

Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the list of Threatened Species under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

1. Scientific name (common name)

Tyto novaehollandiae melvillensis (Masked Owl (Tiwi Islands))

2. Description

The Tiwi Islands Masked Owl is a large owl with a prominent heart-shaped facial marking, very speckled feathers, and is generally dark on the back with a pale belly. It has a loud call made up of a highly varied set of shrieks and complex whistles. The species typically roosts and nests in tree hollows and feeds on mammals up to the size of possums.

3. National Context

The Tiwi Islands Masked Owl is restricted to the Tiwi Islands (Bathurst and Melville Islands), north of Darwin in the Northern Territory. The Tiwi Islands are managed by the Tiwi Islands Land Council. This bird is not found in any conservation reserves.

The species is reasonably widespread on both islands, particularly in the higher rainfall areas of north-west Melville Island, where eucalypt forests are tallest and there are many small patches of monsoon rainforest (Woinarski *et al.* 2003a). The species is also occasionally found in plantations of introduced Caribbean Pine (Mason & Schodde, 1997).

The Tiwi Islands Masked Owl is only slightly different to the sub-species occurring on mainland northern Australia, *Tyto novaehollandiae kimberli*. The species is most likely to be confused with the barn owl *Tyto alba*, which is noticeably smaller and more pale, with far weaker legs and feet and less feathering on the legs.

The species is listed as Endangered under the Northern Territory *Territory Parks and Wildlife Conservation Act 2000* and was listed as Vulnerable under the *Endangered Species Protection Act 1992*.

4. How judged by TSSC in relation to the EPBC Act criteria.

TSSC judges the species to be **eligible** for listing as **endangered** under the EPBC Act. The justification against the criteria is as follows:

Criterion 1 – It has undergone, is suspected to have undergone or is likely to undergo in the immediate future a very severe, severe or substantial reduction in numbers.

There is limited information on the Tiwi Islands Masked Owl as there has been only one extensive survey of the species, completed in 2003, which recorded the species at 44 of 351 survey sites (Woinarski *et al.* 2003a). There is currently no available data on past population trends for the species.

As there are no historic population estimates for the species, there is insufficient data to assess whether there has been a reduction in the species' numbers. The species is **not eligible** for listing under this criterion.

Criterion 2 –Its geographic distribution is precarious for the survival of the species and is very restricted, restricted or limited.

The Tiwi Islands Masked Owl is restricted to the Tiwi Islands, Northern Territory. The species is considered to exist as one population occurring in two locations – Bathurst and Melville Islands. The waterway between Melville and Bathurst Islands is only 1-2km wide, and it is considered likely that the species travels between the two islands.

The species is reasonably widespread on both islands, occurring mainly in eucalypt tall open forests, especially those dominated by Darwin Woollybutt (*Eucalyptus miniata*), Darwin Stringbark (*E. tetradonta*) and Melville Island Bloodwood (*Corymbia nesophila*), but also roosts in monsoon rainforests and forages in more open vegetation. The species is particularly widespread in the higher rainfall areas of north-west Melville Island, where eucalypt forests are tallest and there are many small patches of monsoon rainforest. It is therefore considered that the maximum extent of occurrence for the Tiwi Islands Masked Owl would be the area of the Tiwi Islands, 7481km².

There has only been one survey of the species, completed in 2003 (Woinarski *et al.* 2003), which recorded the Tiwi Islands Masked Owl at 44 of 351 survey sites. Garnett & Crowley (2000) have estimated the area of occupancy to be 5000km².

There are threatening processes operating on the Tiwi Islands which are likely to have adversely affected the species in the past and continue to do so. The breakdown of traditional fire burning practices has changed the fire regime for the islands, which in turn has led to changes in the vegetation structure. This has been exacerbated by the spread of invasive weeds. These fire regime changes are likely to have altered the habitat of the Tiwi Islands Masked Owl, in particular feeding habitat which is now less suitable for the species.

Another threat to the species is thought to be the loss or degradation of suitable habitat through structural and floristic change. Nesting trees and food resources for the species are disappearing and it is predicted that this threat could result in a population decline of approximately 5-15 per cent.

