the genus *Heterocerus* (figs 20.105, 20.106), from the southern African region.

**Buprestoidea**

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Only one family, Buprestidae, is classified in this group.

**Buprestidae**

Buprestids are small to large (1.5–50 mm) torpedo- or wedge-shaped beetles. They are often beautifully coloured in bright metallic shades (plate IV). In some groups (Sphenopterinae, Chrysobothrininae and various genera in other subfamilies) the beetles are dull bronze or cryptically coloured, but have bright metallic colours on the upper side of the abdomen beneath the elytra, which only show in flight. These colours probably serve to confuse predators as they suddenly disappear when the beetle settles. A number of buprestids mimic blister beetles, wasps and heteropterans. Most buprestid larvae are wood borers. However, some bore in stems of forbs or grasses, are leaf miners, free-living root-feeders, or form galls. Typical buprestid larvae (fig. 20.119) are legless, have small heads and reduced antennae and a wide and flat thorax, which has earned them the misnomer of ‘flat-headed borers’. The abdomen is long and slender. The tunnels that these larvae excavate in wood are oval, as opposed to the round holes made by most other wood borers.

Most buprestids attack moribund rather than dead wood, and do not infest seasoned timber. Life cycles can be extremely long, with a case attaining over 35 years on record, and adults may rarely appear out of structural timber. *Bullis bivittata* has been recorded emerging from seasoned yellowwood boards in the eastern Cape Province. Adults often chew through the bark to just beneath the last layer. In this position they may enter a quiescent period for months or even years before they emerge. In contrast to the long larval development, adults generally seem to be short-lived once they have emerged from their host plant.

All buprestids are day-fliers. They are heat-loving (thermophilous) and are most active during the warmest parts of the day. *Melanophila nigripa* can tolerate 60°C, and has been recorded flying into camp fires and settling on red hot steel in steel mills in Pretoria.

A new higher classification system of the family was proposed in a key by Cobos (1980) in which the tribes of Lacoidaëre (1857) and the ‘groups’ of Kerremans (1892, 1893a, 1903) are elevated to subfamilies. The monographs of Kerremans (1904–1914) remain as a basis for current buprestid taxonomy. Obenberger (1931b,c) studied various African genera and species.
KEY TO THE SUBFAMILIES OF BUPRESTIDAE

1 Torpedo-shaped; head concealed by pronotum when viewed from above (fig. a) ........................................ Julodinae
Flattened or cylindrical; head visible from above .......... 2
2 Lateral margins of the pronotum with two more or less parallel carinae for the entire length; discal carina overhanging lateral carina (fig. b) ................... Mastogeninae
Lateral margins of pronotum without any, or with only one carina, often with short basal carina mediad to lateral carina (fig. c) ........................................ 3
3 Prosternal sutures apparently doubled (fig. d); sternal cavity insufficiently developed to receive sternal process (fig. e)........................................ Cylindromorphinae
Prosternal sutures clearly single; sternal cavity well developed and housing the sternal process (fig. f) .......... 4
4 Pronotum with a deep pit in the middle near the base, mostly with a similar pit on either side (fig. g) ......... 5
Pronotum without any pits near the base .................. 6
5 Third antennal segment about as long as second (fig. h) .......................................................... Acmaeoderinae
Third antennal segment about twice as long as second (fig. i) ........................................ Polycsetinae
6 Scutellum smooth, concave on sides and sharply pointed (fig. j) ................................................ Chrysobothrinae
Scutellum otherwise ............................................. 7
7 Outer margin of apical half of hind tibiae with a (continuous or broken) single row of densely placed setae (fig. k) ................................................................. 8
Outer and inner margin of hind tibiae with widely spaced setae (fig. l) ................................. 10
8 Third antennal segment longer than second (fig. m); frons between the eyes always narrowing towards the top (fig. n) ............................................. Duprestinae
Third antennal segment shorter than second (fig. o); frons between the eyes very rarely narrowing towards the top (fig. p) ........................................ 9
9 Distance between the middle coxae and the front coxae equal (fig. q); tarsi long, at least half as long as tibiae ....
................................. Agrilinae
Distance between the middle coxae greater than between the front coxae (fig. r); tarsi short, one third of the length of tibiae ............................................ Trachyinae
10 Scutellum small, rounded and blunt behind (fig. s), or concealed; head much narrower than anterior end of pronotum (fig. t) ................................ Chalchophorinae
Scutellum larger, broad and pointed behind (fig. u); nearly as wide as anterior end of pronotum (fig. v) (except for Genesia) .................................. Sphenopterinae
Julodinae

Julodines (fig. 20.122; plate IV: 11) are medium-sized to large (10–15 mm), torpedo-shaped beetles. Most species occur in the dry regions of the subcontinent. The best-known species are the large, impressive "brush-beetles" of the genus Julodis. In the savanna regions Sternocera orissa is commonly found on Acacia and Dichrostachys flowers.

The large (c. 5 mm) eggs are laid in the soil. The larvae are free-living root feeders. The subfamily is represented by five genera and 41 species. Holm (1979a) revised the julodine genera. Ferreira and Ferreira (1958a & b) reviewed the southern African species of Sternocera and Julodis, and Holm (1979b) the remaining three genera.

Polystenidae

These are medium-sized (9–25 mm) buprestids. Their distribution is disjunct and restricted to small areas on different continents. Most species have longitudinal grooves and ridges on the elytra (plate IV: 12).

The subfamily is represented by ten genera and 11 species. The classification of world Polystenidae was revised by Cobos (1980, 1981) and the African species were revised by Holm (1982, in press).

