# EPBC Annual Compliance Report

## Great Northern Highway Upgrade: Muchea to Wubin – Muchea North

## EPBC 2016/7656

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**Reporting period: 21 September 2024 to 20 September 2025**

**December 2025**

**Document No: D25#910996**

# Document Control

| Report Compilation & Review | Position | Document Revision | Date |
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| Approver: | Director Environment and Heritage | Rev 0 | 19/12/2025 |

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# Declaration of accuracy

In making this declaration, I am aware that sections 490 and 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) make it an offence in certain circumstances to knowingly provide false or misleading information or documents. The offence is punishable on conviction by imprisonment or a fine, or both. I declare that all the information and documentation supporting this compliance report is true and correct in every particular. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed _____ (approval holder)

Full name **Martine Scheltema**

Position **Director Environment and Heritage**

Organisation (please print including ABN/CAN if applicable) **Main Roads Western Australia**
**ABN: 50 860 676 021**

Date **19/12/2025**

# 1 Introduction

## 1.1 Project Background, Location and Status

Great Northern Highway forms part of the National Highway Network and provides a strategic freight link between Perth and the state's north, as well as Darwin and the Northern Territory. Between 2000 and 2009, Stage One of the Great Northern Highway Muchea to Wubin Upgrade project was completed, which saw 76 km of the highway upgraded to National Highway standard.

In 2014, a comprehensive planning review was undertaken of the full Muchea to Wubin link along the highway. A series of construction packages were prioritised following the review, which included upgrading the existing Great Northern Highway between the Old Gingin Road and the Chittering Roadhouse, known as the Muchea North section (the Project). The upgrades included town bypasses, wider roads, more passing lanes, flattening crests and easing curves, safer roadsides, more rest stops and additional facilities for heavy vehicles.

Construction of the Project was completed in 2020. As such, no construction or clearing activities were undertaken during the reporting period (21 September 2024 to 20 September 2025).

## 1.2 Approval under the *Environment Protection and Biodiversity Conservation Act 1999*

The Project was referred to the then Department of the Environment and Energy (DoEE; 'the Department'; now the Department of Climate Change, Energy, the Environment and Water) for assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Project was determined to be a Controlled Action due to potential impacts on listed threatened species and communities (specifically Carnaby's Cockatoo). The Department issued conditional approval for these works to proceed on 10 August 2018 (EPBC 2016/7656).

## 1.3 Purpose of this Report

Construction of the Project commenced on 21 September 2018. This annual compliance report has been produced to satisfy Condition 12 of the EPBC 2016/7656 approval.

# 2 Summary of Compliance

The Project was found to be fully compliant with the requirements of the EPBC 2016/7656. Table 1 of this report details the project's compliance with regard to each approval condition over the 12-month reporting period: 21 September 2024 to 20 September 2025. Conditions deemed completed are shaded grey.

At this point in time, construction of the Project has been effectively completed, although minor upgrades within the approved boundary may still occur. The assessment of on-ground compliance for this approval primarily relates to assessing whether the rehabilitation completion criteria has been meet and monitoring if the installed artificial nesting hollows are being used by Carnaby's Cockatoo and assess if the hollows require maintenance. Reporting will continue annually under Condition 12 of EPBC 2016/7656.

## 2.1 New Environmental Risks

No new environmental risks for the project have become apparent during the reporting period.

