

Research Note

Update on Longevity and Movements of Carnaby's Black Cockatoo

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CARNABY'S Black Cockatoo *Calyptrorhynchus latirostris* is an endangered species, found only in the southwest of Western Australia. Between 1971 and 1976 this species was the subject of a detailed ecological study (Saunders 1982). As part of that study, adults and fledglings were individually marked on each wing with stainless steel tags (patagial tags) described by Rowley and Saunders (1980). They were also marked with a numbered leg band of stainless steel supplied by the Australian Bird Banding Scheme. Observations made of tagged individuals provided much of the data used to explain the breeding biology, behaviour and movements of this species (Saunders 1980, 1982, 1986; Saunders and Ingram 1998). Despite major problems associated with the use of patagial tags (Saunders 1988), much of the ecology of the species could not have been investigated without their use.

Sightings of tagged birds and recoveries of tags from dead birds enabled movement patterns of two populations (at Coomallo Creek and Manmanning) of the species to be established. These results were published in Saunders (1980). The population at Coomallo Creek was monitored for 28 years, the last year of data collection being 1996 (Saunders and Ingram 1998). At that time the oldest known individual was a female, tagged as an adult, who was at least 19 years old.

On 24 April 2008, one stainless steel tag with the letters "DC" was found lying on the ground in a paddock, east of the town of Jurien Bay, Western Australia at the eastern end of Melbourne Loc 9429. The tag still had the stainless steel wire used to tie the tag to the bird attached to it. The only way for the tag to have been removed with the wire intact was for the bird to have been killed and the tag torn off or the bird died and the major bones of the wing broken. The paddock in which the tag was found had been cropped in 2007. More recently the farmers had been working in the paddock removing Double Gee *Emex australis*, an

agricultural weed. The finder was reasonably certain that the tag was only recently on the ground. There was no sign of any carcass in the area around where the tag was found, but there are many Feral Cat *Felis catus* and Fox *Vulpes vulpes* on the property. One of these predators may have removed the body.

Carnaby's Black Cockatoo frequent the area, feeding on, and roosting in, the eucalypts along the Hill River near where the tag was found (Saunders 1980). The finder was familiar with patagial tags as she had found tag "GP" (a bird from the Coomallo Creek population) under a similar set of circumstances on 23 January 1989 in the same area.

The bird marked with tags "DC" was a male tagged and banded as a chick at Manmanning, in the central wheatbelt (Figure 1). The site of the recovery was 177 km northwest of Manmanning. The band number was 210-00459 and the bird fledged from its nest hollow sometime between 12th and 18th December 1973. If it had died late in 2007 or early 2008, it was 34 years old. This is a record for longevity as far as this species is concerned when in the wild.

Seventy-one birds of the Manmanning population were marked with wing tags between 1971 and 1976. Twenty-seven of these were fledglings and 44 were adults. Only three of the fledglings were seen subsequently. Two of these were tagged in December 1974 and were seen on 14 occasions between January and June 1975 and February and April 1976 in trees around the swamp in Yanchep National Park. Yanchep National Park is near the western edge of a large plantation (Yanchep Pines) (Figure 1) in which the birds foraged. The swamp was the location where up to 1200 (seen in February 1976) Carnaby's Black Cockatoo came to drink in the evenings during the non-breeding season. The third fledgling was "DC" and it was not recorded between its leaving the nest hollow until the single tag was found. Thirteen of the adults tagged at Manmanning were recorded on

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49 occasions away from their breeding area. One was shot near Beermullah (Figure 1) in February 1972, three months after it had been banded as a breeding adult in a nest hollow. Forty-seven of the recordings were made in the trees round the swamp in Yanchep National Park between February and March 1973, January and June 1974, January and June 1975 and February and March 1976. The other recording was of "OI" which was recorded in trees near the Forests Department Head Quarters in the Gnangara Pine Plantation (Figure 1). This individual was subsequently recorded in Yanchep National Park.

There were 718 sightings of 177 individuals tagged at Coomallo Creek made in the areas frequented by the breeding population from Coomallo Creek (Saunders 1980) (Figure 1).

During active searches of these areas, no birds tagged at Manmanning were recorded. However, there was one unconfirmed report of "OA", an adult female tagged at Manmanning, being seen amongst a large flock in trees along the Hill River in June 1977. This bird had been seen in Yanchep National Park in May 1974 and June 1975. With the exception of "DC", this was the only indication of a bird from Manmanning overlapping the range of Coomallo Creek birds. One bird ("TM") tagged as a fledgling at Coomallo Creek in October 1975 was seen with a group of four untagged birds on a property (Glenvar) northwest of Manmanning and 154km from Coomallo Creek in mid-December 1976. This movement suggests that juvenile birds may move over larger areas than adults (Saunders 1980).

