



Taxonomic revision of the ornate skink (*Oligosoma ornatum*; Reptilia: Scincidae) species complex from northern New Zealand

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Abstract

Although the New Zealand skink fauna is known to be highly diverse, a substantial proportion of the recognised species remain undescribed. We completed a taxonomic revision of the ornate skink (*Oligosoma ornatum* (Gray, 1843)) as a previous molecular study indicated that it represented a species complex. As part of this work we have resolved some nomenclatural issues involving this species and a similar species, *O. aeneum* (Girard, 1857). A new skink species, *Oligosoma roimata* sp. nov., is described from the Poor Knights Islands, off the northeast coast of the North Island of New Zealand. This species is diagnosed by a range of morphological characters and genetic differentiation from *O. ornatum*. The conservation status of the new taxon appears to be of concern as it is endemic to the Poor Knights Islands and has rarely been seen over the past two decades.

Key words: Aorangi skink; morphology; New Zealand; North Island; *Oligosoma roimata* sp. nov.; Poor Knights Island; taxonomy, *Oligosoma ornatum*; *Oligosoma aeneum*

Introduction

The New Zealand squamate reptile fauna is highly diverse and is comprised of two lizard families, the Scincidae (54 species) and the Diplodactylidae (42 species) (Hitchmough *et al.* 2013). Despite this recognised diversity, a substantial proportion (41%) of the lizard fauna remains undescribed (Chapple *et al.* 2009; Nielsen *et al.* 2011). A recent surge in taxonomic activity has resulted in the description of 10 new skink species since 2007 (Chapple & Patterson 2007; Bell & Patterson 2008; Chapple *et al.* 2008a,b, 2011; Patterson & Bell 2009); however, at least a further 16 skink taxa await formal description (Hitchmough *et al.* 2013). All native New Zealand skinks are placed in the genus *Oligosoma* (Girard, 1857) (Chapple *et al.* 2009). Here we complete a taxonomic revision of the ornate skink (*Oligosoma ornatum*), a taxon that a recent molecular study indicated may represent a species complex (Chapple *et al.* 2008c).

Oligosoma ornatum is a species that has a widespread distribution across the majority of the North Island of New Zealand, including several smaller offshore islands (Chapple *et al.* 2008c). Like many other widespread skink species in New Zealand, *O. ornatum* has had a long and confused nomenclatural history. Gray (1843) established the name *Tiliqua ornata*, and over the next decade the species was moved between six different genera. However, McCann (1955) misapplied the specific epithet *ornata* (as *Leiolopisma ornata*) to the species now identified as *Oligosoma zelandicum* (Gray, 1843). Although he correctly identified the specific epithet *aenea* (as *Leiolopisma aenea*) with the species currently known as *Oligosoma aeneum* (Girard, 1857), he used it only for populations in the southern half of their range. In addition, he introduced a new name *Sphenomorphus pseudornatus* McCann, 1955 for a compound taxon which included northern populations of *O. aeneum* plus the two species which are the focus of this paper. McCann (1955) based the name on Gray's 1843 types for *Tiliqua ornata*, therefore *Sphenomorphus pseudornatus* is an objective junior synonym of *Oligosoma ornatum*.

the Three Kings animals are very distinctive compared to their mainland counterparts (Figure 5), with a more elongate body and higher scale counts, particularly the midbody and ventral scales. The Three Kings Islands populations are not genetically distinct from those found on the neighbouring Aupori Peninsula region of Northland in the far north of the North Island. Some populations on other northern islands such as Moturoa Island also morphologically resemble the Three Kings population, and genetically form part of the same clade. However, close examination of the mainland animals shows a gradual morphological cline on this peninsula from more elongate forms in the far north to more stocky animals in the south. For example, although all of the Three Kings animals have three scale rows between the anterior side of the ear opening and the secondary temporal, this is reduced to two scale rows in the mainland animals. The skull is noticeably longer and lower in the Three Kings animals than in mainland animals, and the relative limb length is significantly greater. We consider this variation to be consistent with a broad zone of intergradation following secondary contact of the far northern and more southern clades. An additional problem with recognising the far northern clade as a distinct taxon is the other two clades within *O. ornatum* sensu stricto are morphologically indistinguishable and are paraphyletic with respect to the far northern clade. For these reasons we recognise only the most genetically distinct of the four clades recovered by Chapple *et al.* 2008c as a distinct species, *O. roimata* sp. nov., and regard the other three clades as geographic variants within the species *O. ornatum* sensu stricto.

O. roimata sp. nov. is genetically divergent from *O. ornatum* sensu stricto (8.7–9.8% sequence divergence, ~6.2–7 mya), using the ND2 mitochondrial gene (Chapple *et al.* 2008c). Thus, a similar ‘anti-cryptic’ pattern to those discussed above is observed in the two species in the *O. ornatum* complex.

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