**Table 1: Compliance with Conditions of EPBC Approval EPBC 2016/7656**

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| 1 | The approval holder must not clear more than 52.5 hectares of Carnaby's Black Cockatoo habitat within the project area and can only clear up to six of the hollows identified as 'hollow with evidence of use' and up to eight of the hollows identified as 'suitable hollows', in Attachment 1. | Compliant | No clearing was undertaken during the reporting period.<br>Clearing during previous reporting periods has not exceeded 52.5 hectares of Carnaby's Black Cockatoo habitat. To date, 44.40 ha has been cleared for the Project. |
| 2 | To mitigate impacts to the Carnaby's Black Cockatoo, the approval holder must undertake all efforts to avoid clearing the known nesting hollow and suitable nesting hollow identified in Attachment 2. Within one month of the completion of clearing, the approval holder must provide the Department with evidence that these hollows have not been cleared or a detailed assessment of why clearing of these hollows could not be avoided. | Compliant | The suitable nesting hollows and known nesting hollows identified in Attachment 2 of EPBC2016-7656 have not been cleared, as confirmed to the Department in an email on 11 April 2019. |
| 3 | Within 7 days prior to clearing of any area of Carnaby's Black Cockatoo habitat, the approval holder must investigate and document all potential nesting trees within the area to be cleared to determine if there are any hollows that are being utilised, or are capable of being utilised, by the Carnaby's Black Cockatoos for nesting. The investigation must be undertaken by a suitably qualified person.<br><br>a. If any Carnaby's Black Cockatoo(s) is detected utilising any hollow in any tree, the approval holder must:<br>i. clearly identify and mark the identified nesting tree | Compliant | No clearing was undertaken during the reporting period. |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| | ii. maintain a register of nesting trees<br>iii. only clear the identified nesting tree and vegetation within a 10 metre radius of the tree, if a suitably qualified person has verified that the hollow in the tree are no longer being used by the Carnaby's Black Cockatoo<br>iv. record the location of any known nesting hollow or suitable nesting hollow, identified during the investigations, that are additional to the nesting hollows identified in Attachment 1. | | |
| 4 | To mitigate and offset the loss of known nesting hollows and suitable nesting hollow the approval holder must:<br><br>a. install at least three artificial nesting hollows for each known nesting hollow and suitable nesting hollow cleared<br>b. install at least ten of the artificial nesting hollows required by Condition 4.a prior to the clearing of any known nesting hollow or suitable nesting hollow with all remaining hollows to be installed prior to the beginning of the next breeding season following the commencement of the action.<br>c. maintain the pre-impact breeding density of the Carnaby's Black Cockatoo within the project area by undertaking adaptive management of the artificial nesting hollows to maximise the likelihood that the installed artificial nesting hollows are used by the Carnaby's Black Cockatoo | Compliant | a. No known or suitable nesting hollows were cleared in the reporting period. A total of 12 nesting or suitable nesting hollows were cleared for the project, although thirteen had been previously reported, however this additional tree is still present within the PAA.<br>Thirty six artificial nesting hollows have been installed and monitored for the project to offset the loss of 12 natural nesting hollows.<br>b. The monitoring of natural and artificial hollows as been in place since 2017/18.<br>c. No adaptive management actions are required given the number of breeding attempts observed in artificial hollows.<br>d. No adaptive management actions are required given the number of breeding attempts observed in artificial hollows.<br>e. Not relevant |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| | d. adaptive management may cease when at least one artificial nesting hollow for each known nesting hollow cleared has shown evidence of use by the Carnaby's Black Cockatoo, as verified by the suitable qualified person, for three consecutive years; the artificial nesting hollow in use for three consecutive years need not be the same artificial nesting hollow each year<br>e. if after nine years from commencement of the action the outcome identified in Condition 4.d is not met, the approval holder must<br>i. submit to the Minister for approval the details of an offset that meets the requirements of the EPBC Environmental Offsets Policy and will compensate for the permanent loss of known Carnaby's Black Cockatoo breeding hollows<br>ii. submit to the Department a detailed assessment of the factors that cause the failure to achieve the outcome identified in Condition 4.d<br>f. Each artificial nesting hollow installed must:<br>i. be inspected at least twice a year by a suitably qualified person during the peak breeding season to record any evidence of use by the Carnaby's Black Cockatoo and to identify any maintenance requirements<br>ii. be monitored and maintained in accordance with relevant artificial hollow guidance for the life of the approval, with maintenance | | f. For the 2024-25 breeding season, Main Roads commissioned Phoenix Environmental Sciences to undertake the required monitoring as provided in **Appendix 1**. The 2024-25 monitoring recorded confirmed breeding within 12 artificial nesting hollows and evidence of nesting activity within 7 artificial nesting hollows.<br><br>In 2023-2024, maintenance activities were undertaken on 15 hollows. In 2024-25, Main Roads commissioned Australian Black Cockatoo Specialists (ABCS) to undertake maintenance actions on 33 hollows, including three hollows that were ultimately decommissioned as they were made of natural materials that had deteriorated to a point that they may injure birds that may use it.<br><br>The maintenance activities were undertaken in May 2025, outside of the 2025 breeding season. A summary report of the maintenance actions is provided in **Appendix 2**. |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| | iii. actions, if required, undertaken outside of the breeding season and before the commencement of the next breeding season not be installed in a manner that requires additional clearing of Carnaby's Black Cockatoo habitat or within 10 metres of the edge of the road seal to reduce the risk of vehicle strike. | | |
| 5 | For the purposes of Condition 4, the maximum number of hollows to be cleared that are additional to the hollows identified in Attachment 1 must not exceed four and at least half of all artificial nesting hollows installed must be installed within 500 m of the project area. | Compliant | No clearing or installation of additional artificial nesting hollows was undertaken during the reporting period.<br><br>As reported in previous CARs, thirty four (34) of the required artificial nesting hollows were installed within 500 m of the project area. |
| 6 | All data, enquiries and findings of the monitoring required by Condition 4 must be provided to the Department, DBCA and published on the approval holder's website to contribute to broader research into the use of artificial nesting hollows by the Carnaby's Black Cockatoo. Publication must occur within one year of the environmental outcome identified in Condition 4.d being achieved or after nine years from the commencement of the action if the environment outcome is not met by that time. | Compliant | Condition 4.d was achieved in the 2021-22 reporting year. The information referenced in this condition has been published on the Main Roads website (Construction Project Compliance Reports \| Main Roads Western Australia) and provided to DBCA on 10 November 2022 (evidence provided in the 2021-2022 Annual Compliance Report).<br><br>All Compliance Assessment Reports prepared for the Project are published on the Main Roads website. |
| 7 | To mitigate impacts to the Carnaby's Black Cockatoo, the approval holder must revegetate at least 19.69 hectares of land with species that are known to provide foraging and breeding habitat for the Carnaby's Black Cockatoo, in the area identified in Attachment 3. The objective of | Compliant | a. Initial revegetation planting for the proposal was completed prior to this reporting period. Initial revegetation activities commenced on 20 August 2019, approximately 11 months after commencement of the action and all areas identified for revegetation were |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| | revegetation works is to re-establish a self-sustaining vegetation cover, integrate with the surrounding ecosystem, which provides Carnaby's Black Cockatoo habitat.<br><br>The approval holder must adhere to the following during all revegetation works:<br>a. revegetation must begin within one year of commencement of the action and must have commenced within all the areas identified for revegetation in Attachment 3, within one year of the completion of construction<br>b. flora species identified as Carnaby's Black Cockatoo habitat must not be planted within 10 metres of the edge of the road seal to reduce the risk of vehicle strike<br>c. revegetation works may cease once a suitably qualified person has verified that the revegetated areas meet the completion criteria<br>d. once the completion criteria have been achieved, all areas of revegetation must be inspected once every 2 years, during Spring, for at least a further 20 years to ensure the completion criteria are being maintained<br>e. undertaken corrective actions to improve vegetation quality within the revegetated areas, within 3 months of becoming aware that an area of revegetation no longer meets the completion criteria; corrective actions may cease once the completion criteria have again been achieved. | | completed in July 2020, one month after construction works were completed. Revegetation maintenance works are ongoing.<br>b. No flora species identified as Carnaby's Black Cockatoo habitat have been planted within 10 metres of the edge of the road seal.<br>c. Revegetation has not yet been verified to meet the completion criteria. In the previous reporting period, Main Roads commissioned Gambara to monitor and assess the revegetation against the completion criteria, as reported in the 2023-2024 Annual Compliance Report. Gambara confirmed that the revegetation meets three of the five completion criteria targets. The status of the remaining two completion criteria targets is considered not yet achieved. In line with this, Gambara undertook infill planting in August 2025 to fill gaps and increase species diversity (approximately 320 *Anigozanthos manglesii* and 600 *Banksia Grandis*). Main Roads have commissioned Gambara to undertake additional revegetation monitoring in 2026.<br>d. This condition is not yet relevant. Revegetation has not yet been verified to meet the completion criteria.<br>e. This condition is not yet relevant. Revegetation has not yet been verified to meet the completion criteria. |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| 8 | To mitigate impacts to the Carnaby's Black Cockatoo, the approval holder must prepare and submit a *Construction Environmental Management Plan* (CEMP) for the approval of the Minister. The approval holder must not commence the action unless the Minister has approved the CEMP. The approved CEMP must be implemented.<br><br>The CEMP must be prepared in accordance with the Department's Environmental Management Plan Guidelines and include, but not be limited to:<br><br>a. design principles and practices to minimise clearing of Carnaby's Black Cockatoo habitat – for example, road micro-alignment, traffic management alternatives to side roads<br>b. measures to prevent impacts to Carnaby's Black Cockatoo habitat during construction, including to:<br>i. prevent and/or control site access, weeds, *Phytophthora* dieback, erosion, dust and fire<br>ii. delineate vegetation to be retained through, for example, the erection of temporary fencing or signage to avoid accidental clearing or disturbance outside of the impact area<br>c. management measures, including in relation to fencing and access controls, to permanently restrict access to adjacent road reserves<br>d. objectives, targets and completion criteria for post construction rehabilitation measures such as site clean-up and weed management, including | Complete | The Minister approved the CEMP on 5 September 2018 and the action commenced on 21 September 2019. Main Roads implemented the approved CEMP. |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| | information on the mapping, monitoring and removal of noxious weeds<br>e. objectives and targets for landscaping and revegetation works required by Condition 7, including details on site preparation works, seeding planting programs, success rates, ongoing management post establishment and details of replanting requirements if success rates are not achieved<br>f. clear objectives and performance indicators for all management actions, mitigation measures and practices prescribed by the CEMP including details of the monitoring to be undertaken to demonstrate the effectiveness of the measures<br>g. corrective actions for circumstances where an action, mitigation measure or practice prescribed by the CEMP fails to meet, or is unlikely to meet, its prescribed objectives, and trigger action points at which these corrective actions will be implemented<br>h. timeframes for implementing the above measures. | | |
| 9 | To compensate for the loss of up to 52.5 hectares of foraging habitat, and 744 potential breeding trees for the Carnaby's Black Cockatoo the approval holder must, within one year after the commencement of the action, provide the Department with the offset attributes, shapefiles and textual descriptions and maps to clearly define the location and boundaries of the Ioppolo Road Offset and Banovich Road Offset, that the approval holder has transferred to the DBCA. | Complete | Main Roads provided a letter and information to the Department on 12 November 2018 to satisfy the requirements of this Condition. |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| 10 | Within 30 days after the commencement of the action, the approval holder must advise the Department in writing of the actual date of commencement. | Complete | The action commenced on 21 September 2018, with written notification provided to the Department by email on 27 September 2018. |
| 11 | The approval holder must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement the plan required by this approval (Condition 8), and make them available upon request to the Department. Such records may be subject to audit by the Department of an independent auditor in accordance with section 458 of the EPBC Act or used to verify compliance with the conditions of this approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media. | Compliant | Main Roads has maintained records in accordance with this condition and their legal obligations under the Western Australian *State Records Act 2000*. |
| 12 | Within three months of every 12 month anniversary of the commencement of the action, the approval holder must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the Department at the same time as the compliance report is published. Reports must remain on the website for the life of this approval. The approval holder must continue to comply with this condition until such time as agreed to in writing by the Minister. | Compliant | This 2024-25 Annual Compliance Report will be published on the Main Roads website on or before 21 December 2025.<br><br>The 2023-24 Annual Compliance Report was published on the Main Roads website 19 December 2025. |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| 13 | Upon the direction of the Minister, the approval holder must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the Minister. The independent auditor must be approved by the Minister prior to the commencement of the audit. Audit criteria must be agreed to by the Minister and the audit report must address the criteria to the satisfaction of the Minister. | Not applicable | The Minister has not yet directed Main Roads to conduct an independent audit of compliance with EPBC 2016/7656 conditions of approval. |
| 14 | The approval holder may choose to revise a management plan approved by the Minister under Condition 8 without submitting it for approval under section 143A of the EPBC Act, if the taking of the action in accordance with the revised plan would not be likely to have a new or increased impact. If the approval holder makes this choice they must notify the Department in writing that the approved plan has been revised and provide the Department, at least four weeks before implementing the revised plan, with:<br>a. an electronic copy of the revised plan;<br>b. an explanation of the differences between the revised plan and the approved plan; and<br>the reasons the approval holder considers that taking the action in accordance with the revised plan would not be likely to have a new or increased impact. | Not applicable | The approved CEMP has not been revised during this reporting period. |
| 15 | The approval holder may revoke their choice under Condition 14 at any time by notice to the Department. If the approval holder revokes the choice to implement a revised plan, without approval under section 143A of the Act, the plan approved by the Minister must be implemented. | Not applicable | Main Roads has not elected to revoke their choice under Condition 14. |

