

NSW Threatened Species Scientific Committee

Notice of and reasons for the Final Determination

The NSW Threatened Species Scientific Committee, established under the *Biodiversity Conservation Act 2016*, has made a Final Determination to REJECT a proposal to list a population of the Long-nosed Potoroo (northern subspecies) *Potorous tridactylus tridactylus* (Kerr, 1792) in the Wardell area as endangered, as populations of threatened species are ineligible to be listed under the Act.

The NSW Threatened Species Scientific Committee has found that:

1. The Long-nosed Potoroo *Potorous tridactylus* (Kerr, 1792) (family Potoroidae) comprises three genetically distinct subspecies (Frankham *et al.* 2012). On mainland southeastern Australia, the northern subspecies *Potorous tridactylus tridactylus*, is separated from the southern subspecies *P. tridactylus trisulcatus* by the Sydney Basin. A third subspecies, *Potorous tridactylus apicalis*, occurs in Tasmania and the Bass Strait islands (Frankham *et al.* 2012, 2016).
2. A population of Long-nosed Potoroo (northern subspecies) occurs in a fragment of native vegetation near Wardell, in the Richmond River Valley on the far north coast of NSW (Andren *et al.* 2013). The population occupies the Ngunya Jargoona Indigenous Protected Area (IPA) and contiguous areas of native vegetation bordered by the Richmond River to the south and east, Coolgardie to the north and the Blackwall Range to the west. The population is surrounded by cleared agricultural land (D. Arnold *in litt.* 2016; A. Claridge *in litt.* 2016) which is likely to prevent the dispersal of Long-nosed Potoroo (northern subspecies) into and out of this population (Frankham *et al.* 2014, 2016). The population is therefore considered to be disjunct. Records of Long-nosed Potoroo at Wardell show a concentration of animals in the western and southern parts of the site indicating there may be a preference for habitat within the central area which comprises low dense heathland (R. Goldingay *in litt.* 2016).
3. The Wardell population of Long-nosed Potoroo (northern subspecies) occupies an area of 2,050 ha of heathland and woodland with a heath understorey, about half of which occurs within the Ngunya Jargoona IPA. The extent of occurrence of the population is estimated to be 7.5 km² based on a minimum convex polygon enclosing all mapped occurrences of the species, the method of assessment recommended by IUCN (2016). The area of occupancy (AOO) is estimated to be 24 km² based on 2 x 2 km grid cells, the scale recommended for assessing AOO by IUCN (2016). The geographic distribution of the population is therefore considered to be highly restricted.
4. The population is estimated to contain fewer than 250 individuals inferred from a density of 0.23 – 0.26 individuals per ha and the amount of suitable habitat (Mason 1997). The number of individuals is estimated to be low.
5. Throughout its range the Long-nosed Potoroo is threatened by habitat loss from agriculture, urban expansion, inappropriate fire regimes and predation by introduced Red Foxes (*Vulpes vulpes*) and feral cats (*Felis catus*) (Woinarski *et al.* 2014). The extinction of some northern populations has been attributed to these

NSW Threatened Species Scientific Committee

factors (A. Claridge *in litt.* 2016). This species may also be adversely affected by habitat degradation through livestock grazing, weed infestation and too-frequent fires resulting in the reduced availability of food resources, particularly hypogean fungi which form a large part of the diet (Woinarski *et al.* 2014). The proposed realignment of the Pacific Highway to the western boundary of the area (NSWRMS 2016) encompassing the Wardell population will reduce the extent of suitable habitat and further impede movement to nearby vegetated areas. A road corridor could also lead to an increase in the incidence of fire (Milledge 2016), road mortality (depending on the effectiveness of fauna connectivity measures which are detailed in NSWRMS 2016), weed invasion (Hill *et al.* 2005) and potentially exacerbate impacts from introduced predators such as foxes and cats (May and Norton 1996; Meek and Saunders 2000; Harris *et al.* 2010; Hradsky *et al.* 2017). 'Clearing of Native vegetation', 'High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition', 'Predation by the European Red Fox *Vulpes vulpes* (Linnaeus, 1758)' and 'Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)' are listed as Key Threatening Processes under the Act.

6. In northern NSW the habitat of the Long-nosed Potoroo on the coastal plain from the Richmond Valley northwards has become highly fragmented due to the clearing of native vegetation. Of the 87,265 ha of suitable habitat originally occurring in this area, only 23,992 ha remains, a reduction of 72.5% (Andren *et al.* 2013). As a consequence, Long-nosed Potoroo populations in this area have been in steady decline for decades (Andren *et al.* 2013). Surveys carried out between 1985 and 2005 recorded this species at Cudgen Lake, Brunswick Heads, Tyagarah Nature Reserve, Wardell and Cobaki Lakes. However, extensive surveys carried out in these areas between 2006 and 2012 failed to detect any Long-nosed Potoroos except at Wardell (Andren *et al.* 2013) and Cobaki Lakes. However the Cobaki Lakes population has been further threatened by recent substantial clearing of suitable habitat (Andren *et al.* 2013).
7. The NSW Scientific Committee established under the *Threatened Species Conservation Act 1995* made a Preliminary Determination to support a proposal to list a population of the Long-nosed Potoroo (northern subspecies) *Potorous tridactylus tridactylus* (Kerr, 1792) in the Wardell area as an endangered population as, in the opinion of the NSW Scientific Committee, the population is facing a very high risk of extinction in NSW in the near future as determined in accordance with Clauses 11, 13 and 14 of the *Threatened Species Conservation Regulation 2010*:
8. The Preliminary Determination was placed on public exhibition for comment from 26th May, 2017 to 21st July, 2017.
9. On 25th August, 2017 the *Threatened Species Conservation Act 1995* was repealed and replaced by the *Biodiversity Conservation Act 2016*.
10. Under Clause 4.1(5) of the *Biodiversity Conservation Regulation 2017* a population of a species is not eligible to be listed as threatened if the species is separately listed as a threatened species under the *Biodiversity Conservation Act 2016*.

