3. FAMILY TREATMENTS

ARCHOSTEMATA

Archostemata shares with members of the Myxophaga and Adephaga the presence of an external propleuron (somewhat reduced in Torridincolidae, fused to the notum and sternum in Micromalthidae and not clearly indicated in available images of Jurodidae), the absence of cervical sclerites, and a type of hind wing venation (Fig. 24B) in which RA_{1+2} and RA_{3+4} do not meet apically to form a radial cell, cross-veins between RP and MP_{1+2} form an obongum cell, the radial bar bears a short, relatively abrupt bending zone (Fig. 29E), and a major transverse fold crosses the medial bar (MP_{1+2}) forming a sharp hinge. Most Archostemata differ from all other beetles in having a well developed, visible metatrochantin (Fig. 21D), but this absent in Micromalthidae and not clearly indicated in the available images of Jurodidae and Crowsoniellidae. As in Myxophaga, the wing apex is spirally rolled (Figs 23B, 29E). In contrast to Adephaga, adults have movable metacoxae and five (rather than six) ventrites and larvae are wood-boring, with large mandibular molae and a ligular sclerome. In Cupedidae, the testes are not tubular and there are four Malpighian tubules. Myxophaga differ in having the larval tibia and tarsus fused to form a tibiotarsus and in a suite of larval and adult adaptations to an aquatic or riparian existence. The suborder includes five families, two of which occur in Australia. Micromalthidae contains a single species, *Micromalthus debilis* LeConte, which is native to North America but introduced to various parts of the world in decayed structural timber (Philips and Young 2000; Beutel and Hörnschemeyer 2002b; Hörnschemeyer 2005, 2009). Crowsoniellidae is also monotypic with *Crowsoniella relicta* Pace known from a single locality in central Italy (Pace 1976; Crowson 1976; Hörnschemeyer 2005, 2009). Jurodidae is based on a few Jurassic fossils from the eastern Palaearctic and the extant *Sikhotealinia zhiltovae* Lafer from Far Eastern Russia. Although tentatively included in this suborder, the wing venation (based on photos and drawings) is of the polyphagan type and access to the single known specimen is limited (Lafer 1996; Kirejtshuk 1999; Hörnschemeyer 2005). [Ponomarenko 1969; Crowson 1975; Lawrence *et al*. 1987; Neboiss 1989; Galian and Lawrence 1993; Grebennikov 2004b].

1. OMMATIDAE

Adult (Figs 1A, 54A, C, 68A)

Length 6–26 mm. Body ~2.4–3 times as long as wide, usually widest at posterior third; sides of pronotum and elytra slightly, independently rounded, slightly flattened dorsally, distinctly so ventrally; colour uniformly dark brown to black; upper surfaces usually tuberculate, the tubercles spine-like in *Omma rutherfordi* Lawrence, and clothed with short, slightly thickened, decumbent setae in *O. stanleyi* Newman or with flattened, ribbed scales which differ in colour and form a distinct pattern in other species of *Omma*, and interspersed with stout, erect setae in *O. rutherfordi*.

Head prognathous, always constricted posteriorly to form a neck, but distinct temples absent in *O. rutherfordi*. Occipital region with moderately long endocarina. Eyes usually relatively small and not protuberant, larger and strongly protuberant in *O. stanleyi*, entire, very finely facetted, without interfacetal setae. Antennal insertions lateral, barely concealed by frontal ridges, which are strongly produced in *O. rutherfordi*; subantennal groove absent. Frontoclypeal suture absent. Labrum fused to clypeus. Antennae usually short (moderately long in *O. rutherfordi*), 11-segmented and filiform. Mandible short and broad, broadly tridentate, without mola or prostheca; dorsal surface near base with setose cavity. Maxilla highly reduced and partly concealed by mentum, galea and lacinia slender, hyaline and setose, the latter shorter, without uncus; palps moderately well developed; apical palpomere expanded and securiform with small cavity bearing sensilla near outer edge of upper surface (Fig. 16F). Mentum about as long as wide, concealing small, rounded ligula and palpal insertions; apical palpomere expanded and secufirom, with similar sensorial cavity. Gular sutures well separated; gula longer than wide. Corpotentorium weakly developed or absent. Cervical sclerites absent.

Pronotum ~0.75–1.0 times as long as wide, widest anteriorly with sides more or less straight posteriorly and weakly rounded anteriorly. Lateral pronotal carinae absent, anterior angles not produced forward; posterior angles right or slightly rounded; posterior edge straight; disc slightly convex with shallow transverse impression anteriorly and sometimes an additional one posteriorly. Prosternum in front of coxae distinctly longer than mid length of procoxal cavity, moderately convex, with transverse impression in *O. stanleyi*, partly or completely fused to pleuron (pleurosternal suture incomplete or absent), without paired crural impressions. Prosternal process incomplete, narrowed apically and acute at apex. Notopleural suture complete to anterior edge, never joined by pleurosternal suture. Procoxae subglobular, not strongly projecting, without concealed lateral extensions, without or with reduced coxal plates; trochantin large, well sclerotised, broadly exposed and abutting sternum and pleuron. Procoxal cavities slightly transverse, contiguous, broadly open externally and internally.

Scutellar shield somewhat abruptly elevated, anteriorly simple, posteriorly expanded and truncate. Elytra ~1.9–2.4 times as long as combined width and 3.6–4.8 times as long as pronotum, complete with independently subacute to acute apices (almost contiguous in *O. stanleyi*); disc with ten rows of window punctures and no scutellary striole; epipleura moderately broad and complete. Mesoventrite separated by complete sutures from mesanepisterna, which are well separated from one another; anterior edge on same plane as metaventrite; at middle with acute anterior projection separating paired procoxal rests extending onto mesanepisterna, mesoventral cavity absent; discrimen moderately long and transverse (mesokatepisternal) suture incomplete (not always visible externally). Mesoventral process divided into two short, acute processes.