The Minister's delegate approved this conservation advice on 01/10/2015

Conservation Advice

Tyto novaehollandiae melvillensis

masked owl (Tiwi Islands)

Conservation Status

Tyto novaehollandiae melvillensis (masked owl (Tiwi Islands)) is listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is eligible for listing as Endangered as, prior to the commencement of the EPBC Act, it was listed as Endangered under Schedule 1 of the *Endangered Species Protection Act 1992* (Cwlth).

The Action Plan for Australian Birds 2010 (Garnett et al., 2011) list the masked owl (northern) as Endangered. The main factors that the Action Plan for Australian Birds 2010 identifies as making the subspecies eligible for listing in the Endangered category are that there are a limited number of mature individuals (<2500) in a single subpopulation, and that there is likely to be an ongoing decline in numbers due to habitat loss and degradation (Garnett et al., 2011).

Description

The masked owl is a large owl. It has a white to buff facial mask, which is framed by a black ruff that merges into a pair of thick furrowed brows, buff and blackish-brown or black-and-white upperparts, and white to buff underparts with coarse dark spots or, in some individuals, chevrons. The female is much bigger and bulkier than the male, and has larger feet (Higgins, 1999).

The Tiwi Islands subspecies and northern subspecies (*T. n. kimberli)* of masked owl are smaller than other Australian subspecies (Woinarski, 2004), including the nominate subspecies (*T. n. novaehollandiae*) which can reach lengths of up to 41 cm and 50 cm with wings spans of up to 110 cm and 128 cm (male and female sizes respectively) (Higgins & Peter, 2002). Compared to other species of *Tyto* owls in northern Australia, such as the barn owl (*T. alba)*, masked owls have conspicuously well feathered legs and large, strong claws and feet (Higgins & Peter, 2002).

Distribution

The masked owl (Tiwi Islands) is known only from the Bathurst and Melville Islands within the Tiwi Island archipelago (Woinarski, 2004). Woinarski et al., (2003) noted that the subspecies may be 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.

Threats

The primary threat to the masked owl (Tiwi Islands) is the conversion of large areas of optimal habitat (tall open eucalypt forest) to short-rotation plantations (Garnett & Crowley, 2000; Garnett et al., 2011), as demonstrated by the removal of approximately 27 000 ha of native vegetation on the Tiwi Islands between the early-2000s and 2007 to establish plantations of the fast-growing *Acacia mangium* (van Oosterzee & Garnett, 2008). Of particular concern is the loss of large hollow-bearing trees that are likely to be used for nesting (Garnett & Crowley, 2000).

The subspecies may also have been adversely affected by changes to the structure of the native vegetation on the Tiwi Islands, caused by invasive weeds, a shift in fire regime away from traditional burning practices (Fensham & Cowie, 1998; Garnett & Crowley, 2000; Northern Territory Parks & Wildlife Commission, 2006) and, potentially, the impacts of feral herbivores.

Furthermore, it is possible that habitat changes associated with the development of plantations, spread of invasive weeds and alteration of traditional fire regimes may have reduced the abundance of native mammals (Firth et al., 2006; Garnett & Crowley, 2000; Woinarski, 2004), while feral cats may also be having similar impacts on the availability of prey species for the owls. Small mammals are known to be a key source of food for masked owls on Tiwi Islands with recent research indicating that 100% of the subspecies diet may be comprised of small mammals including native mice *(Pseudomys* spp.*)*, dunnarts *(Sminthopsis spp.)* and bandicoots (*Isoodon spp.*) (Smith, pers comm., 2015). Recent evidence suggests that many small mammals are experiencing broad-scale population declines across northern Australia, this in turn is likely to impact upon the survival of the masked owl (Fitzsimons et al., 2010).

Conservation Actions

Conservation and management actions

- Implement an appropriate fire management regime to maintain prey numbers and nest hollow availability.
- Prevent, or minimise the extent of additional land-clearing. Where land clearing does occur, implement protocols to reduce impacts as much as possible.
- Implement a feral species control strategy in the subspecies area of occupancy to reduce the impacts on the prey species of the masked owl.

Survey and monitoring priorities

- Assess the subspecies' population size and finer-scale habitat preferences.
- Design and implement a monitoring program to assess population trends.

Information and research priorities

- Assess the effects of varying fire regimes on prey and nest hollow availability.
- Assess population trends in response to various management interventions.
- Examine impacts of fragmentation on the subspecies and use the resulting knowledge to develop guidelines for habitat protection and corridor configuration in landscapes subject to increasingly intensive development.

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