



## Phylogeography and taxonomic revision of the New Zealand cryptic skink (*Oligosoma inconspicuum*; Reptilia: Scincidae) species complex

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### Abstract

The New Zealand skink fauna is highly diverse and contains numerous cryptic, undescribed or hitherto undiscovered species. We completed a taxonomic revision of the cryptic skink (*Oligosoma inconspicuum*) species complex using molecular (550 bp of the ND2 mitochondrial gene) and morphological analyses. Four new species are described, with each diagnosable by a range of morphological characters and genetic differentiation from several closely related species: *O. inconspicuum* (sensu stricto), *O. notosaurus*, *O. maccanni*, *O. stenotis* and *O. grande*. *Oligosoma tekakahu* **sp. nov.** is restricted to Chalky Island in Fiordland, and is most closely related to *O. inconspicuum* and *O. notosaurus*. The other three new species are restricted to particular mountainous regions in central and western Otago (*O. burganae* **sp. nov.**, Lammermoor and Rock and Pillar Ranges; *O. toka* **sp. nov.**, Nevis Valley; *O. repens* **sp. nov.**, Eyre Mountains) and are most closely related to *O. stenotis* and *O. grande*. We also re-described *O. inconspicuum*. Two proposed new taxa, the ‘Big Bay’ skink and ‘Mahogany’ skink, were found to represent Westland/Fiordland populations of *O. inconspicuum* rather than distinct taxa. We discuss the evolutionary and phylogeographic implications of cryptic and ‘anti-cryptic’ species within the *O. inconspicuum* species complex, and suggest that morphologically aberrant populations are the result of local adaptation to novel selective regimes.

**Key words:** cryptic species, Fiordland, Miocene, mitochondrial DNA, molecular clock, morphology, ND2, Otago, Pliocene tectonism, Southland, Stewart Island