

# NSW SCIENTIFIC COMMITTEE

## Turquoise Parrot *Neophema pulchella*

Review of Current Information in NSW

June 2009

### Current status:

The Turquoise Parrot *Neophema pulchella* is currently listed as Rare in Queensland under the *Nature Conservation Act 1992* (NC Act) and Threatened in Victoria under the *Flora & Fauna Guarantee Act 1988* (FFG Act; Near Threatened on Advisory List). The species is not listed under Commonwealth legislation, but Garnett & Crowley (2000) list it as nationally Near Threatened. The NSW Scientific Committee recently determined that the Turquoise Parrot meets criteria for listing as Vulnerable in NSW under the *Threatened Species Conservation Act 1995* (TSC Act), based on information contained in this report and other information available for the species.

### Species description:

The Turquoise Parrot is a small (21 cm in length), mostly green and yellow parrot. The upperparts are bright green, with blue-edged wings, and the underparts and outer tail feathers are yellow. The male has a blue face and a small red patch on each shoulder; the female is duller, with a smaller blue face (cream near the eyes) and lacks the red shoulders. Either sex may have the belly tinged orange. The very similar Blue-winged Parrot *Neophema chrysostoma* is duller olive-green, with a blue forehead, yellow face, and extensive blue (no red) on the upperwings. The Orange-bellied Parrot *Neophema chrysogaster* is also very similar, but has a blue forehead, yellow face, and no red on the upperwings. The larger and longer-tailed Red-rumped Parrot *Psephotus haematonotus* is sometimes confused with the Turquoise Parrot, but the former is greener (lacking the blue face), and males have a red rump, a yellow (not red) patch near the shoulder, and a white-edged tail.

### Taxonomy:

*Neophema pulchella* (Shaw 1792) (Psittacidae) is monotypic (*i.e.* no subspecies) and an endemic Australian genus and species.

### Distribution and number of populations:

The Turquoise Parrot occurs mainly on the western side of the tablelands, inland slopes and adjoining plains in the eastern half of NSW, and in some dry coastal valleys (especially in the Sydney Basin), apparently as a single population contiguous with those in Queensland and Victoria (*e.g.* Garnett & Crowley 2000; Barrett *et al.* 2003).

# NSW SCIENTIFIC COMMITTEE

## **Ecology:**

The level of knowledge of the Turquoise Parrot is regarded as moderate on general biology and ecology (Higgins 1999), although there are few detailed studies of wild birds.

### Key habitat requirements

The Turquoise Parrot inhabits eucalypt and cypress-pine open forests and woodlands (commonly box or box-ironbark) with native grasses, sometimes with a low shrubby understorey, often in undulating or rugged country, or on footslopes. It also lives in open woodland or riparian gum woodland, and often near ecotones between woodland and grassland, or coastal forest and heath. The richer habitat types on creek or river flats and foothills are preferred, but have been targeted for agricultural clearing, and habitat remnants are degraded by logging (for firewood and fenceposts), grazing, dominance by Noisy Miners *Manorina melanocephala*, and decline in tree health (rural eucalypt dieback). Habitat degradation on private land is continuing even if clearing has mostly ceased. Much remnant habitat is part of NSW National Park Estate, inland state forests, and travelling stock routes and reserves. The Turquoise Parrot requires live or dead trees, stumps and logs for nesting, trees and shrubs for shelter, and seeding grasses and forbs (often beneath trees) for food.

### Breeding biology

The Turquoise Parrot's nest is a cavity in a live or dead tree, stump or log, often within 1-2 m of the ground. Hollows average about 0.5 m deep, with an entrance hole of 10 x 7 cm, and a nest chamber 12 x 9 cm in diameter; some hollows may be re-used (Higgins 1999). Clutches of usually four to five eggs are laid in spring and summer, with multiple attempts per season. The incubation period is about 18 days, and the nestling period is about four weeks. The post-fledging dependence period lasts at least a week, and juveniles remain with their parents and continue to be fed by the male while the female starts a second clutch. Breeding productivity is 2.8 young per successful nest, and 2.3 young per attempt.