NSW Threatened Species Scientific Committee

11. Under section 4.14 of the *Biodiversity Conservation Act 2016* the NSW Threatened Species Scientific Committee is required to consider the assessment criteria and procedures under a common assessment method agreed between the Commonwealth, State and Territories.
12. Under clause 2.2 of the Intergovernmental memorandum of understanding relating to the agreement on a common assessment method for listing of threatened species and threatened ecological communities, a population of a species is not eligible to be listed as threatened if the species is separately listed as a threatened species under the *Environment Protection and Biodiversity Conservation Act 1999*.
13. The Long-nosed Potoroo *Potorous tridactylus* (Kerr, 1792) (family Potoroidae) is listed as a Vulnerable species in New South Wales (NSW) under the *Biodiversity Conservation Act 2016*
14. *Potorous tridactylus tridactylus* is listed as a Vulnerable species under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
15. As the Long-nosed Potoroo is listed as a threatened species under the *Biodiversity Conservation Act 2016* and the *Environment Protection and Biodiversity Conservation Act 1999* the population of the Long-nosed Potoroo (northern subspecies) *Potorous tridactylus tridactylus* (Kerr, 1792) in the Wardell area is ineligible to be listed under the *Biodiversity Conservation Act 2016*.

Dr Marco Duretto
Chairperson
NSW Threatened Species Scientific Committee

Exhibition period: 08/12/17 – 02/02/18

Proposed Listing date: 08/12/17

References:

- Andren M, Milledge D, Scotts D, Smith J (2013) The distribution of Long-nosed Potoroo *Potorous tridactylus tridactylus* habitat on the far north coast of New South Wales. *Australian Zoologist* **36**, 494–506.
- Frankham GJ, Handasyde KA, Eldridge MDB (2012) Novel insights into the phylogenetic relationships of the endangered marsupial genus *Potorous*. *Molecular Phylogenetics and Evolution* **64**, 592–602.
- Frankham GJ, Handasyde KA, Norton M, Murray A, Eldridge MDB (2014) Molecular detection of intra-population structure in a threatened potoroid, *Potorous tridactylus*: conservation management and sampling implications. *Conservation Genetics* **16**, 547–560.
- Frankham GJ, Handasyde KA, Eldridge MDB (2016) Evolutionary and contemporary responses to habitat fragmentation detected in a mesic zone marsupial, the long-

NSW Threatened Species Scientific Committee

nosed potoroo (*Potorous tridactylus*) in south-eastern Australia. *Journal of Biogeography* **43**, 653–665.

Harris IMI, Mills HHR, Bencini R (2010) Individual southern brown bandicoots (*Isodon obesulus fusciventer*) and foxes (*Vulpes vulpes*) use underpasses installed at a new highway in Perth, Western Australia. *Wildlife Research* **37**, 127–133.

Hill SJ, Tung PJ, Leishman MR (2005) Relationships between anthropogenic disturbance, soil properties and plant invasion in endangered Cumberland Plain Woodland, Australia. *Austral Ecology* **30**, 775–788.

Hradsky BA, Mildwaters C, Ritchie EG, Christie F, Di Stefano J (2017) Responses of invasive predators and native prey to a prescribed forest fire *Journal of Mammalogy* **98**(3), 835–847

Mason RJ (1997) Habitat use and population size of the Long nosed Potoroo, *Potorous tridactylus* (Marsupialia: Potoroidae) in a coastal reserve, north-eastern New South Wales. *Australian Mammalogy* **20**, 35–42.

May SA, Norton TW (1996) Influence of fragmentation and disturbance on the potential impact of feral predators on native fauna in Australian forest ecosystems. *Wildlife Research* **23**, 387–400.

Meek PD, Saunders G (2000) Home range and movement of foxes (*Vulpes vulpes*) in coastal New South Wales, Australia. *Wildlife Research* **27**, 663–668.

Milledge D (2016) An initial review of the ‘Statement of Reasons for decisions to approve management plans under the approval conditions for the Pacific Highway Upgrade (EPBC 2012/6394)’ under the Environment Protection and Biodiversity Conservation Act 1999 in relation to Section 10 (Bagotville-Coolgardie), Pacific Highway Upgrade.

NSW Roads and Maritime Services (NSWRMS) (2016) Woolgoolga to Ballina, Pacific Highway Upgrade, Koala Management Plan Sections 1-11. Version 4.4 <http://www.rms.nsw.gov.au/documents/projects/northern-nsw/woolgoolga-to-ballina/w2b-koala-management-plan-sections-1-11.pdf> (accessed 28 February 2017)

Woinarski JCZ, Burbidge AA, Harrison PL (Eds) (2014) ‘The Action Plan for Australian mammals 2012’ (CSIRO Publishing: Melbourne)