

NSW SCIENTIFIC COMMITTEE

Hooded Robin *Melanodryas cucullata cucullata* – Populations in Eastern Bioregions

Review of Current Information in NSW

May 2008

Current status:

The subspecies, Hooded Robin *Melanodryas cucullata cucullata*, is currently listed as Vulnerable in NSW under the *Threatened Species Conservation Act 1995* (TSC Act), Threatened in Victoria under the *Flora and Fauna Guarantee Act 1988* (FFG Act; Near Threatened on the Advisory List), Rare in South Australia under the *National Parks and Wildlife Act 1972* (NPW Act), and Vulnerable in the ACT under the *Nature Conservation Act 1980* (NC Act). This subspecies is not currently listed under Commonwealth legislation, but is considered nationally as Near Threatened by Garnett & Crowley (2000). The NSW Scientific Committee recently reviewed available information on the Hooded Robin in the eastern bioregions of NSW (coast to the western slopes) and determined that this population does not currently meet criteria for listing as an Endangered Population under the TSC Act.

Species description:

The Hooded Robin is a small (16 cm) songbird with black upperparts and 'hood', white underparts and wing bars, and white flashes in the wings and tail in flight. The female is grey with white flashes in the wings and tail. The male is similar in appearance to the Pied Honeyeater *Certhionyx variegates*, which has a longer downcurved bill, blue skin below the eyes, and is more active and noisy in the tree canopy. Female and young Hooded Robins are similar to the Jacky Winter *Microeca fascinans*, which is smaller, browner, and has white only on the outer edges of the tail. Male red-breasted *Petroica* robins (in back view), and females and young, are smaller and lack white through the base of the tail.

Taxonomy:

Melanodryas cucullata (Latham 1802) (Petroicidae) is an endemic Australian species in an endemic Australasian genus and family. The threatened taxon in most of NSW is the nominate subspecies *M. c. cucullata*. Widespread continental subspecies are *M. c. picata* (Gould 1865) (north-west NSW to northern Australia) and *M. c. westralensis* (Mathews 1912) (western arid zone), which are considered as Least Concern by Garnett & Crowley (2000). The Tiwi Islands subspecies *M. c. melvillensis* Zeitz 1914 is listed as Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Vulnerable (Garnett & Crowley 2000).

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Distribution and number of populations:

The Hooded Robin occurs in most of continental Australia except the humid south-eastern forests (Higgins & Peter 2002), apparently as a single population with intergradation between the subspecies (Schodde & Mason 1999). The nominate subspecies occurs in south-eastern Australia (extreme south-east Queensland to south-east South Australia), including most of non-coastal NSW except the arid north-west corner (occupied by subspecies *M. c. picata*).

Ecology:

The knowledge on general biology and ecology of this species is considered to be good (Higgins & Peter 2002; Fitri & Ford 2003a, b).

Key habitat requirements

The Hooded Robin inhabits dry eucalypt and acacia woodlands and shrublands, with an open understorey, some grassy areas, and a complex ground layer. The robin's occurrence is positively associated with patch size, and with components of habitat complexity that include the amount of tree canopy cover, shrub cover, ground cover, logs, fallen branches and litter (Watson *et al.* 2003). Habitat in the sheep-wheat belt has been mostly cleared; most remaining habitat is fragmented, and subject to degradation by overgrazing and simplification (removal of foraging substrates, *i.e.* standing dead timber, logs and coarse woody debris).

Breeding biology

The Hooded Robin builds an open cup nest of plant fibres and cobweb, sited on low, live or dead forks or branches of trees or stumps, or occasionally on fallen trees or limbs. A clutch of two or three eggs is laid in spring and summer, with multiple attempts per season, though usually only one successful brood in a season. The incubation period is about 16 days, the nestling period about 12 days, and the post-fledging dependence period lasts eight weeks. There is a high rate of nest predation, by native predators, including artificially inflated numbers of Pied Currawongs *Strepera graculina*, but also probably by cats and foxes on low nests.