### Diet

The Turquoise Parrot feeds mostly on seeds of grasses, forbs and native shrubs, taken on or near the ground; also on some flowers, nectar, fruits, leaves and scale-insects. Food supply for the Turquoise Parrot can be negatively affected by livestock grazing.

### Social biology

The Turquoise Parrot occurs solitarily, in pairs, in family groups, or in small flocks. It breeds in solitary pairs, though pairs are possibly clumped in favoured nesting patches.

### Territoriality/home range

Breeding pairs of Turquoise Parrots defend a nest site and a small feeding area around the nest against members of their own species. Breeding density can be four to seven pairs per hectare, with nests as little as 8 m apart. The Turquoise Parrot prefers to feed within 100 m of the nest, but ranges up to 1.4 km away.

# NSW SCIENTIFIC COMMITTEE

## Generation length

The generation length of the Turquoise Parrot is estimated as three years (Garnett & Crowley 2000).

## Ability to disperse/susceptibility to population fragmentation

The Turquoise Parrot is resident and locally dispersive, with seasonal movements between forested and more open areas. It is non-migratory, with most movements of less than 10 km often along treed corridors (Higgins 1999). The species is inferred to be susceptible to habitat fragmentation.

## **Number of mature individuals:**

Globally, the population of Turquoise Parrots is estimated as 20 000 breeding birds, with low reliability (Garnett & Crowley 2000). On the basis of available information on distribution and density (Barrett *et al.* 2003), about 90% of this figure, or about 18 000 birds, may occur in NSW.

## **Threats:**

Historically, the main threat to the Turquoise Parrot was clearing of forest and woodland for agriculture. Over 50% of forest and woodland in NSW, and over 80% of temperate woodlands in Australia have been cleared, and the process is continuing (Lunney 2004; Olsen *et al.* 2005; Johnson *et al.* 2007). Important bioregions on the NSW tablelands and western slopes, where the Turquoise Parrot breeds, are 53-84% cleared and moderately to highly stressed (landscape stress factor 3-5 out of 6), while the Sydney Basin Bioregion is 33% cleared with a stress rating of 4 (Morgan 2000; Barrett *et al.* 2007). Relevant bioregions farther west are 23-40% cleared and have landscape stress ratings of 2-3 (Riverina, Darling Riverine Plains: Morgan 2000; Barrett *et al.* 2007). Other threats to the species include predation, particularly on nests and nesting females, by feral cats and foxes, and fire and timber-cutting which reduce the availability of nest hollows. Clearing of native vegetation, 'Loss of hollow-bearing trees', 'Removal of dead wood and dead trees', 'Predation by the European Red Fox *Vulpes vulpes*' and 'Predation by the Feral Cat *Felis catus*' are listed as Key Threatening Processes in NSW under the TSC Act.

## **Extreme fluctuations:**

There is no evidence of extreme fluctuations in the population size or habitat of this species over recent decades.

## **Population reduction and continuing declines:**

The Turquoise Parrot is considered to be increasing, with medium reliability, after a historical severe crash in the early 20th century (Higgins 1999; Garnett & Crowley 2000). The species was reported in 32 one-degree grids in NSW in the first national bird atlas in 1977-1981, at mostly low reporting rates (less than 11% of surveys per grid) though moderate to high reporting rates in some grids (less than half at 11-40% or more than 40% of surveys per grid), and breeding in 10 grids (Blakers *et al.* 1984). Turquoise Parrots were reported in 32 one-degree grids in the second

