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

Conservation Advice

Tyto novaehollandiae kimberli

masked owl (northern)

Conservation Status

*Tyto novaehollandiae kimberli (*masked owl (northern)) is listed as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act). The species is eligible for listing as Vulnerable as, prior to the commencement of the EPBC Act, it was listed as Vulnerable 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 Vulnerable. The main factors that the Action Plan for Australian Birds 2010 identifies as making the subspecies as eligible for listing in the Vulnerable category are a limited number of mature individuals (approximately 3000), a suspected continuing decline in population size and a geographic distribution that may be precarious for the survival of the species (Garnett et al., 2011).

Description

The masked owl (northern) is a large owl with a prominent heart-shaped facial disc and plumage that is highly patterned by speckling and is generally darker on the back and paler below (Woinarski, 2004). The northern subspecies and the Tiwi Islands subspecies (*T. n. melvillensis)* 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 distribution of the masked owl (northern) is very poorly known (Woinarski 2004). Three subpopulations have been suggested: Kimberley, Northern Territory and Cape York (Garnett et al., 2011).

The few records that are available from the Kimberley region of Western Australia show the masked owl (northern) to occur from Yampi Sound north-east to Cambridge Gulf, including Windjana Gorge and Augustus Island (Barrett et al., 2003; Johnstone & Storr, 1998; Mees, 1964). There are also historical records from near Broome (Crossman, 1910).

In the Top End of the Northern Territory, the species occurs from the Cobourg Peninsula down to Katherine and Jasper Gorge (Victoria River area), and to the east at McArthur River. There are also records from Dead Dog Waterhole (Barkly Tableland) and the Tanami Desert (Barrett et al., 2003; Blakers et al., 1984; Goodfellow, 2001; Higgins, 1999; Mees, 1964).

In Queensland, there are historical records from the Normanton region, and from Pascoe, Archer, Chester and Watson Rivers on Cape York Peninsula (Higgins, 1999; Mees, 1964; Storr, 1984). The owl occurs along the southern rim of the Gulf of Carpentaria, Cape York Peninsula

and south to Atherton Tablelands and the Einasleigh-Burdekin divide (Garnett et al., 2011). There is some confusion about where the Queensland southern limit of the subspecies is, with authorities suggesting Mackay (Mees, 1964) or Coomooboolaroo Station (west of Rockhampton) (Woinarski, 2004).

Threats

The reason for the decline and low density of masked owls in northern Australia is unclear. The subspecies has undoubtedly been affected by broad-scale changes to the environment of northern Australia caused by altered fire regimes, grazing by livestock and feral animals, and the invasion of native woodlands by exotic plants, particularly introduced pasture grasses (Woinarski, 2004). However, the most likely cause of declines is a shortage of food, as small and medium-sized native mammals are becoming increasingly uncommon across much of northern Australia (Pardon et al., 2003; Sattler & Creighton, 2002; Winter & Allison, 1980; Woinarski et al., 2001; Woinarski et al., 2010).

The current regime of more intense, frequent and extensive fires may also reduce the availability of the large trees and hollows (Williams et al., 1999) required for nesting. One study in tall eucalypt forests and woodlands near Darwin (Pittman, 2003) found that the populations of common brushtail possums (*Trichosurus vulpecula)* and black-footed tree-rats (*Mesembriomys gouldii)* were nearing a carrying capacity imposed by hollow availability, and possums were found to monopolise hollows in woodland fragments at the expense of other species.

Other potential threats include competition with other large owls (Schodde & Mason, 1980) and the increasing spread and pace of development in the Darwin and Daly River areas of the Northern Territory, which could be reducing the extent of suitable habitat for the subspecies (Woinarski, 2004).

Conservation Actions

Conservation and management actions

- Implement an appropriate fire management regime for preventing the loss of large, hollow-bearing trees, and which promotes the density of prey (native mammals).
- Reduce the impacts from feral animals and weeds at a landscape scale.

Survey and monitoring priorities

- Assess the subspecies' population size and distribution.
- Design and implement a monitoring program to assess population trends at key sites.

Information and research priorities

- Identify the habitat requirements of the subspecies.
- Assess population trends in response to fire management and weed and feral species control programs.
- Identify the causes for the decline in the masked owl's main prey species.
- 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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