Diet

The Hooded Robin feeds on invertebrates (mostly insects), some small vertebrates (skinks, froglets) and occasionally seeds, taken from the ground, trunks, branches and in the air. On the ground, prey is commonly taken from or among logs and coarse woody debris. Foraging substrate and prey are adversely affected by 'tidying up' in farmland, and by firewood collection.

Social biology

The Hooded Robin occurs in pairs or family groups; it sometimes breeds co-operatively, with helper(s) (usually immature sons) assisting the pair to feed new young.

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Territoriality/home range

Breeding pairs or groups of Hooded Robins defend exclusive nesting territories of about 6 ha (4.5 - 9.5 ha) during the breeding season. They expand their winter home range to about 18 ha (8.3-25.5 ha), sometimes up to 30-50 ha.

Generation length

The generation length for the species is estimated as five years (Garnett & Crowley 2000).

Number of mature individuals:

The number of individuals of the subspecies is estimated as 500 000 globally (NSW, Victoria, South Australia: Garnett & Crowley 2000), of which about half would occur in NSW on the basis of geographic range. However, this estimate is assigned a low level of reliability (Garnett & Crowley 2000). On distributional grounds, about 20% of this number (or 50 000 birds) would fall in the relevant bioregions, but recent local declines (by about 50% to more than 90%, see below), and low densities suggest that there might be as few as 10% of this estimate (or about 5 000 birds) in the New England Tableland, North Coast, Sydney Basin, South Eastern Highlands, and South Western Slopes Bioregions.

Threats:

The main threats to the Hooded Robin are inferred to be fragmentation and degradation of habitat. Over 50% of forest and woodland has been cleared in NSW, and over 80% of temperate woodlands in Australia have been cleared (Lunney 2004; Olsen *et al.* 2005). The Hooded Robin is sensitive to declines in patch size and habitat complexity (Watson *et al.* 2001, 2003). For instance, its occurrence has been found to be positively associated with patch size, and with components of habitat complexity that include tree canopy cover, shrub cover, ground cover, logs, fallen branches and litter (Watson *et al.* 2003). Tableland bioregions (New England Tableland, Sydney Basin and South Eastern Highlands) are up to 53-58% cleared and moderately to highly stressed (landscape stress factor 3-6 out of 6), and other bioregions in the sheep-wheat belt (Nandewar, Brigalow Belt South, South Western Slopes) are up to 84% cleared with a stress rating of 3-5, with 6 being the maximum (Barrett *et al.* 2007). The Hunter region of the North Coast Bioregion is particularly threatened by coal mining. 'Clearing of native vegetation' is listed as a Key Threatening Process under the TSC Act in NSW.

Foxes and feral cats may be threats to breeding productivity of the Hooded Robin. 'Predation by the European Red Fox *Vulpes vulpes*' and 'Predation by the Feral Cat *Felis catus*' are listed as Key Threatening Processes under the TSC Act in NSW.

Other threats include invasion of habitat by weeds (Maron & Lill 2005), and by Noisy Miners *Manorina melanocephala*, which aggressively exclude the robin from woodland patches (Maron 2007).

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Extreme fluctuations:

There is no evidence of extreme fluctuations in population size or habitat of this species.

Population reduction and continuing declines:

In recent decades, the Hooded Robin is believed to have undergone a reduction in population size in NSW, based on comparative evidence from broadscale surveys. Its index of abundance (reporting rate) declined significantly by 41% in NSW between the two national bird atlases in 1977-1981 and 1998-2002, over 20 years (*i.e.* four generations), with no variation between bioregions (Barrett *et al.* 2007). This result is inferred to mean a statewide decline of more than 30% in three generations (*i.e.* 33% over 15 years). The robin had equal detectability between Atlas 2 and Atlas 1, despite different survey methods being used (Barrett *et al.* 2003), and therefore the inference of decline is unlikely to be significantly affected by survey bias.