Cyclones also occur in coastal areas of the Northern Territory almost every year and have hit the Tiwi Islands twice in the last 20 years. They are a threat to the Tiwi Islands Masked Owl as they flatten areas of forest and reduce the number of hollow trees, on which the species is dependent.

The geographic distribution of the Tiwi Island Masked Owl is limited and is precarious for the survival of the species. Therefore, the species is **eligible** for listing as **vulnerable** under this criterion.

Criterion 3 – The estimated total number of mature individuals is limited to a particular degree and: (a) evidence suggests that the number will continue to decline at a particular rate; or (b) the number is likely to continue to decline and its geographic distribution is precarious for its survival.

A number of population estimates for the Tiwi Island Masked Owl have been suggested. Garnett & Crowley (2000) estimated there to be less than 2500 mature individuals. Based on densities and home range size for other Masked Owl subspecies, the upper limit of population size is approximated to be 3000 breeding birds. However, this estimate infers the species is found in all parts of the Tiwi Islands, which has not been documented. Conservative estimates are as low as 370 mature individuals (Woinarski *et al.* 2003a).

As discussed in criterion 2, there are threatening processes that are likely to be impacting on area and quality of this Owl's habitat. These processes are likely to be reducing the extent and

quality of habitat available for the Tiwi Island Masked Owl and therefore contributing to an ongoing decline in numbers of the species.

The species has a limited geographic distribution which is precarious for its survival and therefore, the species is **eligible** for listing as **endangered** under this criterion.

Criterion 4 – The estimated total number of mature individuals is extremely low, very low or low.

The population size of the Tiwi Islands Masked Owl is estimated to be less than 2500 mature individuals (Garnett & Crowley 2000).

However there is not enough data on population numbers to make an assessment against this criterion. Therefore, the species is **not eligible** for listing under this criterion.

Criterion 5 - Probability of extinction in the wild

There are no quantitative data available to assess the species against this criterion.

5. CONCLUSION

There is limited information on the Tiwi Islands Masked Owl as only one extensive survey has been completed on the species. However the number of mature individuals is estimated to be less than 2500 and the species occurs only on Melville and Bathurst Islands. It is likely that suitable habitat for the species has declined, and continues to decline due to the effects of changed fire regimes on the Tiwi Islands, exacerbated by the spread of invasive weeds. Structural and floristic change on the Islands is also likely to have a detrimental impact on the species due to the removal of nesting trees and food resources.

The species is **eligible** for listing as **vulnerable** under criterion 2 and **endangered** under criterion 3.

6. Recommendation

TSSC recommends that the list referred to in section 178 of the EPBC Act be amended by **transferring** from the **vulnerable** category to the **endangered** category:

Tyto novaehollandiae melvillensis (Masked Owl (Tiwi Islands))

Associate Professor Robert J.S. Beeton
Chair
Threatened Species Scientific Committee

Publications used to assess the nomination

Garnett, S.T., and Crowley, G.M. (2000). *The Action Plan for Australian Birds 2000*. (Environment Australia: Canberra.)

Woinarski, J.C.Z. (2004). *National multi-species Recovery Plan for the Carpentarian Antechinus Pseudantechinus mimulus, Butler's Dunnart Sminthopsis butleri and Northern Hopping-mouse Notomys aquilo, 2004-2008*. (NT Department of Infrastructure Planning and Environment: Darwin.)

Woinarski, J., Brennan, K., Cowie, I., Kerrigan, R. and Hempel, C. (2003b). *Biodiversity conservation on the Tiwi islands, Northern Territory. Part 1. Environments and plants*. 144 pp. (Department of Infrastructure Planning and Environment: Darwin.)

Woinarski, J., Brennan, K., Hempel, C., Armstrong, M., Milne, D., and Chatto, R. (2003a). *Biodiversity conservation on the Tiwi islands, Northern Territory. Part 2. Fauna*. 127 pp. (Department of Infrastructure Planning and Environment: Darwin.)

Woinarski, J., Brennan, K., Hempel, C., Firth, R. and Watt, F. (2000). *Biodiversity conservation on the Tiwi Islands: plants, vegetation types and terrestrial vertebrates on Melville Island*. Report to the Tiwi Land Council. Parks and Wildlife Commission of the Northern Territory: Darwin.