but is unlikely to affect the tribal classification proposed here.

II. SYSTEMATICS

DEFINITION OF THE SUBFAMILY ACMAEODERINAE

The most useful characters to separate the subfamily from the other subfamilies of Buprestidae are the following:

Antennae with diffuse sensory pores; third segment subequal to second (figs 3, 8, 13).

Pronotum with a file along its base; base more or less straight (figs 4, 9, 14); with a median and two lateral pre-basal fossae on disc.

Elytral margin denticulate; apex without prominent spines (figs 4, 9, 14).

Sternal cavity formed by mesosternum only; prosternal process short, blunt and squared.

Aedeagus glabrous (figs 2, 7, 12).

Hind wing without veins between Cu2 and A1 or A2 and A3 (figs 5, 10, 15); radial cell present (fig. 5) or absent (figs 10, 15)

Scutellum present (figs 4, 9, 14) or absent.

(The character of absence or presence of the radial cell is necessary to accommodate *Acmaeoderoides*. Cobos 1980 defines the subfamily i.a. on absence of the radial cell, thus excluding *Acmaeoderoides*.)

TRIBUS NOTHOMORPHINI *sensu nov.*

Nothomorphini, Cobos 1955: 17, Nelson 1970: 30; Holm 1976: 97. Acmaeoderoidini, Cobos 1955: 15; Nelson 1970: 30 *syn. nov.*

Type genus: *Nothomorpha* Thomson 1878.

The characteristics of the tribe Nothomorphini as redefined here, differ as follows from the other tribe in the subfamily, the Acmaeoderini

N o t h o m o r p h i n i A c m a e o d e r i n i

Scutellum visible,
rounded, transverse

Scutellum absent

Elytra with sutural costae
diverging from middle
to apex, exposing den-
ticate inner margins;
not fused.

Elytral suture entire;
fused.

Epipleural lobes of elytra
enlarged, covering
metepisternum

Epipleural lobes nor-
mal, not covering
metepisternum

(In spite of page priority of Acmaeoderoidini before Nothomorphini (Cobos, 1955), the latter tribe is con-

sidered senior because of the seniority of its type genus and the consequent larger amount of primary literature on that genus.)

KEY TO THE GENERA OF NOTHOMORPHINI

- 1 (2) Submentum without anterior median spine; genal scrobes entire (fig. 14); elytral costae higher than wide; prosternum with antennal depressions, resulting in a prominent median lobe on anterior margin (fig. 14); lateral carina on last sternite entire (fig. 14) - setae thin; radial cell on hindwing absent (fig. 15); pronotal disc with depressions deep (fig. 14) to mild and rounded; ovipositor (fig. 11) sparsely setose (southwestern Africa)
..... *Nothomorpha*
- 2 (1) Submentum with an anterior median spine; genal scrobes weakly developed to obsolete in posterior half (figs 4, 9); elytral costae rounded to absent; prosternum with anterior margin straight and entire (figs 4, 9); lateral carina on last sternite discernible in posterior half of length only (figs 4, 9) 3
- 3 (4) Setae thin; radial cell on hindwing absent (fig. 10); costae on elytra rounded but prominent; ovipositor with sparse, short setae (fig. 6); depressions on pronotal disc mild and rounded (fig. 9) (western South West Africa) *Nothomorphaoides*
- 4 (3) Setae thin to squamose; radial cell on hindwing present (fig. 5); costae on elytra barely discernible (fig. 4) to absent; ovipositor with sparse, short setae (fig. 1) to long, dense setae; depressions on pronotal disc barely discernible (fig. 4) to absent (southwestern USA; Baja California, Mexico)
..... *Acmaeoderoides*

GENUS *NOTHOMORPHA* THOMSON (figs 11-15)

Nothomorpha Thomson, 1878: 57; Kerremans 1903: 41; Kerremans 1906: 571; Théry 1926: 55; Cobos 1955: 17-19; Nelson 1970: 30; Holm 1976: 97-98.

Type species: *N. verrucosa* Thomson (by subsequent designation: Holm 1976).