The Hooded Robin was already known to be declining, particularly in tableland regions of NSW, and has disappeared from many parts of the sheep-wheat belt (Garnett & Crowley 2000). During a study of the regional New England population, Fitri & Ford (1997) identified some local extinctions in the 1990s. Since that time, Hooded Robins have disappeared from many of Fitri's study sites: (expert advice). That is, all seven of Fitri's known groups within 10 km of Armidale disappeared in the course of a decade (a greater than 90% decline). The subspecies was recorded at only three sites (one national park, Yina Nature Reserve and one Travelling Stock Reserve (TSR)) on a 100 km transect sampling 26 woodland sites (public and private sites of variable size) on the New England Tableland during 1995 (Debus *et al.* 2006a), but subsequently disappeared from the TSR as well as Yina Nature Reserve (expert advice). It has also disappeared from known former breeding sites west of Glen Innes (expert advice). The subspecies was recorded in only three large remnants out of 10 large (more than 300 ha) and five smaller remnants (less than 100 ha) on private land, in a 100-km transect on the north-west slopes in 1995 and 1997 (New England Tableland and Nandewar Bioregions: Debus *et al.* 2006b). The Hooded Robin is now effectively extinct on the Cumberland Plain (Keast 1995), and it was not recorded during bird surveys in fragmented habitat on the Central Tablelands (Fisher & Goldney 1997). It has continued to decline in the ACT since 2000, by about 50% in reporting rate between 2000 and 2005 although the low numbers may now be stabilising (Canberra Ornithologists Club annual bird reports). Declines between 1977-1981 and 1998-2002 were greater in the eastern (tableland and slopes) bioregions than in the Riverina (Barrett *et al.* 2003). This difference coincides with less native vegetation cover and greater landscape stress in these eastern bioregions than in the Riverina. The latter bioregion is 40% cleared, with a low landscape stress rating of 2 (Barrett *et al.* 2007).

Extent of Occurrence (EOO) & Area of Occupancy (AOO):

The taxon's estimated global EOO is 1 000 000 km², with high reliability, and its estimated global AOO is 100 000 km², with low reliability (Garnett & Crowley 2000). As about half of the

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taxon's distribution falls in NSW, EOO within the state is thus about 500 000 km² and AOO is about 50 000 km². The EOO of the relevant population, on the tablelands and South Western Slopes, is about 20% or 100 000 km². The AOO on the eastern edge of the Hooded Robin's range in NSW (tablelands and South Western Slopes bioregions, about 10 000 km²) is sparse and declining.

Severe fragmentation:

The Hooded Robin is severely affected by habitat and population fragmentation, although the reason is unclear (Garnett & Crowley 2000; Higgins & Peter 2002). It is absent from patches dominated by Noisy Miners (Fitri & Ford 1997; Maron 2007). The Hooded Robin has a high threshold for patch size and connectivity, and habitat complexity (Watson *et al.* 2001, 2003). Remaining habitat is fragmented and degraded, and even large fragments seem unable to sustain robins in the long term, with recolonisation after extinction considered unlikely (Garnett & Crowley 2000; Higgins & Peter 2002). Bioregions in the eastern parts of the Hooded Robin's NSW range have been cleared by up to 84%; some are highly stressed landscapes (*e.g.* South Eastern Highlands and NSW South Western Slopes, stress rating 6 and 5 out of 6: Barrett *et al.* 2007). Predation on dispersing robins is high in cleared landscapes (expert advice).

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Explanatory note

Between 2007 and 2009 the NSW Scientific Committee undertook a systematic review of the conservation status of a selection of plant and animal species listed under the Threatened Species Conservation Act. This species summary report provides a review of the information gathered on this species at the time the Review was undertaken.

The Scientific Committee's report on the Review of Schedules project and final determinations relating to species that were either delisted or had a change in conservation status can be found on the following website: www.environment.nsw.gov.au.

The Committee gratefully acknowledges the past and present Committee members and project officers who ably assisted the Committee in undertaking the Review of Schedules Project. Information on the people involved in the project can be found in the Acknowledgement section of the project report entitled "Review of the Schedules of the Threatened Species Conservation Act 1995. A summary report on the review of selected species" which is available on the abovementioned website.

This species summary report may be cited as:

NSW Scientific Committee (2008) Hooded Robin *Melanodryas cucullata cucullata* – Populations in Eastern Bioregions. Review of current information in NSW. May 2008. Unpublished report arising from the Review of the Schedules of the Threatened Species Conservation Act 1995. NSW Scientific Committee, Hurstville.

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