NSW SCIENTIFIC COMMITTEE

Preliminary Determination

The Scientific Committee, established by the Threatened Species Conservation Act, has made a Preliminary Determination to support a proposal to list the Whitelegge's Land Snail *Pseudocharopa whiteleggei* (Etheridge) as a CRITICALLY ENDANGERED SPECIES in Part 1 of Schedule 1A of the Act. Listing of Critically Endangered species is provided for by Part 2 of the Act.

The Scientific Committee has found that:

1. *Pseudocharopa whiteleggei* (Etheridge) (Family Charopidae) is a small to medium sized land snail found on Lord Howe Island. The description given by Stanisic *et al.* (2010) reads "Shell medium-sized with reddish brown maculations, depressedly turbinate with a flat spire; whorls rounded, last flared, sutures channelled; protoconch with fine, crowded radial ribs, teleoconch with moderately spaced, strongly curved radial ribs, microsculpture of microradial threads and low microspiral cords; umbilicus very narrow, V-shaped; diameter 18mm".

2. *Pseudocharopa whiteleggei* was first published by Etheridge (1889) as *Helix whiteleggi* although the spelling elsewhere in the manuscript was *whiteleggei*, including reference to Mr T. Whitelegge, so the emended spelling has been adopted by subsequent authors. Etheridge (1889) made the statement that this species would subsequently be described by Mr J. Brazier. Iredale (1944) regarded Etheridge's (1889) introduction of the name as a *nomen nudum* although he credits the name to Brazier, whose only claim to the name was the statement by Etheridge (1889) that it would subsequently be published by Brazier. Brazier did not subsequently publish on the species due to "stress of professional duties" according to Hedley (1891) who provided a description and noted that the figures published by Etheridge (1889) were reversed. Iredale (1944) suggested that Etheridge's details were based on a Brazier draft manuscript. The Australian Faunal Directory credits the name to "Brazier, in Etheridge (1889)", presumably based on Smith (1992), and the Atlas of Living Australia credits it to "Brazier (1889)" However, Etheridge (1889) provided a rudimentary description ("a very finely but regularly transversely striated species"), notes on its distribution on Lord Howe Island and three figures of the species under the name *Helix* (*Rhytida*) *whiteleggei* thereby establishing the name. Iredale (1944) confirmed Hedley's (1891) assertion that Etheridge had reversed the figures in his work. Pilsbry (1892) republished the figures to show them correctly as well as adding an additional figure of *P. whiteleggei*. The species is now well known based on the description by Hedley (1891) and Pilsbry's (1892) figures but the first valid publication of the name, and therefore the authority, was Etheridge (1889). The locality given by Hedley (1891) as the summit of Mt Lidgbird, is incorrect. The species was transferred to the new genus *Pseudocharopa* by Peile (1929) so the current name should be accepted as *Pseudocharopa whiteleggei* (Etheridge, 1889). Specimens from the summit of Mt. Gower were recognised as a different species by Iredale (1944).

3. Little is known about the biology and ecology of Whitelegge's Land Snail. Specimens have been found under and inside logs and in moss. Etheridge (1889) described the habitat in which this species was found in numbers as "amid loam, decaying wood, and under stones". Stanisic *et al.* (2010) state that the species lives in rainforest habitats under palm litter. All Charopidae are non-carnivorous (Tillier 1989).

4. *Pseudocharopa whiteleggei* is endemic to Lord Howe Island. Australian Museum and Atlas of Living Australia records indicate its geographical distribution is confined to the southern half of the island extending from Blinky Beach in the centre of the island to south of the summit of Mount Gower. The geographic distribution of *Pseudocharopa whiteleggei* is very

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highly restricted. The extent of occurrence and area of occupancy for *Pseudocharopa whiteleggei* are estimated to be approximately 12 km^2. The area of occupancy estimate is based on three 2x2 km grid cells, the scale recommended for assessing area of occupancy in the IUCN (2011).

5. During the most recent survey in 2002 only one living specimen was found on the slopes of Mount Gower. Population size is estimated to be <500 individuals though there have been no recent surveys (J. Stanisic *pers. comm.* August 2013).

6. The key threat to Whitelegge's Land Snail is likely to be predation by introduced rats although the evidence is largely circumstantial. The Black Rat, *Rattus rattus*, also known as the Ship Rat, was accidentally introduced to the island in 1918 from a wrecked ship and was prolific across the Island by 1930 (Billing 1999). Rats are voracious predators of invertebrates and have been implicated in the extinction of at least 13 invertebrates, including two endemic land snails (Ponder 1997, in Lord Howe Island Board 2009). Ponder & Chapman (1999) reported that Black Rats prey extensively on the endangered Lord Howe Island Flax Snail, *Placostylus bivaricosus*, particularly on juvenile snails, and are considered to be a major predator to the species and a significant threat to its survival. Wilkinson & Priddel (2011) state that several species of land snails on Lord Howe Island, including *Pseudocharopa whiteleggei*, "are so threatened by rat predation, if rats are not removed they are likely to become extinct". A program of baiting of rats currently undertaken on the island is likely to benefit the snail species if it persists on Mount Gower. However, this baiting program is unlikely to completely mitigate the effect of predation by Black Rats on Whitelegge's Land Snail as it is not undertaken across the species' entire range. The recovery plan for the Lord Howe Island Flax Snail (NSW NPWS 2001) also identifies habitat clearing and modification for development, predation and habitat disturbance by exotic bird fauna Common Blackbird (*Turdus merula*), Song Thrush (*Turdus philomelos*), domestic chickens), use of snail bait against the introduced *Helix aspersa* and trampling by cattle as threats to the survival of that species but these are associated with human habitation and may be less threatening to Whitelegge's Land Snail because of its location on the higher parts of the island.

7. *Pseudocharopa whiteleggei* is eligible to be listed as a Critically Endangered species as, in the opinion of the Scientific Committee, it is facing an extremely high risk of extinction in New South Wales in the immediate future as determined in accordance with the following criteria as prescribed by the *Threatened Species Conservation Regulation* 2010:

Clause 7 Restricted geographic distribution and other conditions
The geographic distribution of the species is estimated or inferred to be:
(a) very highly restricted,
and:
(d) a projected or continuing decline is observed, estimated or inferred in the key indicator:

(b) the geographic distribution, habitat quality or diversity, or genetic diversity of the species.

Professor Michelle Leishman
Chairperson
Scientific Committee

Exhibition period: 08/08/14 – 03/10/14 Proposed Gazettal date: 08/08/14

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