

Artificial hollows for Carnaby's cockatoo



How to monitor and maintain



Department of
Environment and Conservation



Information sheet

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It is important to monitor and maintain artificial hollows after they have been placed. Monitoring ensures that the effectiveness of the artificial hollow can be determined. It also means that problems with pest species or any maintenance requirements can be identified and resolved.

Without regular maintenance, artificial hollows are likely to fail to achieve their objective (that is, they will fail to provide nesting opportunities for threatened cockatoos). Therefore, it is important to continue a regime of regular maintenance while the artificial hollow is required. It may be several (to many) decades until a natural replacement hollow is available.

Monitoring should be undertaken in order to detect:

- use by Carnaby's cockatoo
- maintenance requirements
- use by other native species
- use by pest species (for example feral bees and corellas).

How do I monitor artificial hollows?

Before undertaking monitoring of artificial hollows, it is recommended that you seek advice from Birds Australia, the WA Museum or the Department of Environment and Conservation (DEC). It is also important to contact DEC to determine if a licence is required (wildlifelicensing@dec.wa.gov.au).

Monitoring artificial hollows requires keen observation and naturalist skills. It is often not possible to directly observe evidence of breeding (that is, chicks or eggs) and inferences must be made based on observation. There are many techniques available to monitor artificial hollows. A combination of several is likely to achieve the best results.

Looking for signs of use

Cobwebs covering the entrance to the hollow will indicate that the hollow has not been used recently. This would also apply to other light debris that may have fallen to partially cover the opening. Signs of recent use or interest in the hollow include evidence of chewing.



*Artificial hollow with fresh evidence of chewing on posts.
Photo by Christine Groom*

Observing parent behaviour around the nest

The behaviour of parent birds around a nest will indicate an approximate age of young in the nest (Table 1).

Table 1 Parent behaviour around nests and approximate age of young.

Parent behaviour	Approximate age/stage of young
Prospecting for hollow	Unborn
Male only seen out of hollow	Egg or very young chick (< 3–4 weeks)
Both parents seen entering/exiting the hollow	Young have hatched (> 3–4 weeks)

Observing feeding flocks

Flocks of all male birds indicate that the females are sitting on eggs. When flocks are mixed it suggests the birds have either not yet laid or that the chicks have hatched and no longer require brooding (more than three-to-four weeks old).

Tapping

When hens are sitting on eggs they will usually respond to tapping at the base of their tree (or pole) by appearing at the entrance or flying from the hollow opening. This is not a guarantee of breeding activity but an indication that it is possibly occurring in the hollow.

Observing insect activity around nest

The faecal matter produced by chicks in a nest attracts insects, especially flies and ants. The type and number of these insects will help indicate how old any chicks present may be. Factors such as temperature and humidity will also affect insect activity, so observations of insect activity should only be used as supporting evidence for other indications of age/use. Blowflies around a nest usually indicate that a death has occurred.

Listening for chicks

With experience, it is possible to determine if one or two chicks are present and a broad estimate of age based on the type and loudness of noises they make.

Looking inside the nest

This can be achieved either with the aid of a telescopic pole and camera or mirror, or with the use of a ladder or other climbing equipment. This method can obtain the most detailed monitoring information for artificial hollows. However, it is also the most time-consuming and difficult to organise. Special equipment is likely to be needed depending on the height and positioning of artificial hollows. There are also safety issues associated with ladder or rope climbing options.

How often should I monitor artificial hollows?

The minimum frequency of monitoring and the techniques used will be determined by the aims of the monitoring and the resources available (Table 2). It is important to limit disturbance to breeding birds and this should be considered when determining the techniques used and frequency.

Table 2 Monitoring of artificial hollows.

Monitoring aim	Frequency of visits	Monitoring techniques
To determine possible use by Carnaby's cockatoo	At least once during peak breeding season (that is, between September and December).	<ul style="list-style-type: none">• Observing behaviour of adults around hollow.• Tapping to see if female will flush from hollow (best undertaken between 10am and 3pm when females most likely to be sitting).• Listening for chicks.• Looking for evidence of chewing.• Looking inside nest.
To confirm use by Carnaby's cockatoo	At least two visits during peak breeding season (that is, between September and December).	<p>To observe at least two of the following:</p> <ul style="list-style-type: none">• breeding behaviour of adults around hollow or evidence of chewing• female flushed from hollow• noises from chicks in hollow. <p>Or to observe:</p> <ul style="list-style-type: none">• chicks or eggs in nest.
To determine nesting success by Carnaby's cockatoo	The more visits, the better. Preferably fortnightly visits between July and December. As a minimum, at least three visits spread throughout breeding season.	<ul style="list-style-type: none">• Looking inside nest to observe eggs or chicks.
To determine use by any species	As often as possible.	<ul style="list-style-type: none">• Inspection from ground as a minimum.• Looking inside nest for detailed observations.
To determine maintenance requirements	At least every two years and preferably annually if hollow fitted with sacrificial chewing posts; can be longer if without.	<ul style="list-style-type: none">• A basic maintenance check can be undertaken from the ground. A ladder or elevated work platform will be required for a comprehensive check and to replace sacrificial chewing posts.

How do I maintain artificial hollows?

Artificial hollows require maintenance to ensure they continue to have the greatest chance of being used by Carnaby's cockatoos. Periodic maintenance checks should be undertaken at least every two years, preferably annually. These checks should be undertaken before the breeding season, which is between July and January with breeding occurring later in this period in southern areas. It is important to maintain a regime of regular maintenance while the artificial hollow is required.

Maintenance checks should assess the following as a minimum:

- condition of chewing posts (if present)
- condition of attachment points
- condition of hollow bases
- stability of tree or pole used to mount the artificial hollow.

Any problems identified during maintenance checks should be addressed as soon as possible. If breeding is currently occurring, maintenance may need to be delayed if it is likely to disturb the parents or chick. Likely maintenance needs include replacement of chewing posts (frequently) or nest bases (occasionally) and repairing of any cracks (infrequently). Maintenance concerns about the security of attachment points or the stability of the tree or pole should be addressed as a priority for safety reasons.

Spare chewing posts should be taken into the field when undertaking maintenance checks on hollows known to be used.



*Artificial hollow base requiring maintenance.
Photo by Christine Groom*



Artificial hollow in fallen tree. Photo by Christine Groom

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