prolegs on A3 to A5, as do their sister clade. However, extra prolegs are missing in the larvae of *Dirce*. Both *Acalyphes* and two species of *Dirce* feed on primitive endemic conifers, whereas *D. solaris* and *D. lunaris* are associated with Epacridaceae and Myrtaceae respectively. *Archiearis* is placed well outside most of the Australian ennomine genera analysed in a wider study.

On this evidence we conclude that the Australian "Archiearinae" are derived from an endemic Australian ennomine group, and that feeding on conifers is a derived rather than ancestral trait. Australian Myrtaceae are rich in essential oils such as alpha-pinene and cineole, so later adoption of conifers as foodplants may not be extraordinary. Their relationship to phenotypically similar southern Andean archiearine taxa, such as *Archiearides* Fletcher and *Lachnocephala* Fletcher, remains to be critically analysed. Extra prolegs in geometrid larvae appears to be a highly labile character, at least in some Australian higher taxa.

Some results of taxonomic research on larentiine moths from the Australasian region

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Schmidt, O. (2003): Some results of taxonomic research on larentiine moths (Lepidoptera: Geometridae) from the Australasian region. – Spixiana **26/3**: 204

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The Larentiinae are very diverse in the Australasian region. In Australia, the subfamily comprises about 280 described species in 46 genera. Larentiine moths are found in a variety of habitats from dry sclerophyll areas to rainforests. In Australia they are particularly diverse in the south-eastern tablelands and mountains, including Tasmania.

The main part of my research interest focuses on understanding phylogenetic relationships within larentiine geometrid moths at a higher taxonomic level. Current classifications of the subfamily are mostly based on taxa from the Holarctic region but a wider geographical approach is required. Taxonomic revisions of groups from other zoogeographical regions will provide the basis for creating a natural classification. In this respect taxonomic studies of genera from the Australasian region are important. In Australia, I reviewed the genera *Anachloris* Meyrick, *Chaetolopha* Warren, *Parachaetolopha* Schmidt, and *Scotocyma* Turner, as detailed below.

The Australasian genus *Anachloris* now includes three species. Their larvae feed on several species of *Hibbertia* (Dilleniaceae). Colour dimorphism was observed in later larval instars. Study of external characters and genitalia, as well as male genitalia musculature, revealed that the genus *Anachloris* does not belong to the tribe Hydriomenini in which it is currently placed. Six Australian species were assigned to the genus *Chaetolopha*, while for eight Papuan high altitude species a new genus, *Parachaetolopha*, was erected. A phylogenetic analysis yielded strong support for the separation of *Parachaetolopha* from *Chaetolopha* and the monophyly of *Parachaetolopha* is supported by ten synapomorphies. The Australasian genus *Scotocyma* is diverse in tropical and subtropical regions. Larvae of the type species, *S. albinotata*, feed on *Coprosma repens* (Rubiaceae). The tribal position of the genus is investigated. Several morphological characters support its placement in the tribe Xanthorhoini.