

The Australian species are arboreal and live in a wide range of terrestrial habitats. They have been collected from the leaves of mangrove trees, in tropical and subtropical rainforest, and in the vine thickets of eastern Queensland, northern and north-western Australia.

Whether the Australian species are accidental introductions and hence synonyms of widespread species, or whether they are true endemics, remains to be determined. *Tornatellinops* and *Elasmias* species are often found living together, but the lack of more detailed studies makes it difficult to comment on species ranges and overlap.

The family is represented in the fossil record by *Anthracopupa* (Solem & Yochelson 1979) which is recorded from the Upper Carboniferous of North America. If this interpretation is correct it indicates that a major shift in distribution of the family has taken place since the Palaeozoic.

Superfamily CIONELLOIDEA

Cionelloideans are small to large terrestrial snails that usually have a dextral shell (occasionally sinistral) which is usually ovate-conic or high-spired and turreted. The shell is either glossy and monochrome or dull with distinct colour patterns. The aperture may contain columellar lamellae. The lip is either simple or prominently thickened. The radula has a narrow, tricuspidate central tooth, the laterals are bicuspidate with a quadrate basal plate, and the marginals are multicuspidate. The ureter is recurved at the tip. An epiphallus and flagellum, or caecum, are present on the penis. The penial retractor muscle is simple and inserted on the penis. Cionelloideans are hermaphroditic, oviparous or ovoviviparous.

Two families are recognised. The Amastridae are restricted to the Hawaiian Islands. The Cionellidae are endemic to North Africa and Central Europe, but have been introduced to Australia and other parts of the world.

Family Cionellidae

This family of terrestrial snails is native to northern Europe and North America. Cionellids have small, elongate, glossy shells up to 7 mm in length. One species, *Cionella lubrica*, has been introduced into southern Australia (Smith 1992). It was first recorded in southern Western Australia by Kendrick & Sedgwick (1973) and subsequently recorded from several localities in south-eastern Australia by Smith & Kershaw (1979).

The shell is dextral, small and elongate. The aperture is ovate with a steeply sloping parietal wall, the columella is straight and the lip is not expanded or thickened within (Fig. 17.41A). These two latter characters help to separate *Cionella lubrica* from the only Australian species of the Ferrussaciidae, which is otherwise very similar. The shell is smooth and glossy and light horn-coloured. The animal is dark in colour with no peripodal groove or caudal gland.

Cionella lubrica is a detritus-feeder. The jaw is arcuate and closely plaited. The radula has few teeth; the tricuspidate central tooth is narrow, the bicuspidate laterals have a quadrate basal plate and the marginals are multicuspidate (Fig. 17.41B). The pericardium is much shorter than the kidney, which is narrowly triangular and long, and passes into a direct ureter. The pulmonary cavity has fine capillary reticulation, without visible branches in the principal pulmonary vein (Boss 1982).

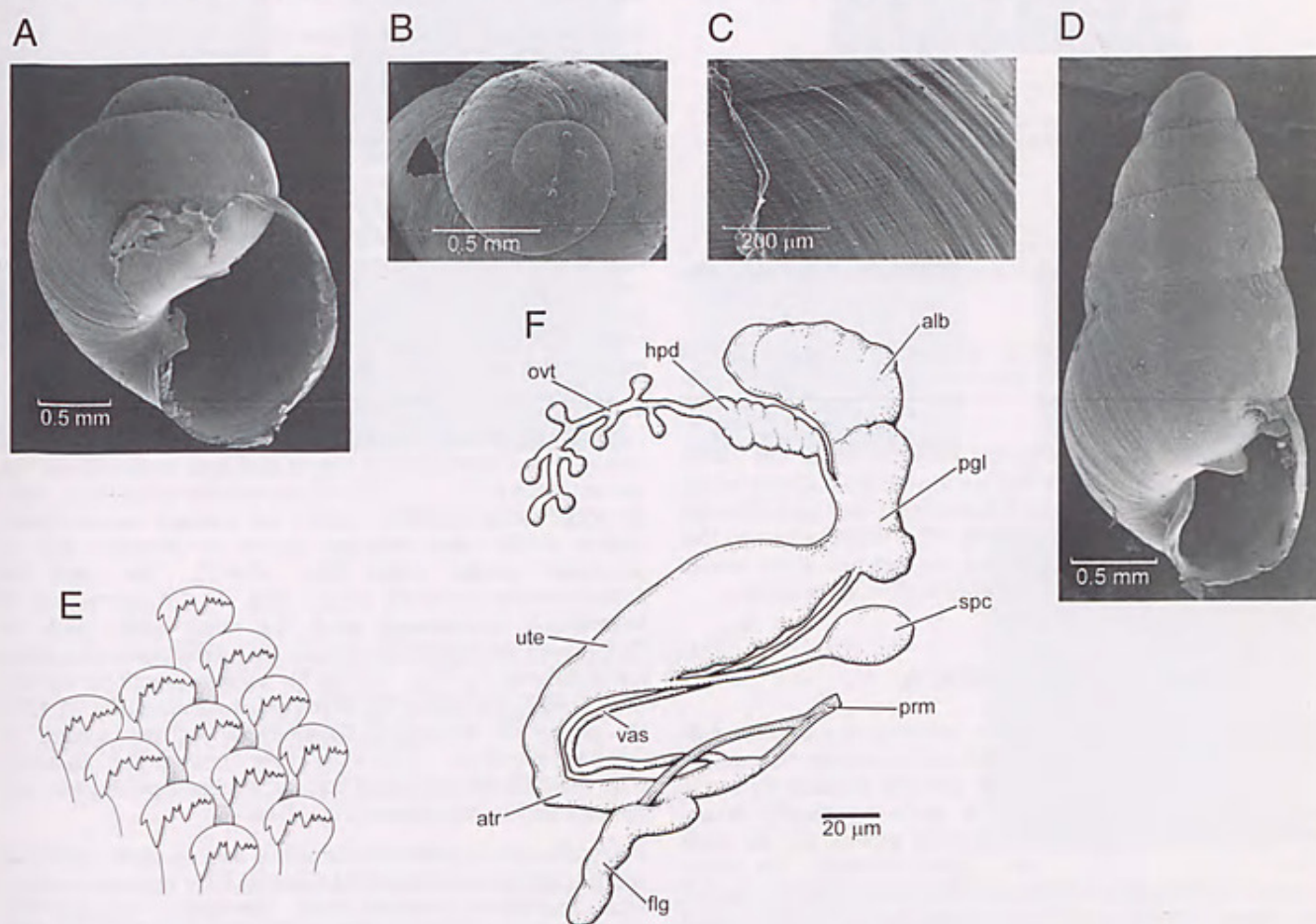


Figure 17.40 Family Achatinellidae. A–C, *Elasmias wakefieldiae*: A, shell, apertural view; B, apical shell sculpture; C, shell sculpture of a mature specimen. D, *Tornatellinops jacksonensis*, shell, apertural view. E, F, *Tornatellinops variabilis*: E, portion of radula showing some teeth which are arranged in V-shaped rows; F, reproductive tract. alb, albumen gland; atr, atrium; flg, flagellum; hpd, hermaphroditic duct; ovt, ovotestis; pgl, prostate gland; prm, penial retractor muscle; spc, spermatheca; ute, uterus; vas, vas deferens. (E, F, after Odhner 1922)

[A–D, Queensland Museum; E, C. Eadie; F, B. Scott]



Stanisic, John. 1998. "Pulmonata: Superfamily Cionellidea." *Mollusca: The Southern Synthesis [Fauna of Australia. Vol. 5]* 5, 1081–1081.

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