| Condition Number | Condition | Status | Evidence/Comments |
|---|---|---|---|
| 16 | If the Minister gives a notice to the approval holder that the Minister is satisfied that the taking of the action in accordance with the revised plan would be likely to have a new or increased impact, then:<br><br>a. Condition 14 does not apply, or ceases to apply, in relation to the revised plan; and<br>b. The approval holder must implement the plan approved by the Minister.<br><br>To avoid any doubt, this condition does not affect any operation of Conditions 14 and 15 in the period before the day the notice is given. | Not applicable | The approved CEMP has not been revised during this reporting period. |
| 17 | Conditions 14, 15 and 16 are not intended to limit the operation of section 143A of the EPBC Act which allows the approval holder to submit a revised plan to the Minister for approval. | Not applicable | The approved CEMP has not been revised during this reporting period. |
| 18 | Unless otherwise agreed to in writing by the Minister, the approval holder must publish all management plans referred to in these conditions of approval on their website for the duration of this approval. Each management plan must be published on the website within 1 month of being approved by the Minister or being submitted under Condition 12 and must remain on the website for the life of this approval. | Compliant | The approved CEMP was first published on Main Roads' website on 2 October 2018. The plan is available here: Construction Project Compliance Reports \| Main Roads Western Australia |

# 3 Appendices

| Appendix | Title |
|---|---|
| Appendix 1 | Phoenix Environmental 2024-25 Artificial Nest Box Monitoring Report |
| Appendix 2 | Australian Black Cockatoo Specialists 2025 Artificial Next Box Maintenance |

## Appendix 1: Phoenix Environmental 2024-25 Artificial Nest Box Monitoring Report

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ENVIRONMENTAL SCIENCES

# Black cockatoo breeding activity census 2024-25 for Muchea North

## Great Northern Highway, Muchea to Wubin Upgrade Stage 2 Project

Prepared for Main Roads WA

March 2025

Final

Black cockatoo breeding activity census 2024-25 for Muchea North.

Great Northern Highway, Muchea to Wubin Upgrade Stage 2 Project.

Prepared for Main Roads WA

| Author | Version | Version number | Date submitted | Submitted to |
|---|---|---|---|---|
| A. Jacks | Draft for client comments | 0.1 | 26-Feb-25 | A. Dalton |
| A. Jacks | Final, client comments addressed | 1.0 | 20-Mar-25 | A. Dalton<br>M. Malan |



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Project code: 1531-MNU-MR-VERM-2024

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# Appendices

# 1 INTRODUCTION

Phoenix Environmental Sciences Pty Ltd (Phoenix) was commissioned by Main Roads WA, to undertake a Carnaby's Cockatoo (*Zanda latirostris*) breeding activity census over the 2024-25 breeding season within and surrounding the disturbance footprint for the Muchea North Upgrade project area (Figure 1). This report presents the results of the census.

## 1.1 BACKGROUND

In 2019, Main Roads upgraded the Great Northern Highway (GNH) between Straight Line Kilometre (SLK) 38.60 and 51.40, referred to as Muchea North Upgrade (Muchea North in this report). The Muchea North proposal was referred under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 1 March 2016 (EPBC 2016/7656), assessed as a controlled action and granted conditional approval in August 2018 (DotEE 2018).

Muchea North resulted in the loss of 13 Carnaby's Cockatoo nesting hollows. To mitigate and offset the loss of these, Main Roads was required to install 39 artificial nest boxes (Figure 1). In accordance with EPBC 2016/7656 Conditions 4f(i) and (ii) each artificial nesting hollow installed must:

- (i): be inspected at least twice a year by a suitably qualified person during the peak breeding season to record any evidence of use by the Carnaby's Cockatoo and to identify any maintenance requirements; and
- (ii): be monitored and maintained in accordance with relevant artificial hollow guidance for the life of the approval, with maintenance actions, if required, undertaken outside of the breeding season and before the commencement of the next breeding season.

The monitoring program also required monitoring of previously recorded natural hollows suitable for Carnaby's Cockatoo (Figure 1). Monitoring of artificial and natural hollows is required in accordance with the Department of Parks and Wildlife (DPaW, now Department of Biodiversity, Conservation and Attractions, DBCA) procedure: How to Monitor and Maintain Artificial Hollows for Carnaby's Cockatoo (DPaW 2015).

Detailed black cockatoo habitat assessments conducted as part of the baseline assessments for Muchea North (Phoenix 2015, 2017a) recorded all potential breeding trees of species known to support black cockatoo breeding and identified suitable nesting hollows and hollows with evidence of use.

A native vegetation clearing permit (NVCP) for Muchea North (Permit no. 7563/2) has been approved by the WA Department of Water and Environmental Regulation (DWER) under the *Environmental Protection Act 1986* (EP Act).

To support Condition 4c of EPBC 2016/7656, Main Roads commissioned Phoenix to undertake monitoring of confirmed and suitable nesting hollows recorded within the EPBC Act Approval Boundary and wider baseline survey area (Phoenix 2015, 2017a) (the study area; Figure 1). A series of monitoring events have taken place to support this condition (Table 1). The initial baseline monitoring program was conducted in the 2017-18 breeding season (August 2017 – February 2018) which assessed hollow usage of suitable nesting hollows and hollows with evidence of use within the study area (Phoenix 2018). A second year of baseline monitoring for hollow usage within the study area in the 2018-19 breeding season was undertaken by Phoenix from August 2018 to February 2019 (Phoenix 2019). The artificial nesting hollows were installed during the 2018-2019 breeding season, therefore the results of these first two surveys collectively represent the pre-impact breeding density.

Impact monitoring was subsequently conducted each breeding season since the 2019 breeding season (Phoenix 2020, 2021, 2022, 2023, 2024). This report incorporates the results of the 2024-2025 monitoring season into the nesting hollow usage dataset for Muchea North.