The six known species (Holm, 1976) of *Nothomorpha* share the following generic characters:

Setae thin.

Submentum without anterior median spine.

Genal scrobes entire, accommodating the whole first

antennal segment (fig. 14).

Pronotum with five large depressions, two of these around lateral basal fossae, three side by side on disc (fig. 14); these depressions from mild and rounded to deep and sharp-edged; pronotal sculpture fine to very coarse and rugose.

Prosternum with depressions on anterior margin to accommodate the antennae; these depressions resulting in a lobe between them on the anterior margin of prosternum (fig. 14).

Elytra always with a sutural, a median (fifth), a lateral (ninth) and a marginal costa; these costae higher than wide; striae with large round punctures, wider than interstices.

Hindwing with radial cell absent (fig. 15).

Pre-marginal carina on side of last abdominal sternite complete (fig. 14).

Ovipositor sparsely setose (fig. 11).

Distribution: Western Cape Province, South Africa and western South West Africa

GENUS *ACMAEODEROIDES* VAN DYKE (Figs 1-5)

Acmaeoderoides Van Dyke 1942: 108; Cobos 1955: 15-16; Nelson 1968: 127-128; 1970: 30.

Type species: *A. insignis* (Horn) (by original monotypy)

The eleven known species (Nelson, 1968) of *Acmaeoderoides* share the following generic characters:

Setae thin to squamose.

Submentum with a median anterior spine.

Genal scrobe developed in anterior half only (fig. 4), the first antennal segment free in the rear.

Pronotum with three discal depressions vaguely discernible (*A. distincta* Nelson - fig. 4) to absent; depressions around lateral basal fossae present.

Prosternum without antennal depressions and median lobe on anterior margin (fig. 4).

Elytra with costae (sutural, fifth and ninth interstices) very slightly elevated, or (mostly) with all interstices equal and even; striae with elongated punctures in grooves, narrower than interstices.

Hindwing with radial cell present (fig. 5).

Pre-marginal carina on side of last abdominal sternite reduced to a rounded bulge, sometimes carinate near apex only (fig. 4). Ovipositor sparsely setose (fig. 1) to covered with dense, long setae.

Distribution: Southwestern United States and Baja California, Mexico.

GENUS *NOTHOMORPHOIDES* gen. nov. (figs 6-10; 16).

Type species: *N. irishi* sp. nov.

The single known species described below features the following characters of the genus:

Setae thin.

Submentum with a median anterior spine.

Genal scrobe developed in anterior half only (fig. 9).

Pronotum with five large depressions as in *Nothomorpha*; these depressions mild and rounded (fig. 9).

Prosternum without antennal depressions and median lobe on anterior margin (fig. 9).

Elytra with costae (sutural, fifth and ninth) slightly elevated, other interstices equal and even; striae with elongated punctures in grooves, narrower than interstices.

Hindwing with radial cell absent (fig. 10).

Pre-marginal carina on side of last abdominal sternite reduced in anterior half, carinate near apex only (fig. 9).

Ovipositor sparsely setose (fig. 6).

Distribution: western central South West Africa.

The genus *Nothomorphoides* agrees with *Nothomorpha* in the important character of the absence of a radial cell on the hindwing, and is closer to *Nothomorpha* than to *Acmaeoderoides* in several characters that show a transformation series between the three genera (viz. setae; pronotal depressions; ovipositor). It is also distributed with *Nothomorpha*, in South West Africa whereas *Acmaeoderoides* occurs in the southwestern United States.

On the other hand *Nothomorphoides* shares a number of characters with *Acmaeoderoides*, or is at least closer to that genus in the transformation series (viz. genal scrobe; prosternum; elytral costae; last abdominal sternite, elytral sculpture).

This combination of characters of *Nothomorphoides* makes it a clearly defined genus, well separated from both *Nothomorpha* and *Acmaeoderoides*. It also demonstrates the close relationship between the latter two genera, suggesting that the three genera should at least be placed in the same tribe.

Nothomorphoides irishi sp. nov. (Figs 6-10; 16).

