Palm cockatoo
Probosciger aterrimus

Endangered[#] (*Nature Conservation Act 1992*) | Ecological Sciences, Queensland Herbarium

Identification

A large, striking cockatoo. Total length up to 56 cm, wingspan approximately 1.65 m and 650-1000 g in weight (Marchant and Higgins 1993; Heinsohn et al. 2003).

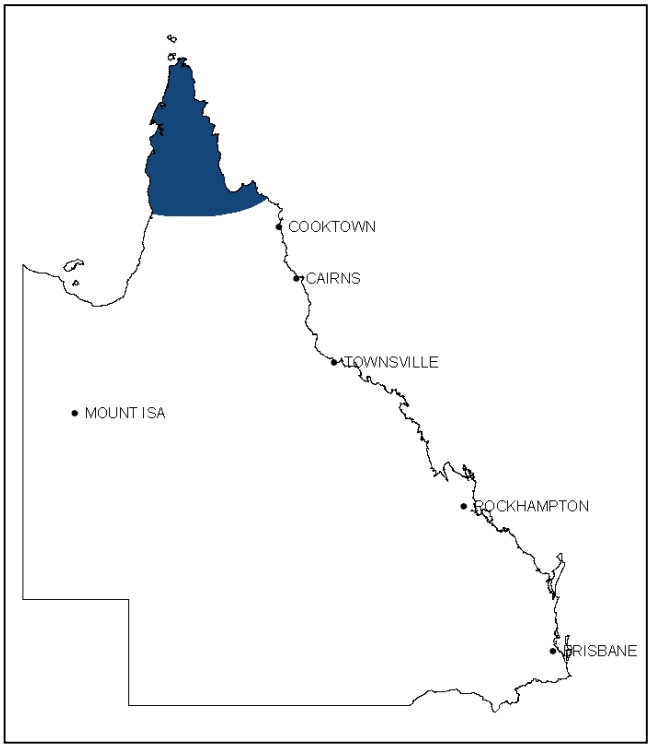
Slate-black in colour with an entirely black tail, distinctive slender, long erectile crest, and massive dark grey bill. Characteristic patch of red facial skin, becoming bright scarlet when excited (Marchant and Higgins 1993; Pizzey and Knight 2001).

May be confused with red-tailed black-cockatoo *Calyptorhynchus banksii*. The two species can be easily distinguished as the palm cockatoo is larger in size, lacks the red/orange panels/bars on the tail and has a long slender crest rather than the robust, helmet-like crest of the red-tailed black-cockatoo (Pizzey and Knight 2001).

Distribution

Distributed throughout the lowlands of New Guinea, West Papua, Aru Islands and Cape York Peninsula (CYP) in far northern Queensland, Australia (Marchant and Higgins 1993; Pizzey and Knight 2001; Murphy 2005).

Palm cockatoo occurs from the tip of CYP south to the Edward River, west to the Archer River and east to Princess Charlotte Bay (Marchant and Higgins 1993; Pizzey and Knight 2001).



Habitat

Primarily found in tropical lowland rainforest and woodland (Wood 1984; Pizzey and Knight 2001). This species often inhabits the ecotones between rainforest (including dense riparian rainforest) and open savannah woodland dominated by *Eucalyptus*, *Corymbia* and/or *Melaleuca*

[#] Conservation status updated from Near Threatened to Endangered in 2021

species, usually with a grassy understorey (Foreshaw 1964; Wood 1984; Heinsohn et al. 2003). Also occurs in swamp woodland with *Pandanus* (Foreshaw 1964; Wood 1984).

This species is an obligate hollow nester (Murphy and Legge 2007). A study by Murphy et al. (2003) reported that palm cockatoo prefers hollow-bearing tress in savannah woodland adjacent to rainforest, with 27 out of 28 active nests located in the woodland habitat. The study also found that birds had a tendency to nest in living trees (almost half of the active nests were found in Darwin stringybark *Eucalyptus tetrodonta*) in off-vertical, skyward-facing hollows, with a size range of 18.5 x 20.5 cm to 35 x 80 cm. Nests comprise of a platform of splintered sticks in the tree hollow, and nest preparation is usually observed between August and November, during the peak breeding period. Nest trees can also contain old and/or inactive nests, and are used predominantly by male birds for display. Male palm cockatoos are highly territorial and will defend nest sites year round (Murphy et al. 2003).

Palm cockatoo has been recorded feeding on the kernels, fruits and seeds of a range of tree species, some of these include: Nonda plum *Parinari nonda*, brown cudgerie *Canarium australasicum,* tropical almond *Terminalia catappa, Pandanus* spp., bushman's clothes-pegs *Grevillea glauca* and booral *Persoonia falcata* (Wood 1984; Murphy 2005). All of these tree species can be found in open woodland habitat, with *C. australasicum* also occurring in rainforest (Wood 1984).

Seasonal and timing considerations

In general, surveys targeting this species can be undertaken at any time of the year.

