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A new genus to accommodate three skinks currently assigned to *Menetia* (Lacertilia: Scincidae)

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Menetia timlowi Ingram 1977 has had a chequered generic history due to ambiguity in interpreting its various character states. Ingram (1977) assigned this species to *Menetia* on the strength of “the long narrow obliquely oriented first supraocular” and “enlarged upper circumoculars”. In doing so, he admitted the possibility that *M. timlowi* “may in fact be a *Carlia*” but because “all *Carlia*, except *burnetti*, lack fused lower eyelids and have a typically anvil shaped presubocular”, allocating *timlowi* to *Menetia* seemed the best available option. Ingram and Covacevich (1988) revisited the generic status of this species when resurrecting *Lygisaurus* from the synonymy of *Carlia* to accommodate a group of small leaf-litter dwelling skinks. In proposing the new combination *L. timlowi* (Ingram 1977), they considered the supraoculars to be transverse whereas Ingram had stated them to be oblique in his original species description.

The generic assignment of *L. timlowi* was next considered by Greer (1991) when he described two new species from north-east Queensland: *Menetia koshlandae* Greer 1991 and *M. sadlieri* Greer 1991. On morphological grounds, this author considered *L. timlowi* to be closely allied with his new species and presented a suite of diagnostic characters that clearly separated *timlowi* from *Lygisaurus* (supraoculars three or two, only first contacting frontal; eyelid preablepharine or completely ablepharine; postsupralabials single; auricular lobules absent; modal number of presacral vertebrae ≥ 28 ; number of paravertebral scales 52–66). Greer (1991) therefore reassigned *timlowi* back to *Menetia*. The conclusion that *timlowi* does not belong in *Lygisaurus* was subsequently well-supported by genetic data (Dolman & Hugall 2008; Pyron *et al.* 2013).

Within *Menetia*, Greer (1991) recognised two distinct species groups: an *M. timlowi* group (comprising *M. timlowi*, *M. koshlandae*, *M. sadlieri*), and an *M. greyii* group (comprising *M. alanae* Rankin 1979, *M. amaura* Storr 1978, *M. concinna* Sadlier 1984, *M. greyii* Gray 1845, *M. maini* Storr 1976, *M. surda* Storr 1976). Greer (1991) recognised the two subgroups based on a number of morphological characters, including the state of the interparietal, the number and relative size of the supraciliaries, the number of supraoculars, the state of the eyelid, and the number of supradigital scales on the fourth toe of the pes. These characters are covered in detail below (Table 1). Greer (1991) also noted the difference in distribution of these two subgroups: the *M. timlowi* species group occurs in eastern Queensland, whereas the *M. greyii* subgroup is widespread in the interior, west and north of Australia. Despite outlining morphological characters that unite and differentiate the two subgroups, Greer (1991) did not split *Menetia*. As a result, doubt has persisted regarding the placement of the ‘*timlowi* group’ within *Menetia* (e.g., Stuart-Fox *et al.* 2002; Wilson & Swan 2013).

Genetic data clearly shows that *Menetia*, as currently recognised, is not monophyletic. Pyron *et al.* (2013) constructed a phylogeny of Squamata, using sequence data from seven nuclear genes and five mitochondrial genes across 4161 species. The tree contains good representation of Australian skink species, including representatives of all the genera and subgroups of interest here. *Menetia greyii*, the type species for *Menetia*, is included, as is *M. timlowi*, the ‘type species’ for the *M. timlowi* group defined above. (see Appendix 1 for details of *Menetia* specimens sequenced). These two species sit in completely different parts of the tree, separated by many genera (Pyron *et al.* 2013; page 14). *Menetia greyii* is a well-supported sister-species to *M. alanae*, the only other *Menetia* included in the study, and these two species are in turn allied to *Emoia*, then *Cryptoblepharus*. *Menetia timlowi* is a highly divergent lineage allied to *Carlia*, *Lygisaurus* and *Liburnascincus*. As for Dolman & Hugall (2008), *M. timlowi* sits outside of *Carlia* and *Lygisaurus* (Pyron *et al.* 2013). Support values across nodes separating *M. greyii* and *M. timlowi* in the tree are high. Although the phylogeny of Pyron *et al.* (2013) does not contain *M. koshlandae* and *M. sadlieri*, unpublished mtDNA data

The '*timlowi*' species group is separated from *Menetia*, to which it was most recently assigned by at least 14 characters (1–14 in Table 1). The polarity of most of these characters remains uncertain. One of these is clearly a derived character (Greer 1991): frontoparietals fused with interparietal to form a single shield (*vs* interparietal distinct from fused frontoparietals) and is a very rare condition seen in only a few other Australian skinks (Greer 1991). Two other characters are most likely derived (15 and 16 in Table 1) but each is only diagnostic for two of the three *Pygmaeascincus*. The first is a reduced number of supraoculars. A reduction from the plesiomorphic condition of four supraoculars (Greer 1991) is derived in both *Pygmaeascincus* and *Menetia*, but in *Menetia* there are always two supraoculars whereas two of the three *Pygmaeascincus* have 3 (Table 1). The second is the presence of enlarged upper palprebrals in *P. timlowi* and *P. sadlieri*, a condition that appears to be unique within skinks (Greer, 1991).

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APPENDIX 1. Genbank sequence numbers for material used in the analyses of Pyron *et al.* (2013) and the corresponding registration numbers for specimens lodged in Australian Museums.

Identification	Genbank sequence no.	Specimen registration no.
<i>M. alanae</i>	AY364910	NTM R21780 (Museum & Art Gallery of the NT)
<i>M. greyii</i>	AY364930	SAMA R38106 (South Australian Museum)
<i>M. timlowi</i>	AJ290552	QM J63955 (Queensland Museum)