SIZE: males 5,5 - 7 mm long x 2 - 2,5 mm wide; females 7,5 - 8,25 mm long x 3 mm wide. COLOUR of ♂ as in fig. 16, ♀ similar but brown areas on elytra darker, mostly black up to sides of elytra. Underside and appendages black in both sexes.

HEAD: with sides of frons straight, slightly attenuating to epistome; epistome angularly incised; middle of frons with depression; sculpture small umbilici of which about 16 fit across width of frons; setae recumbent to front, white, moderately short; genal scrobe ridged in anterior half, genae flattened in posterior half (fig. 9).

PRONOTUM: with mildly bisinuate anterior margin and more or less straight rear margin, the latter with file under the elytral bases, with sculpture and setation as on head; median pre-basal fossa small, lateral pre-basal fossae larger and surrounded by a depression; middle line slightly depressed and unsculptured; disc with four rounded depressions side by side (fig. 16); lateral carina developed in posterior third of length only (fig. 9).

SCUTELLUM: rounded, slightly transverse, projecting over pronotal base (fig. 16).

ELYTRA: with outline as in fig. 16; sutural costae (first interstices) flaring out slightly behind middle of length and exposing denticulate inner margins of elytra; interstices flat on top, numbers one, five and nine very slightly elevated, all interstices finely sculptured and with single lines of erect but backwardly inclined setae; setae as on head; striae narrower than interstices, with punctures sunk into grooves; epipleural lobe very large, covering metepisternum (fig. 9), margin evenly and sharply denticulate from behind metacoxa to around the rounded apex (fig. 9); elytra flat above.

UNDERSIDE: Prosternum straight and with thin rim (fig. 9), prosternal process blunt and square, received in cavity formed by mesosternum only; metacoxa with sharp angular projection in posterodistal corner (fig. 9); last sternite with tuberculate premarginal lateral carina in posterior half of length; sculpture and setae as on pronotum, except mesepisternum which is glabrous and finely chiselled.

APPENDAGES: with setae as on underside, but denser on distal parts of tibiae, front tibia with short brownish setal brush on distal half of inside; tarsi with white pads increasing in size from first to fourth tarsomere; tarsal claws with median tooth on inside; antenna with segments four to eleven dilated, segment two bulbous and as long as segment three (fig. 8), male with antenna reaching beyond procoxa female with shorter antenna reaching up to procoxa; hindwing see fig. 10; aedeagus see fig. 7; ovipositor see fig. 6.

The species was collected in a small area from three localities by J. Irish and H. Liessner, and is named after the first collector.

MATERIAL EXAMINED,

HOLOTYPE ♂: Lower Ostrich Gorge/20° 30' S; 14° 58' E/Swakopmund dist./8 May-5 June 1984/J. Irish, H. Liessner, H. 59065 (STATE MUSEUM WINDHOEK); 2♂ 4♀ PARATYPES: same data, 2, H 59064 (STATE MUSEUM, WINDHOEK; TRANSVAAL MUSEUM); 1♂ 2♀ PARATYPES: 6 km N Arandis/22° 22'S; 14° 59'E/Damaraland/10 April-8 May 1984/J. Irish, H. Liessner, H 59188 (♂) and H 59192 (1♂); 9♂, 3♀ Upper Ostrich Gorge/22° 29'S; 14° 59'E/Swakopmund dist./13 March-1 April 1984/J. Irish, H. Liessner, H 58368 (♂), H 59007 (♀) (STATE MUSEUM WINDHOEK; TRANSVAAL MUSEUM). State Museum Type number T 1156.