# NSW SCIENTIFIC COMMITTEE

national bird atlas in 1998-2002, at mostly low reporting rates (less than 10% of surveys per grid), with three grids in the moderate category (10-20% of surveys per grid) and breeding in seven grids (Barrett *et al.* 2003). The NSW distribution of the species therefore appears to have remained essentially unchanged over this period, with no significant national change in reporting rate (0%,  $P = 0.48$ : Barrett *et al.* 2003). The reporting rate for the species in NSW also shows no significant change over this period (six to seven generations, +14%,  $P = 0.362$ ), with the caveat that sample size was small (74 atlas units) and any apparent increase in reporting rate for high-profile rare species may be exaggerated because such species were targeted for survey during Atlas 2 (Barrett *et al.* 2007). The Turquoise Parrot was reported much less frequently than other ground-feeding parrots of its range and habitat (*e.g.* Eastern Rosella *Platycercus eximius* and Red-rumped Parrot *Psephotus haematonotus*: 194 and 244 atlas units, respectively). The Turquoise Parrot is data deficient for the purpose of assessing population recovery (if any) in NSW in the last 10 years, and it is also conservation dependent with respect to security and future availability of nest sites, notably protocols that protect hollow trees in inland state forests.

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

The Turquoise Parrot's global EOO (IUCN 2008) has been estimated as 630 000 km<sup>2</sup>, with medium reliability (Garnett & Crowley 2000), of which about 90% falls in NSW or about 570 000 km<sup>2</sup>. The species' global AOO (IUCN 2008) was estimated as 20 000 km<sup>2</sup>, with low level reliability (Garnett & Crowley 2000), of which about 90% would fall in NSW or about 18 000 km<sup>2</sup>. The EOO for the species has been assessed as stable, and the AOO as increasing, with medium reliability (Garnett & Crowley 2000).

## **Severe fragmentation:**

The Turquoise Parrot's habitat in eastern NSW has been fragmented, and its habitat on the inland slopes is severely fragmented (*e.g.* NSW Southwestern Slopes 84% cleared: Barrett *et al.* 2007). As the species makes dispersive movements of mostly less than 10 km, and appears to need treed corridors for movement (see above), the Turquoise Parrot may be at risk of population fragmentation in heavily cleared landscapes.

## **References:**

- Barrett G, Silcocks A, Barry S, Cunningham R, Poulter R (2003) 'The New Atlas of Australian Birds.' (RAOU: Melbourne)
- Barrett GW, Silcocks AF, Cunningham R, Oliver DL, Weston MA, Baker J (2007) Comparison of atlas data to determine the conservation status of bird species in New South Wales, with an emphasis on woodland-dependent species. *Australian Zoologist* **34**, 37-77.
- Blakers M, Davies SJF, Reilly PN (1984) 'The Atlas of Australian Birds.' Melbourne University Press: Melbourne)
- Garnett S, Crowley G (Eds) (2000) 'The Action Plan for Australian Birds 2000.' (Environment Australia: Canberra)

# NSW SCIENTIFIC COMMITTEE

- Higgins PJ (Ed) (1999) 'Handbook of Australian, New Zealand and Antarctic birds, vol. 4.' (Oxford University Press: Melbourne)
- IUCN (2008) 'Guidelines for using the IUCN Red List Categories and Criteria. Version 7.0.' (Standards and Petitions Working Group of the IUCN Species Survival Commission Biodiversity Assessments Sub-committee: Switzerland). (<http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>).
- Johnson C, Cogger H, Dickman C, Ford H (2007) 'Impacts of land clearing: The impacts of approved clearing of native vegetation on Australian wildlife in New South Wales'. WWF-Australia report, WWF-Australia, Sydney.
- Lunney D (2004) A test of our civilisation: Conserving Australia's forest fauna across a cultural landscape. In 'Conservation of Australia's Forest Fauna (2nd edn)'. (Ed. D Lunney) pp. 1-22. (Royal Zoological Society of NSW: Sydney)
- Morgan G (2000) 'Landscape health in Australia: A rapid assessment of the relative condition of Australia's bioregions and subregions.' (Environment Australia: Canberra)
- Olsen P, Weston M, Tzaros C, Silcocks A (2005) The state of Australia's birds 2005: Woodlands and birds. Supplement to *Wingspan* 15.

## 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](http://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 (2009) Turquoise Parrot *Neophema pulchella*. Review of current information in NSW. June 2009. Unpublished report arising from the Review of the Schedules of the *Threatened Species Conservation Act* 1995. NSW Scientific Committee, Hurstville.