Zootaxa 3884 (6): 597–599
www.mapress.com/zootaxa/

Correspondence

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3884.6.8
http://zoobank.org/urn:lsid:zoobank.org:pub:2E8C59B0-8EBB-4D22-A317-2C4CB6833CA9

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

PATRICK J. COUPER[1] & CONRAD J. HOSKIN[2]

[1]*Natural Environments Program, Queensland Museum, PO Box 3300, South Brisbane, Queensland 4101, Australia.*
E-mail: patrick.couper@qm.qld.gov.au
[2]*Centre for Tropical Biodiversity & Climate Change, School of Marine & Tropical Biology, James Cook University, Townsville, Queensland 4811, Australia*

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

Accepted by L. Grismer: 30 Oct. 2014; published: 19 Nov. 2014

for Eugongylus skinks (Sally Potter & Craig Moritz, Australian National University), shows that *M. timlowi*, *M. koshlandae* and *M. sadlieri* are a monophyletic, closely related group well-separated phylogenetically from other *Menetia* sequenced.

Herein, we present numerous morphological characters demonstrating that the *M. timlowi* group is not congeneric with *Menetia,* and we propose a new genus to accommodate these three species.

Pygmaeascincus gen. nov.

Type species. *Pygmaeascincus timlowi* (Ingram 1977)

Species. *P. timlowi* (Ingram 1977), *P. koshlandae* (Greer 1991), *P. sadlieri* (Greer 1991).

Etymology. From the Latin *pygmaea* for pygmy. Referring to the very small size of the three species. These skinks, at SVL < 30 mm, are amongst the smallest skinks in the world (Greer 2001).

Diagnosis. *Pygmaeascincus* is a genus of small litter skinks that is distinguished from all other Australian skinks by the following character states: small size (SVL < 30 mm); limbs short and widely separated when adpressed; digital formula 4/5 (four fingers, five toes) with ≤ 10 supradigital scales on fourth toe; frontoparietals and interparietal fused into a single shield; eyelid preablepharine; supraoculars transverse, ≤ 3, squarish, with only the 1st contacting the frontal.

TABLE 1. A comparison of character states in *Pygmaeascincus* and *Menetia*. Definition of traits: 1. Interparietal fused with frontoparietal as single shield, or interparietal free. 2. 1st supraocular shape: squarish (*for *P. timlowi* this is the typical condition, but in the rarer case of just 2 supraoculars, the 1st supraocular is elongate) *vs* elongate (distinctly longer than wide). 3. Number of supraciliaries. 4. Size of supraciliaries. 5. Eyelid state: (A) preablepharine, (B) ablepharine. 6. Modal number of midbody scales. 7. Modal number of subdigital lamellae under 4th toe. 8. Number of supradigital scales on 4th toe. 9. Pefrontals: (A) moderate, smaller than frontal, (B) large, subequal to frontal. 10. Spacing between prefrontals: (A) moderate, (B) very narrow or in point contact. 11. Nasals: (A) small, (B) moderate. 12. Colour of iris in preservative. 13. Breeding males with orange flush on tail. 14. Venter colour pattern: (A) sparsely to heavily flecked, (B) light brown, (C) whitish. 15. Number of supraoculars. 16. Enlarged upper palprebrals.

Character	*P. timlowi*	*P. sadlieri*	*P. koshlandae*	*M. greyii*	*M. alanae*	*M. cocinna*	*M. maini*	*M. surda*
1. interparietal	fused	fused	fused	free	free	free	free	free
2. 1st supraocular	squarish*	squarish	squarish	elongate	elongate	elongate	elongate	elongate
3. supraciliaries	5–6	5	5	4	4	4	3	3–4
4. size of supraciliaries	subequal	subequal	subequal	2nd largest	2nd largest	2nd largest	2nd largest	2nd largest
5. eyelid	A	A	A	B	B	B	B	B
6. midbodies	18–20	20	20	22	23	20	22	22
7. subdig. lam.	16	15	16	22	23	18	19	22
8. supradig. lam.	≤ 10	≤ 10	≤ 10	≥ 11	≥ 11	≥ 11	≥ 11	≥ 11
9. pefrontal size	A	A	A	B	B	B	B	B
10. prefrontal spacing	A	A	A	B	B	B	B	B
11. nasals	A	A	A	B	B	B	B	B
12. iris colour	dark	dark	dark	light	light	light	light	light
13. orange flush on tail of males	yes	yes	yes	no	no	no	no	no
14. ventral colour pattern	A	B	B	C	C	C	C	C
15. supraoculars	usually 3	2	3	2	2	2	2	2
16. upper palprebrals	enlarged	enlarged	not enlarged	not enlarged	not enlarged	not enlarged	not enlarged	not enlarged

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).

Acknowledgements

We thank Sally Potter and Craig Moritz (Australian National University) for allowing us to quote their unpublished genetic data.

References

Dolman, G. & Hugall, A. (2008) Combined mitochondrial and nuclear data enhance resolution of a rapid radiation of Australian rainbow skinks (Scincidae: *Carlia*). *Molecular Phylogenetics and Evolution*, 49, 782–794. http://dx.doi.org/10.1016/j.ympev.2008.09.021

Ingram, G.J. (1977) Three species of small lizards—two of them new. *The Victorian Naturalist*, 94, 184–187.

Ingram, G.J. & Covacevich, J. (1988) Revision of the genus Lygisaurus De Vis (Scincidae: Reptilia) in Australia. *Memoirs of the Queensland Museum*, 25 (2), 335–354.

Greer, A.E. (1991) Two new species of *Menetia* from northeastern Queensland, with comments on the generic diagnoses of *Lygisaurus* and *Menetia*. *Journal of Herpetology*, 25, 268–272. http://dx.doi.org/10.2307/1564583

Greer, A.E. (2001) Distribution of maximum snout-vent length among species of scincid lizards. *Journal of Herpetology*, 35, 383–395. http://dx.doi.org/10.2307/1565956

Pyron, R.A, Burbank, F.T. & Wiens, J.J. (2013) A phylogeny and revised classification of Squamata, including 4161 species of lizards and snakes. *BMC Evolutionary Biology* 2013 13, 93. http://dx.doi.org/10.1186/1471-2148-13-93

Stuart-Fox, D., Hugall, A. & Moritz, C. (2002) A molecular phylogeny of rainbow skinks (Scincidae: *Carlia*): taxonomic and biogeographic implications. *Australian Journal of Zoology*, 50, 39–51.

Wilson, S. & Swan, G. (2013) *A complete guide to reptiles of Australia*. New Holland Publishers, Australia, 592 pp.

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.**
M. alanae	AY364910	NTM R21780 (Museum & Art Gallery of the NT)
M. greyii	AY364930	SAMA R38106 (South Australian Museum)
M. timlowi	AJ290552	QM J63955 (Queensland Museum)