Acmaeoderinae

These are small to medium-sized beetles (5–15 mm) (plate IV: 4, 6, 8, 10). A unique feature of Acmaeoder a is that the elytra are fused and lifted together in flight. The small genus Nothomorpha is endemic to the Cape-Namaqualand region. The members of this genus are mottled brown and heavily sculptured on the dorsal surface. The large genus Acmaeoder a occurs throughout the subcontinent. Acmaeoderine larvae are wood borers, but many species bore in forbs or flowering stems of aloes. With very few exceptions, all adults are flower feeders. Many species seem to mimic wasps, bees, and hemipterans.

The subfamily is represented by two genera and 70 species. Holm revised the species of Nothomorpha (1976) and the sub-Saharan species of Acmaeoder a (1978).

Mastogeninae

The single representative in southern Africa, Mastogenius felix, is known only from Mariepskop in the eastern Transvaal Drakensberg.

Chalcophorinae

Members of this subfamily (fig. 20.121; plate IV: 2) are medium-sized to large (15–45 mm). Most are strikingly coloured in metallic shades. The genus Psiloptera (subgenus Damarsila), which accounts for most of the southern African chalcophorine species, occurs in bushveld savanna. The genus Oedisterna (c. 30 species) is endemic to the Cape-Namaqualand region. The largest species belong to the genus Steraspin, and are beautifully iridescently coloured. Agelia peteli is a mimic of meloid beetles of the genus Mylabris and they are often found together on Grewia shrubs.

The latest revision of southern African species was by Ferreira and Ferreira (1958b), and Ferreira (1959). The subfamily is well represented in the region with 11 genera and about 144 species.

Chrysobothrinae

Members of this subfamily are medium-sized (7–25 mm) with a characteristic pointed scutellum. Most species are dark bronze but a few species are metallic green or blue. The most important genus is the cosmopolitan Chrysobothris (fig. 20.117–20.120) with 30 species in southern Africa. Larvae (fig. 20.119) are wood borers, and after agrilines, the most common in moribund soft wood. Several species are pests in cultivated trees, but they rarely seem to cause serious damage in southern Africa.

The subfamily is represented in southern Africa by four genera and about 37 species. The small genera were last revised by Théry (1933) with Chrysobothris not having been revised since Kerremans (1893b).

Buprestinae

Buprestines are small to medium-sized (5–16 mm) beetles. Most are a dark bronze in colour, but many species of Anthaxia have bright metallic colours (plate IV: 5). Adults of most species visit flowers. Melanophila nigrita is amongst the most thermophilous insects known (see introduction).

The subfamily is well represented in southern Africa (about nine genera and 115 species). There have been no revisions of African buprestine genera.

Sphenopterinae

The sphenopterines are small to medium-sized (5–22 mm) and are mostly coloured in dark metallic shades. Many species are covered with a coloured waxy coat. In most species, the rear end of each elytron has three points. While most are wood borers, some species form galls in the living tissue just above the root crown of various plants, such as Gnidia and Loranthus, or bore in forbs.

The subfamily is represented by three small genera and the large genus Sphenoptera (fig. 20.112), with a total of 260 species in southern Africa. The last authoritative revision was that by Jakowleff (1903). Other important works were by Kerremans (1912–1914) and Obenberger (1928).
Agrilinae
These are small to medium-sized (3–20 mm) cylindrical beetles. A few species of Agrilus have been recorded as pests in southern Africa but they only infest ornamental plants.

Nobody has attempted to revise the African Agrilinae, although some major studies such as those by Obenberger (1931a, 1935) and Théry (1929a) have appeared. There are at least 30 genera and well over 300 species recorded from southern Africa. The large genus Agrilus (fig. 20.113, plate IV: 1) has 150 species in southern Africa.

Cylindromorphinae
The cylindromorphines are small (3–6 mm), cylindrical beetles, which are mostly dark metallic with a covering of setae. The larvae are leaf miners.

Cobos (1960) last revised the subfamily. There are four genera and about 50 species in southern Africa.

Trachynae
These are small (1.5–5 mm), mostly triangular, bronze to black beetles with areas of dense setae (plate IV: 7). Species of Aphanisticus are shiny black and elongate. The larvae (fig. 20.115) mine in leaves (fig. 20.116), grasses or sedges. Several species of Trachys (figs 20.114–20.116) have been recorded as pests elsewhere, but only one species damages mealies on rare occasions in southern Africa.

The subfamily is represented by five genera and about 170 species in southern Africa. Cobos (1979) revised the supraspecific groups of the subfamily. Of the many papers in which species are described, the largest and most recent are those by Obenberger (1938) on Trachys and Théry (1929b) on Aphanisticus.

Plate IV Order Coleoptera: Buprestidae  
1 Agrilinae: Agrilus grandis 14 mm. 2 Chalcophorinae: Chrysochraea lepida 22 mm. 3 Agrilinae: Anadora mechowii 19 mm. 4 Acmaeoderinae: Acmaeodera (Paracmaeodera) punctatissima 7 mm. 5 Buprestinae: Anthaxia obtectans 7 mm. 6 Acmaeoderinae: Acmaeodera (Ptychomus) ferrandi 15 mm. 7 Trachyinae: Galbella (Xenogabella) hantamensis 9 mm. 8 Acmaeoderinae: Acmaeodera (Rugacmaeodera) stellata 10 mm. 9 Polystelinae: Polycetis magnifica 17 mm. 10 Acmaeoderinae: Acmaeodera (Acmaeodera) louwi 10 mm. 11 Julodinae: Neojulodis tomentosa gnaphalon 17 mm. 12 Polystelinae: Castaliella laesicollis 18 mm. (1–12 del. E. Holm)