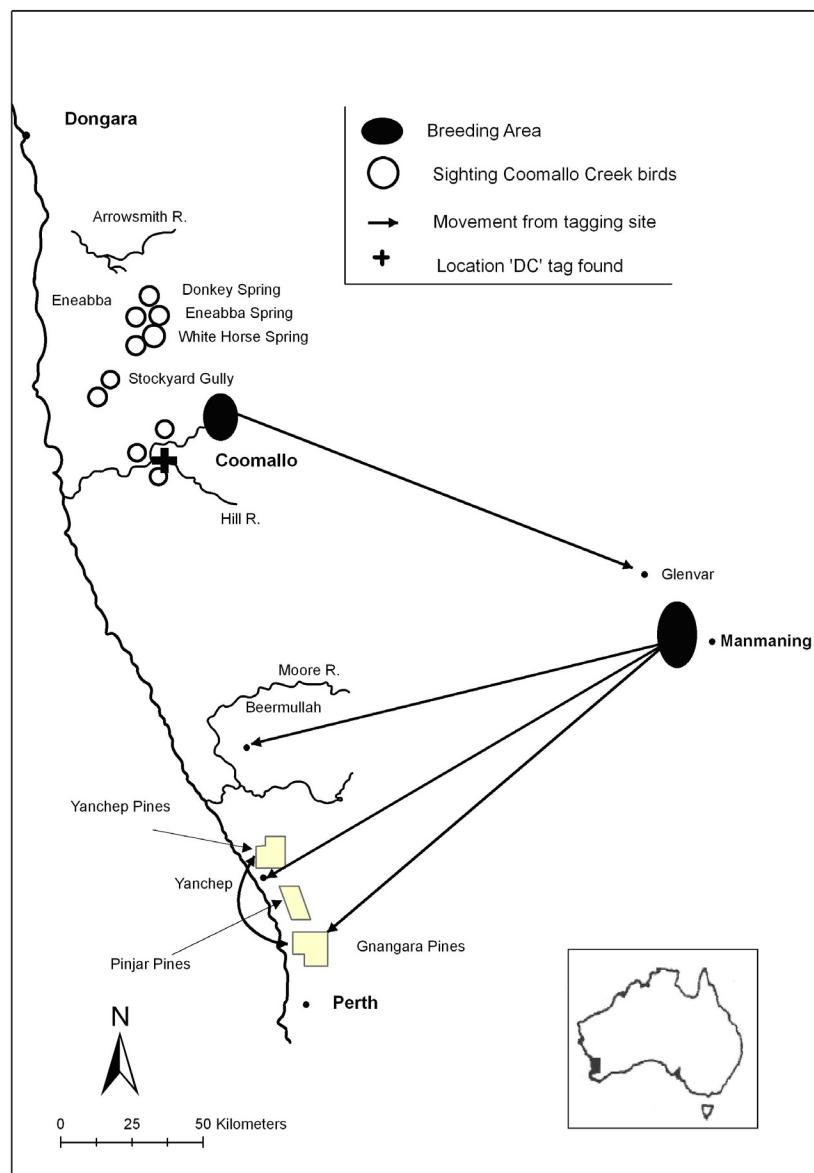


Fig.1. Map showing movements of birds from Manmanning and Coomallo Creek. Also shown is the site where the tag "DC" was found.

Carnaby's Black Cockatoo was extirpated from Manmanning by the spring of 1977 (Saunders 1986) and there have been no records of the birds breeding in the area since then. Carnaby's Black Cockatoo do not begin to breed until they are at least four (Saunders and Ingram 1998) so "DC" was not a breeding adult when the birds stopped breeding at Manmanning.

Carnaby's Black Cockatoo is long-lived species which has a low reproductive output (Saunders 1982; Saunders and Ingram 1998). Little is known about its dispersal once it has fledged, nor how breeding areas are selected. "DC" did not breed in the area from which it fledged and it is not known where it did breed; this recovery sheds no light on selection of breeding areas. Earlier studies did not establish which sex influences where individuals start breeding. In view of the conservation status of this species there is a need to investigate their dispersal and movement patterns. Saunders (1988) demonstrated that adults and fledgling Carnaby's Black Cockatoo marked with patagial tags had a survival rate much lower than those marked with leg bands only. The survival rates of tagged breeding adults were such that they would not have lived long enough to produce enough offspring for a stable population. Differential predation, rather than physical damage due to the wearing of the tags, was the most likely reason for the differences in survival (Saunders 1988). In view of the disadvantages associated with patagial tags, they should not be used with Carnaby's Black Cockatoo. In fact, any attached device which bestows any disadvantage on the wearer should not be used with this species. Radio transmitters may fall into this category.

There is the possibility that vocalizations may provide a non-intrusive method of establishing movement patterns of this species. Saunders (1983) established that individual Carnaby's Black Cockatoo have distinctive vocalizations. Not only can individuals be recognized by their vocalizations, but individuals from the same area appear to have vocalizations of similar structure (Saunders unpubl. data). It is possible that populations from different areas may have different vocalizations. It is worth investigating whether these differences could be used to establish movement patterns of breeding birds from their breeding areas to their non-breeding foraging areas and of sub-adults birds. DNA profiling of Carnaby's Black Cockatoo populations could also provide a non-invasive means to track movement patterns. Information on dispersal and movements is essential to guide revegetation programmes for particular populations.

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