

Threatened Species of the Northern Territory

MASKED OWL (north Australian mainland subspecies) *Tytonovaehollandiae kimberli*

Conservation status

Australia: Vulnerable

Northern Territory: Vulnerable



Photo: BirdLife Australia*

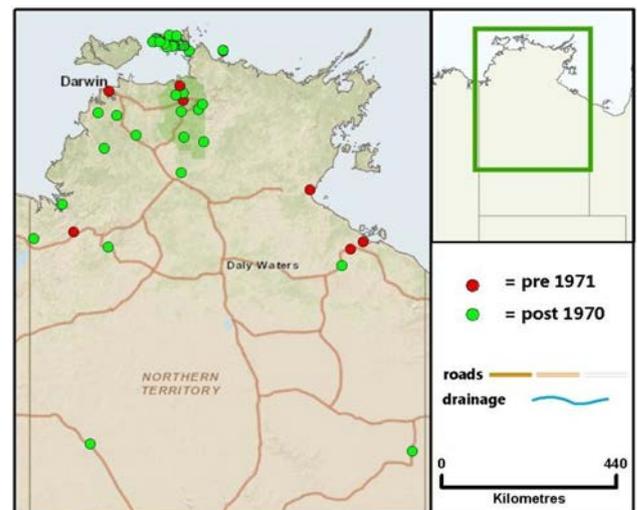
Description

The masked owl is a large dark owl, most likely to be confused with the barn owl *Tyto alba*; the masked owl is noticeably larger and darker, with heavier legs and feet and with much more feathering on the legs. It is most likely to be detected from its loud call, which comprises a highly varied set of shrieks and complex whistles.

The subspecies occurring on the north Australian mainland differs from the subspecies *T. n. melvillensis* occurring on the Tiwi Islands, in being lighter (at least for females), and in a series of minor plumage differences (described in Higgins 1999). Both subspecies are appreciably smaller than the two other subspecies from south-eastern and south-western Australia.

Distribution

The distribution of the mainland north Australian masked owl subspecies *T. n. kimberli* is very imperfectly known, with remarkably few records across its broad range. Based on compilation of records from 1998-2002, the New Atlas of Australian Birds (Barrett et al. 2003) reported it from only one 1/4o grid cell (from a total of about 130) in northern Western Australia, two (of a total of about 320) in the Top End of the Northern Territory (NT), one on the Barkly



Known locations of the northern mainland masked owl

Tableland, and five in northern Queensland. The circumscription of this distribution is confused by (i) a number of unconfirmed records away from its main range (Higgins 1999), such as on the south-west of Cape York Peninsula and in semi-arid NT; and (ii) whether or not the north-east Cape York Peninsula population is recognised as subspecifically distinct (*T. n. galei*). Recognising the shortcomings in survey information, the current range can be considered to include the north and north-west coastal Kimberley; the Top End of the NT, including Cobourg Peninsula, extending south to around Katherine (Storr 1977), with a handful of isolated records from further

south, including Jasper Gorge (the Victoria River District), McArthur River station, and Avon Downs (Barkly Tablelands) (Storr 1977; Higgins 1999; Barrett et al. 2003); north-eastern Queensland, including a few early records from north-eastern Cape York Peninsula (Archer-Watson Rivers), with a broader distribution centred on Townsville.

Conservation reserves where reported: Garig Gunak Barlu National Park, Judbarra / Gregory National Park, Kakadu National Park, Keep River National Park and Nitmiluk National Park.

Ecology

The masked owl occurs mainly in eucalypt tall open forests (especially those dominated by Darwin woollybutt *Eucalyptus miniata* and Darwin stringybark *E. tetrodonta*), but also roosts in monsoon rainforests, and forages in more open vegetation types, including grasslands. Although it may roost in dense foliage, it more typically roosts, and nests, in tree hollows. Mammals, up to the size of possums, constitute the bulk of its diet (Higgins 1999).

Although there is no detailed information for this subspecies, masked owls of other subspecies occupy large exclusive home ranges, estimated at 5-10 km² (Kavanagh and Murray 1996).

Conservation assessment

Too little information is known about the distribution, population size and trends in population to ascribe conservation status with any confidence. In north-eastern Queensland, the subspecies is considered to be in decline (Nielsen 1996). Given the large home ranges needed by the species, the population of mainland masked owls in the NT is probably fewer than 10 000 breeding individuals.

A 2009 survey of the species at Garig Gunak Barlu National Park reported a lower detection rate than recorded before Cyclone Ingrid hit the area in 2005, and surveys at 68 sites in Kakadu National Park recorded them at only one location (Ward 2010). Given the probability that the population is declining in the NT at a rate of more than ten per cent in a 15 year period (an estimated period for three

generations), the subspecies qualifies as Vulnerable (under criteria C1+2a(i)) based on:

- population size estimated to number fewer than 10 000 mature individuals;
- an estimated continuing decline of at least ten per cent within ten years or three generations, whichever is longer; and
- Fewer than 1 000 mature individuals in each sub-population.