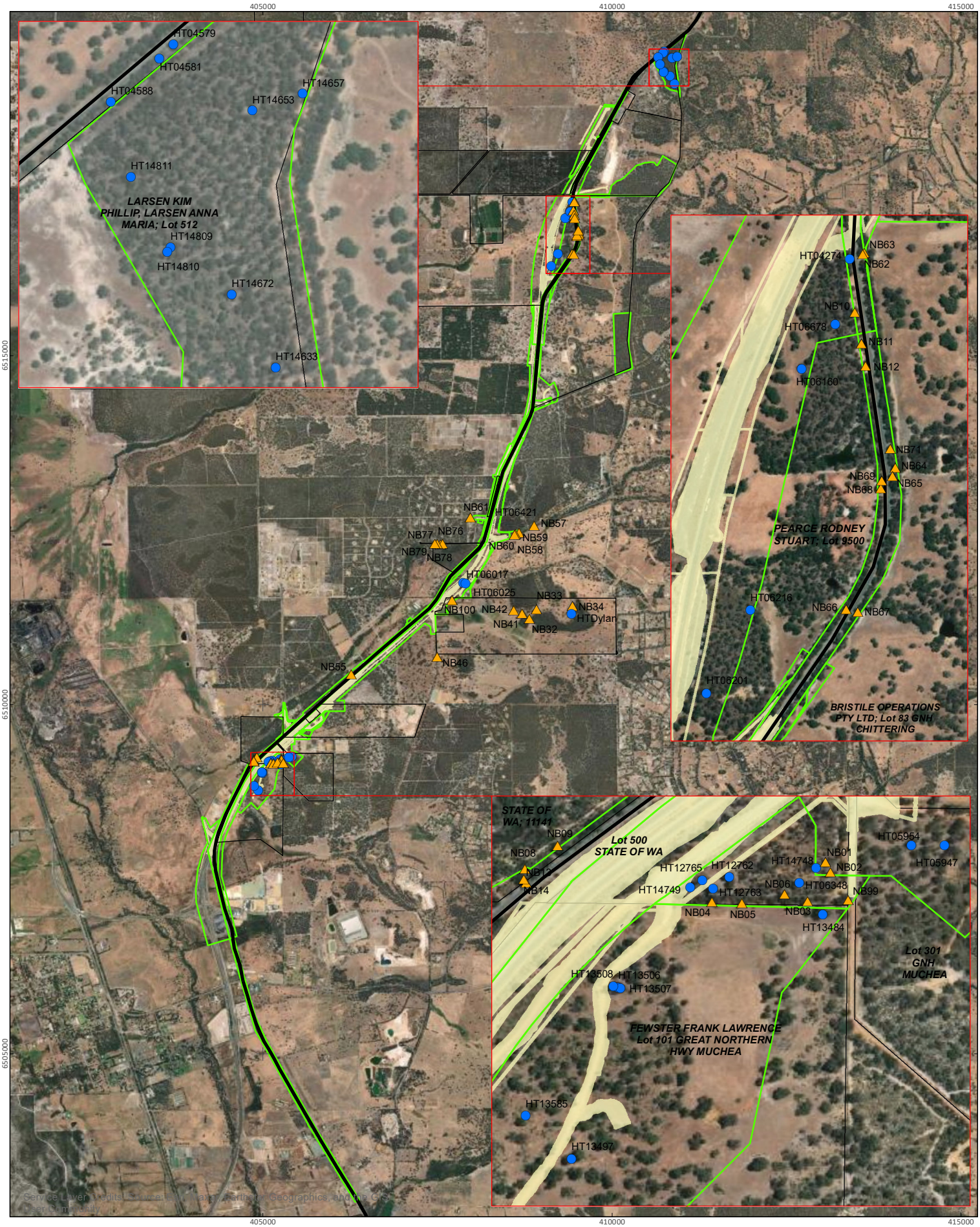
**Table 1 Summary of black cockatoo monitoring activity**

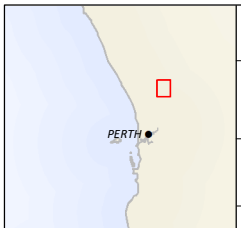
| Year | Activity |
|---|---|
| 2014-2016<br>Various times | Habitat assessment including recording all potential breeding trees and suitability for nesting. |
| 2017-2018<br>August to January | Baseline assessment: Assessment of nest hollows for evidence of breeding. |
| 2018-2019<br>August to February | Baseline assessment: Assessment of nest hollows for evidence of breeding.<br>*Road works commenced and artificial nesting hollows were installed during this breeding season.* |
| 2019-2020<br>2020-2021<br>2021-2022<br>2022-2023<br>2023-2024<br>2023-2025<br>August to January | Post-impact assessment of both natural nest hollows and artificial nesting hollows for evidence of breeding. |

## 1.2 SCOPE OF WORK

The scope of work was as follows:

- Between August 2024 and February 2025, inspect the 40 artificial nest boxes installed in the Muchea North area. These inspections must be in accordance with DPaW (2015);
- The inspection of the artificial nest boxes on Nesci Estate must be in accordance with the land access agreement;
- Between August 2024 and February 2025, survey the previously recorded natural hollows suitable for Carnaby's Cockatoo to allow for a comprehensive view of Carnaby's Cockatoo breeding activity. Access to trees on private property will be contingent on prior landowner consent, to be negotiated by the consultant (Main Roads to provide landowner contact details);
- During inspections of artificial and natural hollows, record evidence of use by Carnaby's Cockatoos at each artificial and natural hollow in accordance with DPaW (2015);
- During inspections, identify any artificial nest box maintenance needs in accordance with DPaW (2015), and whether natural hollows remain suitable for use by Carnaby's Cockatoo; and
- Within six weeks of completion of the final monitoring campaign provide to Main Roads a draft report that provides all records required by Conditions 4f(i) and (ii) of EPBC 2016/7656 for all artificial and natural hollows inspected. This report must be suitable for publication on the Main Roads website for public accessibility, and provision to the WA Department of Biodiversity, Conservation and Attractions (DBCA) and the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW).




Main Roads WA
Great Northern Highway, M2W Upgrade Project

| | |
|---|---|
| Project No | 1531-MNU-MR-VERM |
| Date | 20/03/2025 |
| Drawn by | AJ |
| Map author | AJ |

0 1 2
Kilometers

1:70,000 (at A4) GDA 1994 MGA Zone 50

- Study area
- Disturbance footprint
- Road
- Artificial nesting hollow
- Natural nesting hollow

# Figure 1

## Study area and hollow locations

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# 2 CENSUS METHODOLOGY

Methods were consistent with the approach undertaken in previous monitoring events for Muchea North (Phoenix 2018, 2019, 2020, 2021, 2022, 2023, 2024).

Prior to the surveys, site locations (artificial and natural nest hollows) were loaded onto field tablets. Data was collected electronically using a customised data collection template and included:

- site code;
- signs of use – birds prospecting hollows, fresh chewings, birds perching, birds entering/existing hollows, birds flushed from hollows, gender of observed birds, chick calls, eggs observed (inc. status if possible – incubated or abandoned), chick/s observed, chick/s fledged;
- other indicators, e.g. gender mix of flocks, evidence of nesting at base of trees; and
- condition of hollow, current suitability for use (natural hollows), and maintenance requirements (artificial hollows).

The knocking and scraping method was conducted at the base of trees for all monitored hollows during the first half of the monitoring period when birds are typically prospecting for suitable hollows and females are incubating eggs. Pole camera inspections were carried out at each hollow towards the latter half of the survey so as to not disturb females incubating eggs during the first half of the monitoring period. The pole camera is used to check to see if eggs or chicks are in nest hollows and their condition (i.e. abandoned eggs, dead or alive chicks). Some hollows could not be accessed by pole camera due to the hollow being too high, blocked by branches, the hollow entrance at an unsuitable angle to allow a clear picture, or the hollow being located close to powerlines. These hollows rely on visual observations of parent birds' activity.

Other observational methods were also employed, i.e. listening for nest activity, flock and individual bird behaviour.

Consistent with previous methodology, the following activities were recorded:

- evidence of nesting activity was noted where fresh chewing was around the hollow entrance and/or birds were seen prospecting hollows; and
- a confirmed breeding event was noted where eggs were seen in hollows and/or other clear evidence observed that a chick is present (i.e. female seen at hollow entrance when brooding eggs, and/or parents seen preparing to feed chick in the hollow).

Maintenance checks of artificial hollows assessed the following:

- condition of chewing posts;
- condition of attachment points;
- condition of hollow bases; and
- stability of tree or pole used to mount the artificial hollow.

As per previous monitoring surveys, site visits were undertaken every 4-6 weeks between August 2024 and February 2025: 30 August, 3 October, 8 November, 2 December, 28 December, and 31 January. Due to the late breeding season, the final survey was delayed to confirm the fate of chicks.

The baseline surveys for Muchea North identified a total of 57 trees in the study area containing suitable nesting hollows for black cockatoos, of which 25 had evidence of nesting activity.

In the initial baseline survey (2017-18 season), 36 of these were monitored as the remaining 21 were unable to be assessed due to access constraints.

In the second baseline season (2018-19), a total of 86 hollows were monitored; 47 natural nesting hollows and 39 newly installed artificial nesting hollows were monitored (Appendix 1). This included 2 new natural hollows added to the census in the current season (HT6330 and HT13585) and 14 trees with natural nesting hollows that were not accessible in the 2017-18 season. A further 5 natural nesting hollows were not monitored due to 2 trees no longer being accessible, and 3 tree hollows no longer being suitable (i.e. Tree or hollow collapse (Appendix 1)).

In the 2019-2020 season, 73 hollows were monitored, of which 33 were natural nesting hollows and 40 were artificial nesting hollows (Appendix 1). Prior to the survey, 13 trees that contained suitable nesting hollows were removed as part of the GNH road upgrades (HT05911, HT05923, HT06020, HT06046, HT06261, HT06278, HT6330, HT06655, HT08752, HT08753, HT08754, HT13533, HT13534 and HT13535), 12 of these were monitored in the previous 2 monitoring programs and one was not accessible. These 13 trees were offset by the installation of the 39 artificial nesting hollows (which were installed the previous year) of which all were able to be monitored. An additional artificial nesting hollow (NB100) was included in the survey which was erected to replace natural nesting hollow HT04059. Four natural nesting hollows from the baseline dataset that had not been monitored in the previous 2 years were able to be surveyed in the 2019-2020 season as landowner access had been granted. Four trees with natural nesting hollows were not surveyed in the 2019-2020 season because the tree or hollow was no longer considered suitable.

