

# A PHYLOGENETIC SUBDIVISION OF AUSTRALIAN SKINKS

ALLEN E. GREER

The Australian Museum, Sydney

Skinks are the largest and most diverse of the five families of lizards in Australia. The most recent review of the lizard fauna, for example, recognizes 193 species (54 percent of the total; Cogger 1975), but as a result of recent work by several collectors, we now know of at least 242 species. Furthermore, new species are being discovered at a faster rate than in any other family of Australian reptiles (pers. obs.).

Quite justifiably, Australian skinks are receiving considerable attention from researchers whose interests range from cytogenetics (e.g., King 1973 a and b and Donnellan 1977) and ecology (e.g., Barwick 1965, Bustard 1970, Pengilley 1972, Pianka 1969, Robertson 1976, Smyth 1968, Smyth and Smith 1968 and Spellerberg 1972 a-d) to systematics (e.g., the many papers of Storr cited at the end of this paper) and zoogeography (e.g., Horton 1972, Pianka 1972 and Rawlinson 1974 a).

Given the numbers and diversity of Australian skinks and the interest in them, it may be useful to present a subdivision of this fauna that reflects major phylogenetic lineages. Hopefully, such a subdivision will provide a broad conceptual framework for synthesizing both old and new information about these animals.

## MATERIALS AND METHODS

All the skinks in Australia, and indeed in the Australian Region, are members of the subfamily Lygosominae, the largest, most diverse and most widespread of the four subfamilies currently recognised (Greer 1970 a)<sup>1</sup>. Several distinct groups are recognisable within lygosomines (Greer 1970 b, 1974 and 1977) and three of these occur in Australia. In this paper these groups will be called the *Egernia*, *Eugongylus* and *Sphenomorphus* groups. They can be diagnosed by the means of eight characters: two of osteology, four of squamation, one of colour and one of internal soft anatomy.

A list of the specimens examined for this paper would be very long, hence it may be more realistic to give only a general account of the material examined. The first osteological character, the total number of premaxillary teeth, has been surveyed for a large number of specimens of most Australian species (Table 1) but only a few specimens, often only one, in a variety of non-Australian species. This disparity is due to the availability of large series of Australian skinks which have been preserved with their mouths open as opposed to, generally, only single dried skulls of non-Australian species.

The other osteological character, the condition of Meckel's groove, has been surveyed in at least a single species of each genus or major species group with the exception of the following very rare taxa: *Phoboscincus* and *Tachygyia*.

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1. Rawlinson (1974 a) has suggested that *Egernia* and *Tiliqua* are representatives of the subfamily Scincinae (sensu Greer 1970 a), a primitive and now somewhat relictual subfamily that was almost certainly ancestral to the lygosomines. I do not believe that the evidence supports this suggestion but defer discussion of it to another paper.