Threatening processes

There is no reliable information on what factors may affect the status of this subspecies. It is possible that food resources may be diminishing, through broad-scale decline of small and medium-sized native mammals, possibly due to changed fire regimes (Woinarski et al. 2001; Pardon et al. 2003). This would lead to a subsequent decline in the masked owl population. The greatly increased cover and height of invasive exotic grasses (Rossiter et al. 2003) may cause a reduction in foraging efficiency for this owl.

The current regime of more intense, frequent and extensive fires may reduce the availability of large trees and hollows (Williams et al. 1999, 2003) required for nesting. Conversely, more extensive and less patchy fires may lead to greater foraging efficiency (Oakwood 2000).

It is now recognised that there has been broad-scale and dramatic declines of small mammal populations across northern Australia over the last decade Fitzsimons et al. (2010). As a specialist predator on small mammals, the mainland masked owl may also be threatened by the loss of prey populations.

Conservation objectives and management

A national recovery plan for the mainland masked owl, and other birds, has recently been established (Woinarski 2004). Baseline data are now available for monitoring the subspecies at Garig Gunak Barlu and Kakadu National Parks using call play-back surveys (Ward 2010).

The main research priority is to derive more precise information on population size, home range, habitat requirements, and response to putative threatening processes.

Compiled by

John Woinarski
Simon Ward

[updated December 2012]

References

Barrett, G., Silcocks, A., Barry, S., Cunningham, R., and Poulter, R. (2003). The new atlas of Australian birds. (Royal Australasian Ornithologists Union, Melbourne.)

*BirdLife Australia www.birdlife.org.au

Fitzsimons, J., Legge, S., Traill, B., and Woinarski, J. (2010). Into oblivion? The disappearing native mammals of northern Australia. (The Nature Conservancy, Melbourne.)
<http://www.nature.org/ourinitiatives/regions/australia/explore/ausmammals.pdf>

Higgins, P.J. (1999). Handbook of Australian, New Zealand and Antarctic birds. Volume 4. Parrots to Dollarbirds. (Oxford University Press, Melbourne.)

Kavanagh, R.P., and Murray, M. (1996). Home range, habitat and behaviour of the masked owl *Tyto novaehollandiae* near Newcastle, New South Wales. *Emu* 96, 250-257.

Nielsen, L. (1996). Birds of Queensland's Wet Tropics and Great Barrier Reef Australia. (Gerard Industries, Bowden.)

Oakwood, M. (2000). Reproduction and demography of the northern quoll, *Dasyurus hallucatus*, in the lowland savanna of northern Australia. *Australian Journal of Zoology* 48, 519-539.

Pardon, L.G., Brook, B.W., Griffiths, A.D., and Braithwaite,

R.W. (2003). Determinants of survival for the northern brown bandicoot under a landscape-scale fire experiment. *Journal of Animal Ecology* 72, 106- 115.

Rossiter, N.A., Setterfield, S.A., Douglas, M.M., and Hutley,

L.B. (2003). Testing the grass-fire cycle: alien grass invasion in the tropical savannas of northern Australia. *Diversity and Distributions* 9, 169-176.

Schodde, R., and Mason, I.J. (1980). Nocturnal birds of Australia. (Lansdowne, Melbourne.)

Storr, G.M. (1977). Birds of the Northern Territory. Special Publication no. 7. (Western Australian Museum, Perth.)

Ward, S. (2010) Survey protocol for masked owls in the NT

Tyto novaehollandiae

(north Australian mainland subspecies *T. n. kimberli* and Tiwi subspecies *T. n. melvillensis*).
<http://www.nt.gov.au/nreta/wildlife/animals/threatened/specieslist.html>.

Williams, R.J., Cook, G.D., Gill, A.M., and Moore, P.H.R. (1999). Fire regimes, fire intensity and tree survival in a tropical savanna in northern Australia. *Australian Journal of Ecology* 24, 50-59.

Williams, R.J., Muller, W.J., Wahren, C-H., Setterfield, S.A., and Cusack, J. (2003). Vegetation. In *Fire in tropical savannas: the Kapalga experiment*. (eds A.N. Andersen, G.D. Cook and R.J. Williams.) pp. 79-106. (Springer-Verlag, New York.)

Woinarski, J.C.Z. (2004). National multi-species Recovery Plan for the Partridge Pigeon [eastern subspecies] *Geophaps smithii smithii*; crested shrike-tit [northern (sub)-species] *Falcunculus (frontatus) whitei*; masked owl [north Australian mainland subspecies] *Tyto novaehollandiae kimberli*; and masked owl [Tiwi Islands subspecies] *Tyto novaehollandiae melvillensis*, 2004-2008. (NT Department of Infrastructure Planning and Environment, Darwin.)

Woinarski, J.C.Z., Milne, D.J., and Wanganeen, G. (2001).

Changes in mammal populations in relatively intact landscapes of Kakadu National Park, Northern Territory, Australia. *Austral Ecology* 26, 360-370.

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