In the 2020-2021 and 2021-2022 surveys, 71 hollows were monitored. These were the same trees and artificial nesting hollows from the 2019-2020 season; however,2 of the 73 trees from the 2019-2020 season were not able to be surveyed due to the hollow becoming unsuitable (HT12761) or the tree being removed (HT13533) (Appendix 1).

Since the 2022-2023 survey, 72 hollows, comprising of the 71 suitable hollows from the 2021-2022 breeding season and an additional natural hollow (Dylan) located 75 m south of NB34 were surveyed.

# 3 RESULTS AND DISCUSSION

## 3.1 CENSUS RESULTS 2024-25 BREEDING SEASON

A total of 21 natural or artificial hollows recorded evidence of nesting activity or a confirmed breeding event during the 2024-25 breeding season. Of these, confirmed breeding was recorded within 12 artificial nesting hollows only; no confirmed breeding events occurred in natural nest hollows (Table 2; Figure 2).

Of the confirmed breeding events:

- 10 were presumed to have resulted in the successful fledging of a chick (NB01, NB04, NB06, NB12, NB33, NB34, NB41, NB062, NB69, and NB99); and
- 2 nests resulted in unsuccessful breeding attempts (dead chicks in NB10 and NB77).

Evidence of nesting activity was observed in 7 artificial nesting hollows and in 2 natural nesting hollows (Table 2;

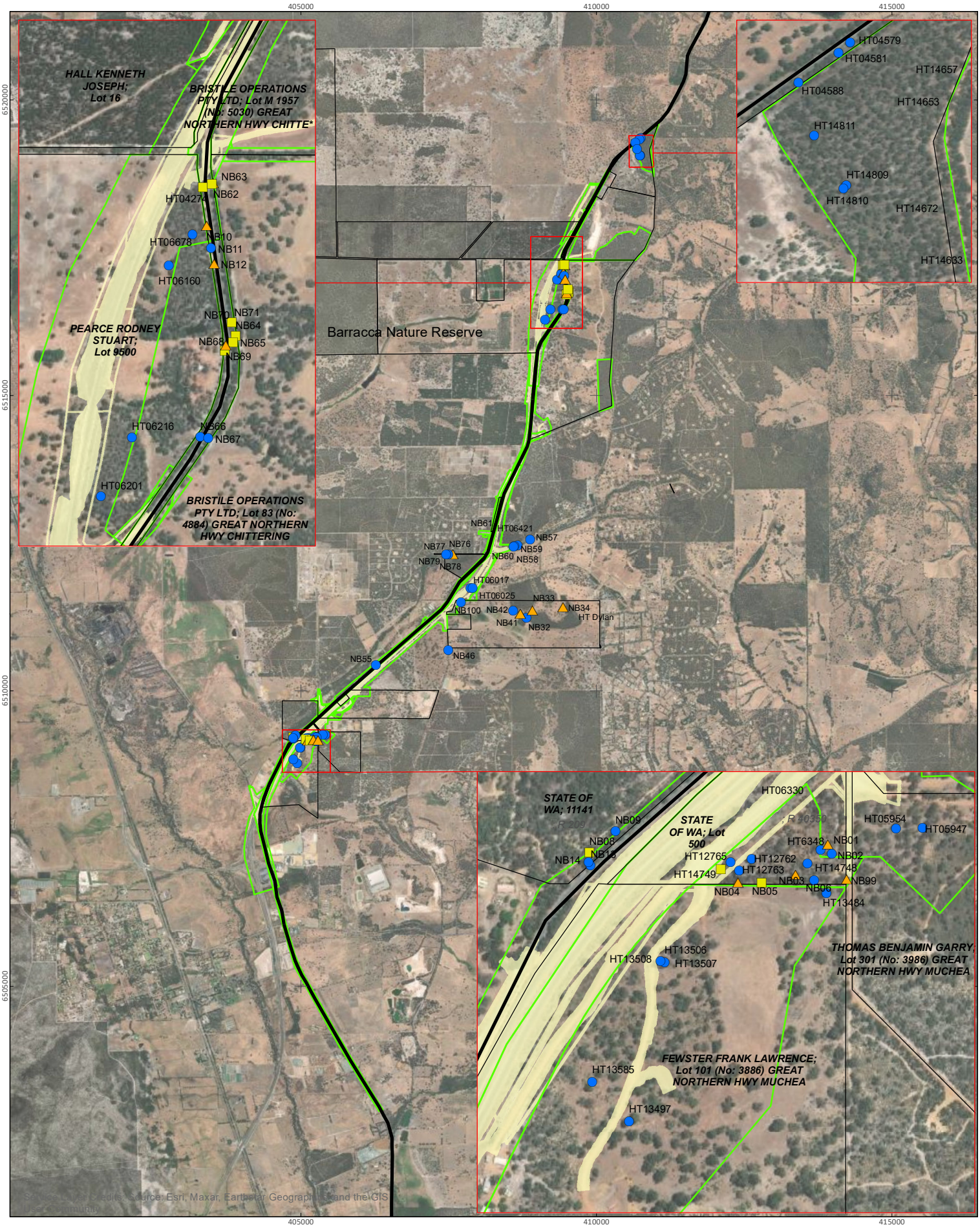
Figure 2). Of these, 5 were instances where females were flushed, and 4 were pairs of females at hollow entrances. however, a later inspection saw no chicks or eggs, and the birds were likely to be prospecting, with 2 instances of fresh chewing around the hollow entrance.

**Table 2 2023-2024 breeding season nest activity**

| HT ID[1] | Inspection date | | | | | | Result |
|---|---|---|---|---|---|---|---|
| | 30/08/2024 | 3/10/2024 | 8/11/2024 | 8/12/2024 | 28/12/2024 | 31/01/2025 | |
| HT04274 | No flush | No flush | Female at hollow | | | | Evidence of nesting activity |
| HT14749 | No flush | No flush | Female flushed | | | | Evidence of nesting activity |
| NB01 | No flush | No flush | Female flushed | | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB04 | No flush | No flush | Chick in nest. | Chick in nest | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB05 | No flush | No flush | Empty. Pair near nest | Empty | Empty | Empty | Evidence of nesting activity |
| NB06 | No flush | No flush | No flush | | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB08 | No flush | Pair prospecting hollow | No flush | Empty | | | Evidence of nesting activity |
| NB10 | No flush | No flush | Female flushed | Chick in nest | Large chick | Large, almost fledged dead chick | Confirmed breeding event: unsuccessful fledge |
| NB12 | No flush | No flush | Female flushed | Chick in nest | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB33 | No flush | No flush | No flush | Chick in nest | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB34 | No flush | No flush | No flush | Chick in nest | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB41 | No flush | No flush | No flush | Chick in nest | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB62 | No flush | Female flushed | No flush | Chick in nest | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB63 | No flush | No flush | Female flushed | Empty | | | Evidence of nesting activity |
| NB64 | No flush | Female flushed | No flush | Empty | | | Evidence of nesting activity |
| NB65 | No flush | No flush | No flush | Empty. Pair near nestbox | | | Evidence of nesting activity |
| NB68 | No flush | No flush | Female flushed. Photo? | Pair at nest | | | Evidence of nesting activity |

| HT ID[1] | Inspection date | | | | | | Result |
|---|---|---|---|---|---|---|---|
| | 30/08/2024 | 3/10/2024 | 8/11/2024 | 8/12/2024 | 28/12/2024 | 31/01/2025 | |
| NB69 | No flush | No flush | Female flushed | Chick in nest | | Chick fledged | Confirmed breeding event: assumed successful fledge |
| NB71 | No flush | No flush | Female flushed | Empty | | | Evidence of nesting activity |
| NB77 | No flush | No flush | Female flushed. Photo? | Pin feathered chick in nest | Large chick | Large, almost fledged dead chick | Confirmed breeding event: unsuccessful fledge |
| NB99 | No flush | Possible flush. Male feeds female close by | No flush | | Large chick | Chick fledged | Confirmed breeding event: assumed successful fledge |

