

The value of ecosanctuaries to the conservation of tuatara

Alison Cree, Department of Zoology, University of Otago, PO Box 56, Dunedin 9054

Tuatara (*Sphenodon punctatus*) have international significance as the last survivor of the rhynchocephalian reptiles. They can reach exceptional densities and biomass on rat-free offshore islands with seabirds, and are significant in Māori culture. Two recent recovery plans for tuatara (1993 and 2001) encourage the re-establishment of tuatara where possible in parts of their former range, for both ecological and social reasons. Establishment in new locations requires appreciation for the species' slow life history (including a potential life-span of 100 years). Following recent translocations to several offshore islands, tuatara have, since 2005, been translocated to five mainland ecosanctuaries. Fenced ecosanctuaries offer protection from most introduced mammals, with mice, if present, controlled to low levels. Tuatara in ecosanctuaries are all genetically from Stephens Island (Takapourewa) in Cook Strait, most having been moved north to potentially warmer habitats and others south to a colder habitat (Orokonui Ecosanctuary). At Orokonui, prior research on responses to low temperatures occurred before tuatara were free-released, with the support of Ngāti Koata and others. At all five ecosanctuaries there are positive signs of survival over at least the first year, with hatchlings since produced at Zealandia in Wellington. Ongoing issues include the possible effects of mice and of methods to control mice, resumption of interactions with some native species including kiwi, and occasional escapes. Research is encouraged on diets and body condition of tuatara in ecosanctuaries that have few or no seabirds, and on possible shifts in seasonal timing (e.g. nesting) that could help predict broader responses to climate change. Communication between ecosanctuaries, and with the Department of Conservation, iwi and research societies, is encouraged to share new observations and best practice. The outcomes could help influence future translocations.