

# NSW SCIENTIFIC COMMITTEE

## Gang-gang Cockatoo *Callocephalon fimbriatum*

Review of Current Information in NSW

December 2008

### Current status:

Other than in NSW, the Gang-gang Cockatoo *Callocephalon fimbriatum* is currently not listed under any State or Commonwealth legislation. The NSW Scientific Committee recently determined that the Gang-gang Cockatoo 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. An Endangered Population of this species occurs in the north-western Sydney suburbs.

### Species description:

The Gang-gang Cockatoo is a small (35 cm in length) grey cockatoo with a wispy, curved crest. The plumage is slate-grey with pale scalloping. The male has a red head and crest, and the female has a grey head with orange ventral scalloping and pale barring in the wings and tail. It is similar in size and shape to the Galah *Eolophus roseicapillus*, but uniformly darker grey. The larger Glossy Black-Cockatoo *Calyptorhynchus lathami* is much blacker and longer-tailed, with red only in the tail and, in females, yellow blotches on the head.

### Taxonomy:

*Callocephalon fimbriatum* (Grant 1803) (Cacatuidae) is monotypic (*i.e.* no subspecies) and an endemic Australian species and genus in an endemic Australasian family.

### Distribution and number of populations:

In NSW the Gang-gang Cockatoo is restricted to the south-eastern coast and highlands, from the lower Hunter and northern Blue Mountains to the Southwestern Slopes, south to and contiguous with the Victorian population (*e.g.* Barrett *et al.* 2003). Occasional outlying northern records (Scone and Myall Lakes) may be of vagrants. Rare isolated occurrences farther north (Ebor, Coffs Harbour) are thought to be escaped captive birds. The population on King Island was extirpated in historic times.

### Ecology:

The ecology of the Gang-gang Cockatoo is poorly understood as there are no detailed studies on this species (Higgins 1999).

### Key habitat requirements

The Gang-gang Cockatoo inhabits eucalypt open forests and woodlands with an acacia understorey. In summer it lives in moist highland forest types, and in winter it moves to more

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ESTABLISHED UNDER THE THREATENED SPECIES CONSERVATION ACT 1995

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open types at lower elevations. This species requires tree hollows for nesting and sometimes for roosting. Eucalypt trees and acacia shrubs are used for foraging. Plantations of exotic pines are usually avoided.

## Breeding biology

The Gang-Gang Cockatoo nests in hollows in the trunks, limbs or dead spouts of tall living trees, especially eucalypts, often near water. A clutch of usually two eggs is laid in spring to summer. Each pair has a single successful brood per year, though pairs may have a second attempt if the first attempt fails early in the season. The incubation period is about four weeks, the nestling period seven to eight weeks, and the post-fledging dependence period lasts at least four to six weeks.

## Diet

The Gang-gang Cockatoo feeds on seeds obtained in trees and shrubs, mostly from eucalypts and wattles, though it eats some seeds of introduced trees and shrubs around human settlements in winter, and also insect larvae (galls, sawflies).

## Social biology

The Gang-gang Cockatoo occurs in pairs, family groups and small flocks.

## Territoriality/home range

The Gang-gang Cockatoo apparently breeds semi-colonially where densities are high. It is thought to show high fidelity to a selected nest hollow.

## Generation length

A generation length of five years is estimated for other similar small cockatoos (corellas, Major Mitchell's Cockatoo *Cacatua leadbeateri*: Garnett & Crowley 2000). However, the Gang-gang Cockatoo is potentially very long-lived, so this estimate may be low for this species.

## Ability to disperse/susceptibility to population fragmentation

The Gang-gang Cockatoo is highly mobile (a partial or altitudinal migrant), but habitat fragmentation possibly inhibits dispersal and foraging efficiency.

## **Number of mature individuals:**

The number of mature individuals of the Gang-gang Cockatoo is uncertain. There are no useful density or population estimates for this species. Densities of "territories" (presumably nest sites) were 7-22/km<sup>2</sup> at one location in Victoria (Higgins 1999). If the Gang-gang Cockatoo occurs at similar densities to the similarly uncommon Glossy Black-Cockatoo, but over half the area (see below), there may be about 5 000 mature individuals, although this value is highly speculative.

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## **Threats:**

Historically, the main threat to the Gang-gang Cockatoo has been clearing of forest for agriculture and settlements, and degradation of forests by logging, leading to loss of foraging habitat and nest sites (Higgins 1999). Over 50% of forest and woodland in NSW has been cleared (Lunney 2004), and prime habitat on richer soils and gentle terrain has been targeted for agricultural clearing, logging, conversion to pine plantations, and urbanisation. Frequent intense fire may be a threat to nest sites. Global warming may increase the frequency and intensity of fire, with increased impact on the cockatoo's food supply and nest sites. 'Clearing of native vegetation', 'Loss of hollow-bearing trees', 'High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition', and 'Anthropogenic Climate Change are listed as Key Threatening Processes (KTP) under the TSC Act in NSW. 'Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations', also a KTP under the TSC Act, may also become a major cause of decline, especially as increasingly sparse nest sites serve as the vector for transmission, because pairs may compete for and fight over nests.

## **Extreme fluctuations:**

There is no evidence of extreme fluctuations in population size or habitat of the Gang-gang Cockatoo.

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

In recent decades, the Gang-gang Cockatoo is believed to have undergone a moderate reduction in population size in NSW, based on comparative evidence from broadscale surveys. Since the assessment of a 44% decline in index of abundance (reporting rate) over 20 years (35% over three generations) between 1977-81 and 1998-2002 (Barrett *et al.* 2007), there have been no specific studies with which to assess population trend or recovery. Most of the Gang-gang Cockatoo's breeding population now exists in State Forests and Department of Environment, Climate Change and Water (DECCW) estate. The species is conservation dependent with respect to security of nest sites, notably protocols that retain hollow trees in state forests.

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

The species' distribution in NSW is about half that of the Glossy Black-Cockatoo, and the Gang-gang's EOO and AOO (IUCN 2008) are roughly 155 000 km<sup>2</sup> and 18 000 km<sup>2</sup>, respectively. A similar estimate of EOO is obtained using the number of whole one-degree grids (n = 15, each c. 100 x 100 km) occupied by the species, excluding vagrant outliers and those grids that are occupied mostly by sea (*i.e.* 150 000 km<sup>2</sup>, calculated from Barrett *et al.* 2003).

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## Severe fragmentation:

The habitat of the Gang-gang Cockatoo in eastern NSW has been fragmented, and its habitat on the inland slopes is severely fragmented (e.g. South Eastern Highlands and NSW Southwestern Slopes 58% and 84% cleared: Barrett *et al.* 2007). The Gang-gang Cockatoo is highly mobile and can disperse or migrate tens of kilometres, so population fragmentation is unlikely except where populations are isolated by extensive suburbia (as in northern Sydney).

## References:

- Barrett G, Silcocks A, Barry S, Cunningham R, Poulter R (2003) 'The New Atlas of Australian Birds.' (RAOU: Melbourne)
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- Garnett S, Crowley G (Eds) (2000) 'The Action Plan for Australian Birds 2000'. (Environment Australia: Canberra)
- 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>).
- 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)

### 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:

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