[1] HT = natural nesting tree hollow, NB = artificial nest box





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| Drawn by | AJ |
| Map author | AJ |

0 1 2
Kilometers

1:82,731 (at A4) GDA 1994 MGA Zone 50



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Study area
Disturbance footprint (Current GNH)
Road (old GNH)

**Result**

- No evidence of breeding
- Confirmed breeding event
- Evidence of nesting activity

# Figure 2

## Monitoring results for 2024-25 breeding season

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**Figure 3 Pin feathered chick in nest box (NB33) (December 2024) (Photograph by T. Kirkby)**

**Figure 4 Large, feathered chick a nest box NB69 (December 2024) (Photograph by T. Kirkby)**

## 3.2 POST-IMPACT ASSESSMENT

The number of hollows which had confirmed Carnaby's Cockatoo breeding events in the 2024-25 breeding season is significantly higher than the pre-impact average and is slightly lower than the post-impact 6-year average. However, it is still within normal range for the post-impact average (Table 3) and comparable to previous years with the exception of 2021-2022 and 2022-2023, which had significantly higher breeding rates.

The rate of successful breeding events in the 2023-24 breeding season (83%) is higher than both the pre-impact and post-impact success rate (75% and 65% respectively), with this season having the most successful breeding outscomes since post-impact monitoring began. The post-impact average breeding success rate is similar to historic data from a survey undertaken at Coomallo Creek (100 km north of the study area near Jurien Bay) between 1970 and 1976 where the breeding success rate from 482 nests was 64.7% (Saunders 1982). Breeding success rate is thought to be highly dependent on food availability (DCCEEW 2024).

All successful breeding attempts have produced one chick, with the exception of a single bird in 2022-2023 which fledged 2 chicks; this is usually indicative of older, more experienced females, but also relies on food resources and availability (Saunders *et al.* 2014).

Most significantly, the results of the monitoring program clearly show a trend towards increased usage of the artificial nesting hollows installed under the Muchea North offset. The nest boxes were installed during the 2018-2019 breeding season, so there were few records of use during that season, with only one confirmed breeding event and 2 records of evidence of nesting activity (Table 3). This increased in the 2019-2020 breeding season to 3 confirmed breeding events and 11 records of nesting activity in the artificial nesting hollows. In 2020-2021, the number of confirmed breeding events in the artificial nesting hollows increased to 12, with the majority assumed to have had a successful outcome i.e. a chick hatched and fledged (Table 3). In the 2021-2022 and 2022-2023 breeding seasons, the number of confirmed breeding events increased further to 21 and 20 respectively (Table 3); however, in 2023-2024, this decreased to 15 before decreasing again in 2024-2025 to 12.

For the 2021-2022, and 2023-2024, as well as the current breeding season, all confirmed breeding events occurred in artificial nesting hollows. In contrast, the number of confirmed breeding events in natural nest hollows showed a trend of declining use. A total of 3 confirmed breeding events in the 2019-2020 breeding season, one in the 2020-2021 breeding season, none in the 2021-2022 breeding season, 3 in the 2022-2023 breeding season, and none in the 2023-2024 breeding season and 2024-25 breeding season. The results suggest the birds are preferentially choosing the artificial hollows over the natural hollows but will still willingly use natural nest hollows if available and suitable.

Given that Carnaby's Cockatoo display strong fidelity to traditional breeding areas and in some cases hollows, and it takes at least four years for Carnaby's Cockatoo to mature (DCCEEW 2024), it is apparent that older breeding pairs from the area are choosing artificial nest hollows over previously used natural hollows from the surrounding area. New breeding pairs are also favouring artificial nesting hollows.

The proportion of nest hollows, both artificial and natural, with evidence of nesting in the 2024-25 breeding period is 14%, slightly less than the pre-impact nesting average of 19%; however, this needs to take into account that more trees were monitored in the post-impact surveys than in the initial baseline surveys, and variability was noted in surveys conducted in the pre-impact years. Thus, there is less significance in the decline of the proportion of nest hollows with evidence of nesting. The lower rate of evidence of nesting without breeding supports the higher uptake of confirmed breeding within the study area in the post-impact years (average 21%), with breeding pairs choosing to breed at more of the nesting hollows that are being monitored as part of this survey.

The number of natural breeding hollows with evidence of nesting was comparatively high in the first two pre-impact surveys (pre-2017-2018 and 2017-2018 breeding season), with 24 and 14 natural hollows recording evidence of nesting, respectively. This reduced to an average of 3.5 hollows, post-impact (2019 to 2024/2025). Where the number of artificial nesting hollows with evidence of breeding (but no actual breeding, e.g. prospecting, chewing) post-impact breeding is lower, appears to coincide with the increased number of confirmed breeding events, suggesting higher uptake for breeding (ie. birds are choosing to breed in nests they are investigating.

Of the 72 hollows surveyed as part of the post-impact monitoring surveys, 58 have had at least one confirmed breeding event or displayed evidence of nesting activity, since the 2019-2020 breeding period. Of these, 41 have recorded at least one confirmed breeding event, across 31 artificial nesting hollows and 10 natural nesting hollows (Figure 5).

Of the 12 nesting hollows which recorded a confirmed breeding event in the current breeding season, 7 had confirmed breeding activity in the 2023-2024 breeding season, 10 within both the the 2021-2022 and 2022-2023 breeding seasons.

A total of 4 artificial nesting hollows recorded a total of 5 confirmed breeding events each (confirmed breeding events recorded yearly) since post-impact monitoring began, with which 3 of these recorded consecutive breeding over the 5 most recent breeding seasons (2019-2020 to 2024-2025) (Appendix 2). These are located in Nesci Estate (1 nest), Reserve 40350/Lot 500 (2 nests), and the road reserve adjacent to lot 9500 along the old GNH (1 nest).

A further 6 artificial nesting hollows have recorded a total of 4 confirmed breeding events since post-impact monitoring began, all within the most recent 5 years of monitoring. These are located in Nesci Estate (1 nest), Reserve 40350/Lot 500 (1 nest), and the road reserve adjacent to lot 9500 along the old GNH (4 nests).

Seven artificial nesting hollows have recorded a total of three confirmed breeding events since post-impact monitoring began. These are located in Nesci Estate (2 nests), Reserve 40350/Lot 500 (3 nests), the road reserve adjacent to lot 9500 along the old GNH (2 nests), and Barracca Nature Reserve.