III. DISCUSSION

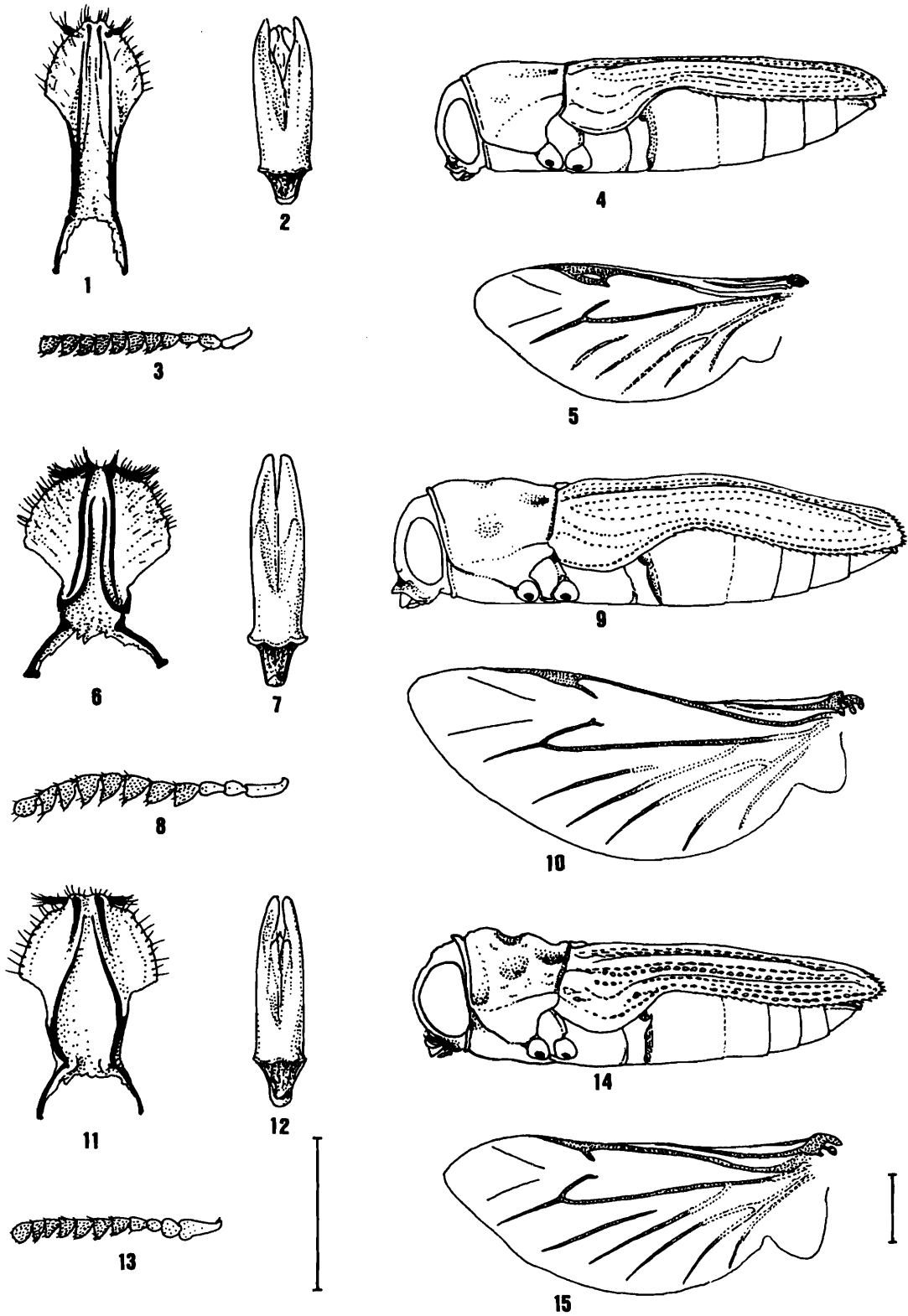
The curious distribution of the tribe Nothomorphi as it is known at present, suggests a very old margin for the group. The most likely history of the tribe seems to be a Cretaceous distribution from central West Africa and southwestern Africa to the higher elevations (above the Cretaceous seas) in north-eastern South America. The presence of *Acmaeoderoides* in southwestern North America is probably due to secondary invasion and radiation events resulting in the relatively rich species diversity and some apparently apomorphic features in that genus (development of ovipositor-setation and squamose setae, and reduction of sculpture in most of the species). In South America the tribe has probably either become extinct, or has simply not been collected. The tribe at present inhabits semi-arid shrublands on both continents, and this would be the most likely ecological niche of the ancestors. The biology of all three of the genera includes floricolous habits in the adults, similar to the *Acmaeoderini*.