Research has shown that palm cockatoos appear to be weak seasonal breeders, and can potentially breed at almost any time of the year (late July to early May). However, peak egg-laying occurs in September (Murphy et al. 2003). Therefore, as birds call at different rates due to breeding stages throughout the year and are known to be very quiet at active nests (S. Murphy pers. comm. 2012), surveys in the months leading up to the peak breeding period (i.e. June, July and August) would be more favourable for detecting birds (Murphy 2005).

It is preferable to conduct surveys during the early morning (< 3 hours after sunrise) and late afternoon (< 2 hours before sunset). This is the period when birds are more likely to congregate around roost or nest trees (Foreshaw 1964; Wood 1984; Murphy et al. 2003; Heinsohn et al. 2003; Murphy 2005). Keep in mind birds are usually very quiet in the vicinity of roost trees and if disturbed it may result in birds abandoning roosts (S. Murphy pers. comm. 2012).

To maximise detection success, surveys should be undertaken during fine weather conditions and avoid inclement weather (i.e. rain and/or wind) (Murphy 2005). Keep in mind surveying during the wet season (November to April) is not ideal for detecting palm cockatoo, mostly due to excessive rainfall periods but also accessing suitable habitat may be made more difficult along roads and tracks in the wetter conditions (C. Zdenek pers. comm. 2013).

Birds may also be less detectable during post-cyclone periods (up to at least a few years depending on woodland habitat and natural rate of loss of nest trees) due to less calling activity (Murphy and Legge 2007; S. Murphy pers. comm. 2012). Murphy and Legge (2007) reported that there was an increase in the number of hollows following two tropical cyclones which passed through areas within and near Iron Range National Park, CYP. This creation of more hollows as a result of the cyclones may mean that breeding pairs are less aggressive toward each other and thus, less vocal (S. Murphy and C. Zdenek pers. comm. 2012/2013).

Recommended survey approach

The following survey technique is recommended:

Area searches

Area searches involve systematically searching for birds and signs of their presence (e.g. nest trees and display hollows), as well as listening for their calls, throughout the project area (DEWHA 2010). Surveys for this species should be conducted on foot (walking quietly) in suitable habitat, particularly on the edges of rainforest and savannah woodland. As birds are most active and thus more readily found during the first or last 2-3 hours of daylight, surveys should encompass a dawn or dusk period. Foraging and breeding birds can often be located by sight, and listening for their calls and/or display movements and sounds (i.e. wing-spreading, upside-down swinging, foot stamping, drumming and soft 'clicks') (Murphy et al. 2003). Listening carefully to the sound of falling fruit may also assist in detecting foraging birds (C. Zdenek pers. comm. 2013). Systematic searches should target foraging and breeding habitat, which includes savannah woodland adjacent to rainforest (approximately < 500 m distance to the edge of the rainforest) with large hollow-bearing trees (e.g. *Eucalyptus tetrodonta*, *Corymbia clarksoniana* and *Melaleuca* species).

Nests may be found by following breeding birds by listening for the calls and investigating nearby hollow-bearing trees (Murphy et al. 2003; Heinsohn et al. 2003). Zdenek (2012) reports that the calls of displaying birds at hollows appear to be very different from other behavioural calls such as their nesting, landing, flight and contact calls. Thus, listening for these calls can be an effective method for detect individuals at hollows, which may be display or nesting hollows. A reliable indicator of palm cockatoo activity around nest trees are piles of small, dead branches at the bases of trees as a result of their tendency to prune small branches close to the nest hollow. In addition, branches that have been cleanly sheered at an angle of approximately 45 degrees near hollows is another sign of palm cockatoo presence at nest trees (C. Zdenek pers. comm. 2013). To examine if hollows (up to approximately 12 m in height) have been or are occupied by nesting birds, it is recommended that video cameras mounted to telescopic poles are employed. This method enables large numbers of hollows to be checked for eggs, chicks and splintered sticks in an efficient and safe manner (S. Murphy pers. comm. 2012). For hollows greater than 12 m in height, extendable ladders and single-rope methods may need to be used (Murphy et al. 2003; Heinsohn et al. 2003).

Survey effort guide

There is currently no published information on detection probabilities for palm cockatoo. Estimated breeding densities within one square kilometre have been reported as, on average, < 1 individual in rainforest habitat and 2-3 individuals in woodland habitat, from diurnal bird surveys within and around Iron Range National Park, CYP (Murphy 2005). The recommended level of effort below is based on this published material and may provide reasonable opportunities to detect the species, during optimal survey conditions, if suitable habitat is present within the project area.

Per 100 ha area of suitable habitat		
Survey technique	**Minimum Effort**	**Minimum number of days**
Area searches	4 hours	2
e.g. at least 2 hours of searching per day for a minimum of 2 days.		

Ethical and handling considerations

- Avoid extremely close range inspection of birds during roosting, breeding and feeding as they are a shy and vigilant species (Foreshaw 1964; Wood 1984).
- Minimise disturbance of nesting sites as the species has a slow life history and low reproduction success (only laying a single egg per clutch) (Murphy et al. 2003; Heinsohn et al. 2003; Heinsohn et al. 2009).
- These survey methods do not involve handling or trapping of birds and therefore have a minimal direct impact on the species.

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Citation

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