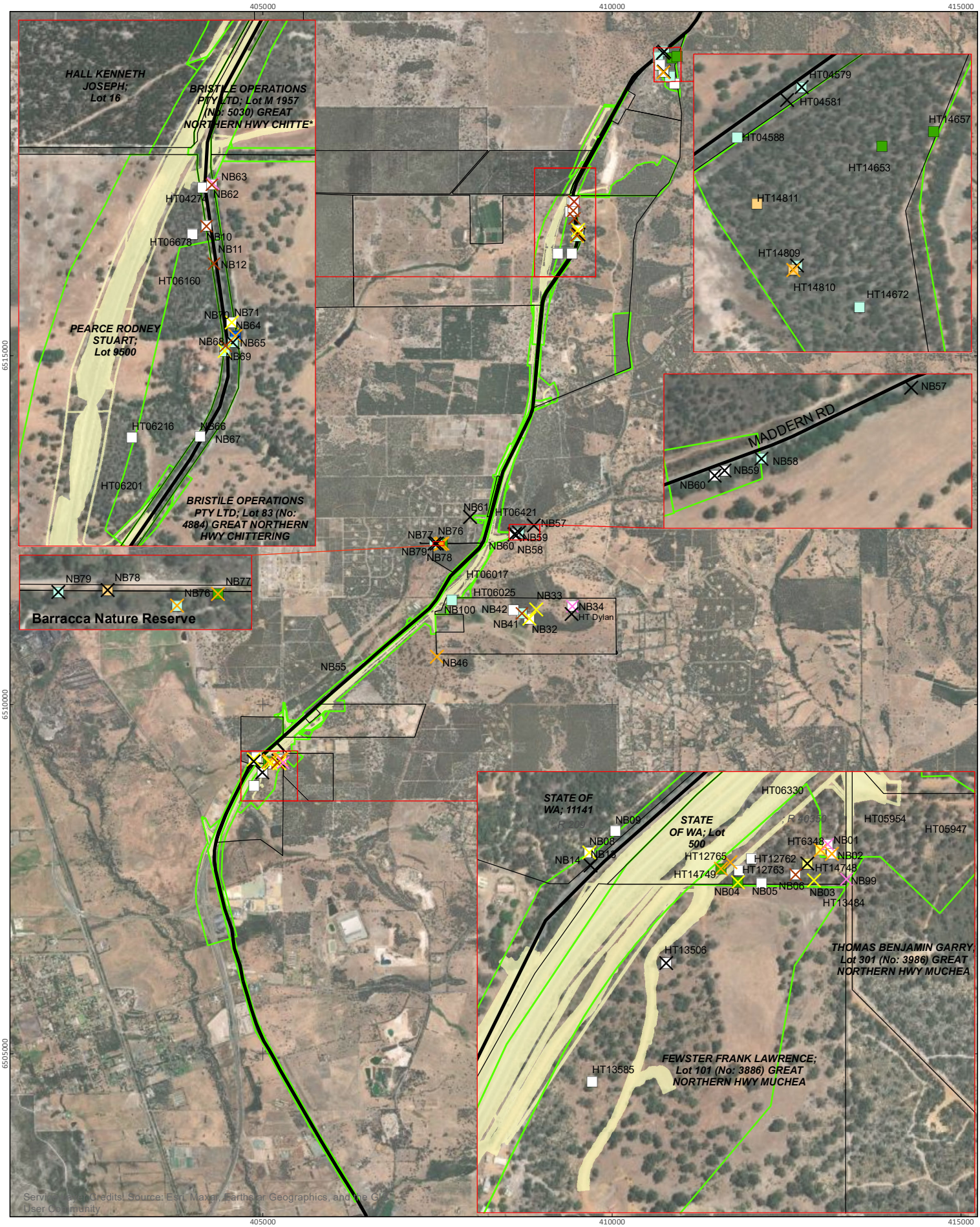
The nest locations can be separated into six distinct areas. All areas have recorded confirmed breeding events and evidence of breeding activity (Figure 5):

- Nesci Estate – This was a location where several artificial nesting hollows were installed after it was observed that Carnaby's Cockatoos were present in higher numbers, indicating the area could be a favourable breeding area (Phoenix 2017b). Repeated use of artifical nesting hollows, including one which has been used for 5 out of 7 post-impact years, and a further 2 artifical nests with repetitive use, indicates this area is an important breeding site for Carnaby's Cockatoo. Cockatoos are also frequently observed foraging at Nesci Estate;
- Reserve 40350/Lot 500 – This location was identified in the baseline surveys as having a relatively high number of nesting trees (Phoenix 2017b). As several potential breeding trees were removed from this area, a concentration of nest boxes were installed here. Monitoring surveys indicate a consistently high rate of use across the monitoring period, confirming this is an important breeding site for Carnaby's Cockatoo;
- Road reserve adjacent to lot 9500 – this location previously had suitable hollows and therefore artificial nesting hollows were installed. The prevalence of hollows with confirmed breeding events and/or evidence of breeding has increased substantially since monitorgin began, from no confirmed breeding prior to the 2020-2021 breeding season, then with consistent use across the post-impact monitoring period (ranging from 4 (2024-2025) to 8 (2022-2023 breeding season) in indicating this is a highly suitable site and Carnaby's Cockatoo are returning to this site to breed.
- Barraca Nature Reserve and Maddern Road – Artificial nesting hollows were installed here due to accessibility and availability of food resources. During the higher breeding seasons (2021-2022 and 2022-2023), an increased rate of confirmed breeding events were recorded in this area.
- Lot 512 in the northern part of the study area previously had a higher rate of hollows with evidence of nesting activity and/or confirmed breeding events; however, this has declined since monitoring began. No new artificial nest boxes were installed in this area; however, 3 of the 11 sites are previously installed artificial nesting hollows, and the remainder are natural nest hollows. Even still, the existing artificial nesting hollows in this area have waned in use. In the 2024-2025 breeding season,there was no confirmed breeding activity or evidence of breeding occurring at this site, and the area now appears to be generally less favourable than other areas.

**Table 3 Summary of results for each breeding season**

| | Baseline | | | | Post-impact | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **pre-2017-2018**[1, 2] | **2017-18** | **2018-19**[3, 4] | **Pre-impact average** | **2019-2020**[3] | **2020-2021**[3] | **2021-2022**[3] | **2022-2023**[3] | **2023-2024**[3] | **2024-2025**[3] | **Post-impact average** |
| Confirmed breeding event | n/a | 6 | 3 (2/1) | 5 | 6 (3/3) | 13 (1/12) | 21 (0/21) | 23 (3/20) | 15 (0/15) | 12 (0/12) | 15 (1/16) |
| Successful breeding events | n/a | 3 (50%) | 3 (100%) | 3 (75%) | 3 (75%) – 2 hollows unable to be checked | 9 (69%) | 13 (62%) | 17 (74%) | 7 (47%) | 10 (83%) | 10 (65%) |
| Evidence of nesting activity | 24 | 14 | 5 (3/2) | 10 | 15 (4/11) | 13 (6/7) | 6 (2/4) | 6 (1/5) | 10 (6/4) | 9 (2/7) | 10 (3.5/6.3) |
| No evidence of breeding | 35 | 13 | 63 (30/33) | 38 | 53 (26/27) | 45 (24/21) | 44 (29/15) | 43 (28/15) | 47 (26/21) | 51 (30/21) | 48 |
| Total no. hollows surveyed | 59 | 33 | 71 | 53 | 73 | 71 | 71 | 72 | 72 | 72 | 72 |
| % of trees with confirmed breeding | n/a | 18% | 4% | 9% | 8% | 18% | 30% | 32% | 21% | 17% | 21% |
| % of trees with evidence of nesting | 41% | 42% | 7% | 19% | 21% | 18% | 8% | 8% | 14% | 13% | 14% |

[1] Evidence of nesting activity recorded at some point. Not annual census data and cannot be compared with annual census results.
[2] Natural hollows and existing artificial hollows
[3] Parentheses indicate hollow type: (natural & existing artificial hollows/new artificial hollows)
[4] Does not include 12 hollows that were removed during survey period

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| Map author | AJ |

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Kilometers

1:70,000 (at A4) GDA 1994 MGA Zone 50

Study area
Disturbance footprint
Road (old GNH)

**Hollows with confirmed breeding events**
- 1 confirmed breeding event
- 2 confirmed breeding events
- 3 confirmed breeding events
- 4 confirmed breeding events
- 5 confirmed breeding events

**Hollows with evidence of nesting activity**
- 1 year of evidence of nesting activity
- 2 years of evidence of nesting activity
- 3 years of evidence of nesting activity
- 4 years of evidence of nesting activity

# Figure 5

**Confirmed breeding events and evidence of nesting activity across all monitoring periods (2017-2025)**

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## 3.3 CONDITION OF ARTIFICIAL NESTING HOLLOWS

All of the artificial nesting hollows surveyed were observed to be in good condition.

Three artificial nesting hollows installed along the GNH prior to the monitoring (not as part of the Main Roads offset) in HT04581, HT04588, and HT04579, could benefit from maintenance, as these are likely to be much older and no longer suitable for nesting. The artificial nesting hollow in HT04581 was damaged and no longer in the tree.

# 4 CONCLUSION

The number of hollows with evidence of or confirmed breeding recorded during the 2024-2025 breeding season is consistent with two previous (2023-2024 and 2020-2021) years of monitoring, lower than the 2021-2022 and 2022-2023 breeding seasons averages but still significantly higher than the pre-impact average. The success rate was higher during the most recent breeding season compared to all previous post-impact sesasons; however, the success rate of the previous years monitoring is still relativey high and the post-impact average is now similar to long-term studies of black cockatoo breeding success.

Given the evidence of and confirmed breeding across the study area, Nesci Estate, Reserve 40350/Lot 500, the road reserve adjacent to lot 9500, and the surrounding road reserves of the Muchea North, are important breeding areas for Carnaby's Cockatoo. Due to the historic large-scale clearing of trees and continuing decline of suitable trees with hollows in the area, all remaining suitable nesting hollows in the study area should be considered of high value to Carnaby's Cockatoo.