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Figs 1 - 15:

Morphology of the genera of Nothomorphiini. 1 - 5. *Acmaeoderoides* ssp. 1. Ovipositor of *A. distincta* Nelson. 2. Aedeagus of *A. insignis* (Horn). 3. Antenna of *A. distincta*. 4. Left lateral view of torso of *A. distincta*. 5. Hindwing of *A. distincta*. 6 - 10. *Nothomorhoides irishi* gen. et spec. nov. 6. Ovipositor, 7. Aedeagus. 8. Antenna. 9. Left lateral view of torso. 10. Hindwing. 11 - 15. *Nothomorpha maior* Kerremans. 11. Ovipositor. 12. Aedeagus. 13. Antenna. 14. Left lateral view of torso. 15. Hindwing. (Scale at bottom centre represents 1mm for genitalia and antenna. Scale at bottom right represents 1 mm for lateral views and hindwings.)

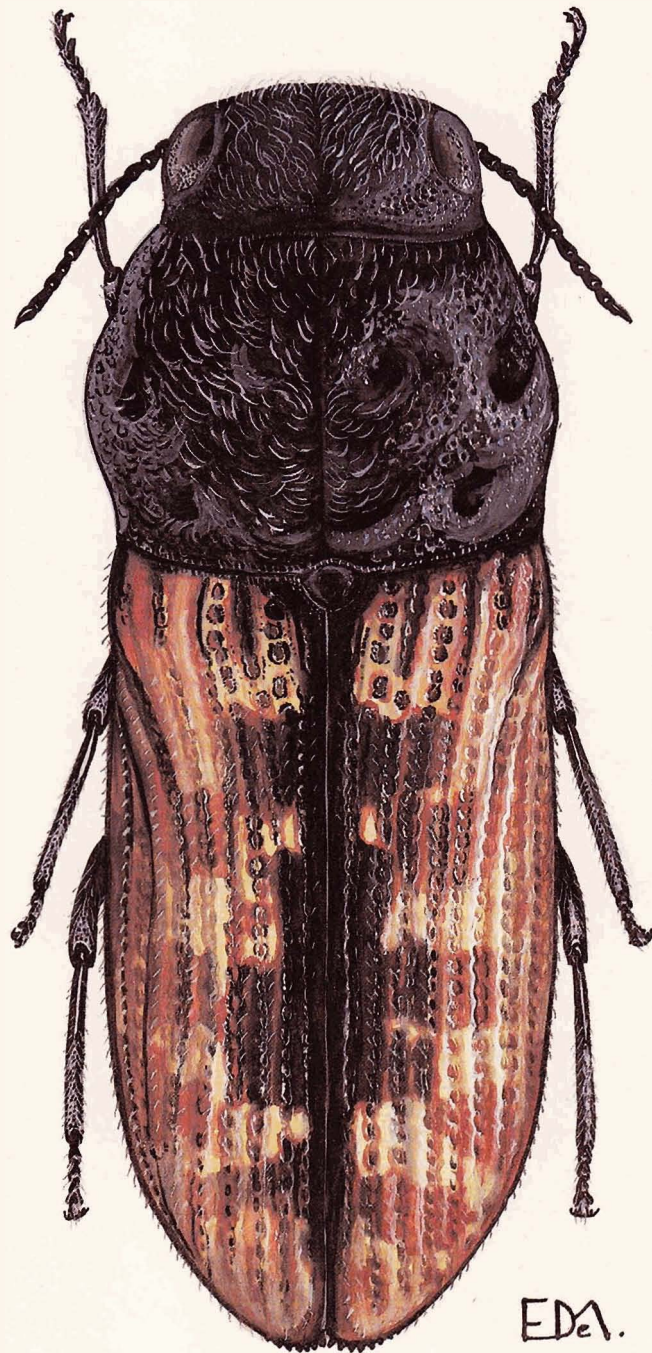


Fig. 16: *Nothomorphoides irishi* gen. et spec. nov. dorsal view. (Scale bar represents one mm.)