The 2021-2022 and 2022-2023 breeding seasons were remarkably more successful than previous seasons, with a notably higher number of confirmed breeding events recorded compared with the other post-impact breeding seasons, and more than three times the pre-impact average. There is a clear trend towards confirmed breeding in the artificial nesting hollows which is promising for mitigating population decline; however, sufficient food resource availability is also required for continuous population health.

The willingness of Carnaby's Cockatoo to utilise the artificial nesting hollows as an alternative to natural nest hollows is evident. Considering the artificial nesting hollows were installed during the 2018-2019 season, the uptake and consistent use of many of these for breeding and several more with evidence of nesting activity is encouraging. The repeated use of the same hollows suggests that Carnaby's Cockatoo have preferred locations, either in the landscape, breeding areas or within the tree itself.

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## Appendix 1 Survey sites

Greyed out records represent trees/hollows that are not currently monitored (e.g. cleared, hollow is no longer suitable)

| HT ID* | Lat | Long | Baseline records (pre-2017) | Species | Baseline year | | Monitoring year | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-2024 onwards |
| HT04059 | -31.4728 | 116.048 | Evidence of nesting activity, artificial hollow | *Eucalyptus wandoo* | Yes | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT04274 | -31.4765 | 116.0466 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT04579 (NB) | -31.4571 | 116.0606 | Suitable, *artificial hollow*, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT04581 (NB) | -31.4573 | 116.0604 | Suitable, *artificial hollow*, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT04588 (NB) | -31.4578 | 116.0597 | Suitable, *artificial hollow*, no evidence of breeding | *Eucalyptus accedens* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT05911 | -31.5497 | 115.9976 | Suitable, artificial hollow, no evidence of breeding | *Eucalyptus accedens* | No access | No access | Cleared | n/a | n/a | n/a | n/a |
| HT05923 | -31.5474 | 116.0004 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT05938 | -31.5485 | 116.0037 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | No | Not suitable | n/a | n/a | n/a | n/a |
| HT05947 | -31.5479 | 116.0035 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | No | Yes | Yes | Yes | Yes | Yes |
| HT05954 | -31.5479 | 116.0030 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT06017 | -31.5256 | 116.0296 | Evidence of nesting activity | *Eucalyptus wandoo* | No access | Yes | Yes | Yes | Yes | Yes | Yes |
| HT06020 | -31.5248 | 116.0297 | Suitable, no evidence of breeding | *Corymbia calophylla* | No access | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT06025 | -31.5256 | 116.0300 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | Yes | Yes | Yes | Yes | Yes | Yes |
| HT06046 | -31.5247 | 116.0299 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT06148 | -31.4757 | 116.045 | Suitable, no evidence of breeding | *Corymbia calophylla* | Yes | No | Not suitable | n/a | n/a | n/a | n/a |
| HT06160 | -31.4786 | 116.0455 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT06201 | -31.4847 | 116.0433 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT06216 | | | Suitable, no evidence of breeding | *Eucalyptus marginata* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT06261 | -31.5482 | 115.9991 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | No (cleared) | n/a | n/a | n/a | n/a |

| HT ID* | Lat | Long | Baseline records (pre-2017) | Species | Baseline year | | Monitoring year | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-2024 onwards |
| HT06278 | -31.5474 | 116.0002 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT06330 | -31.5475 | 116.001 | Not currently suitable | *Eucalyptus wandoo* | No | Yes | Yes | Cleared | n/a | n/a | n/a |
| HT06348 | -31.5484 | 116.0015 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT06421 | -31.5179 | 116.0345 | Evidence of nesting activity | *Corymbia calophylla* | No access | No access | No access | n/a | n/a | n/a | n/a |
| HT06655 | -31.4777 | 116.0448 | Suitable, no evidence of breeding | *Corymbia calophylla* | Yes | No | Cleared | n/a | n/a | n/a | n/a |
| HT06678 | -31.4777 | 116.0462 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT08752 | -31.5475 | 115.9997 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT08753 | -31.4828 | 116.0432 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT08754 | -31.5259 | 116.0291 | Evidence of nesting activity | *Eucalyptus wandoo* | No access | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT12761 | -31.5481 | 116.0011 | Evidence of nesting activity | *Eucalyptus wandoo* | No | No | Yes | Not suitable | n/a | n/a | n/a |
| HT12762 | -31.5483 | 116.0006 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT12763 | -31.5485 | 116.0003 | Evidence of nesting activity (FRTBC) | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT12765 | -31.5483 | 116.0002 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT13484 | -31.5488 | 116.0018 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | Yes | Yes | Yes | Yes | Yes | Yes |
| HT13497 | -31.5522 | 115.9984 | Suitable, no evidence of breeding | *Eucalyptus marginata* | No access | Yes | Yes | Yes | Yes | Yes | Yes |
| HT13503 | -31.5511 | 115.9990 | Suitable, no evidence of breeding | *Eucalyptus marginata* | No access | Yes | Not suitable | n/a | n/a | n/a | n/a |
| HT13505 | -31.5506 | 115.9990 | Suitable, no evidence of breeding | *Eucalyptus sp.* | No access | Yes | Not suitable | n/a | n/a | n/a | n/a |
| HT13506 | -31.5498 | 115.9990 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | Yes | Yes | Yes | Yes | Yes | Yes |
| HT13507 | -31.5498 | 115.9991 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | Yes | Yes | Yes | Yes | Yes | Yes |
| HT13508 | -31.5498 | 115.9990 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | Yes | Yes | Yes | Yes | Yes | Yes |
| HT13511 | -31.5531 | 115.9974 | Suitable, no evidence of breeding | *Corymbia calophylla* | No access | Yes | Not suitable | n/a | n/a | n/a | n/a |
| HT13523 | -31.5273 | 116.0307 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | Yes | Not suitable | n/a | n/a | n/a | n/a |

| HT ID* | Lat | Long | Baseline records (pre-2017) | Species | Baseline year | | Monitoring year | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-2024 onwards |
| HT13533 | -31.4826 | 116.0425 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT13534 | -31.484 | 116.0426 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT13535 | -31.4844 | 116.0427 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Cleared | n/a | n/a | n/a | n/a |
| HT13585 | -31.5516 | 115.9978 | Not currently suitable | *Corymbia calophylla* | No | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14633 | -31.4613 | 116.0621 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14653 | -31.4580 | 116.0618 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14657 | -31.4577 | 116.0626 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14670 | -31.4601 | 116.0616 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | No | Not suitable | n/a | n/a | n/a | n/a |
| HT14672 | -31.4603 | 116.0615 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14748 | -31.5482 | 116.0017 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14749 | -31.5484 | 116.0000 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14805 | -31.5418 | 116.0094 | Evidence of nesting activity | *Eucalyptus wandoo* | No access | No access | Not suitable | n/a | n/a | n/a | n/a |
| HT14806 | -31.5420 | 116.0093 | Evidence of nesting activity | *Eucalyptus wandoo* | No access | No access | Not suitable | n/a | n/a | n/a | n/a |
| HT14807 | -31.5424 | 116.0088 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | No access | Not suitable | n/a | n/a | n/a | n/a |
| HT14808 | -31.5425 | 116.0087 | Suitable, no evidence of breeding | *Eucalyptus wandoo* | No access | No access | Not suitable | n/a | n/a | n/a | n/a |
| HT14809 | -31.4597 | 116.0606 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14810 | -31.4598 | 116.0605 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| HT14811 | -31.4588 | 116.0600 | Evidence of nesting activity | *Eucalyptus wandoo* | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| NB01 | -31.5481 | 116.0019 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB02 | -31.5482 | 116.0019 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB03 | -31.5486 | 116.0016 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB04 | -31.5486 | 116.0003 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |

| HT ID* | Lat | Long | Baseline records (pre-2017) | Species | Baseline year | | Monitoring year | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-2024 onwards |
| NB05 | -31.5487 | 116.0007 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB06 | -31.5485 | 116.0013 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB08 | -31.5482 | 115.9978 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB09 | -31.5479 | 115.9982 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB10 | -31.4775 | 116.0467 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB11 | -31.4781 | 116.0468 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB12 | -31.4785 | 116.0469 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB13 | -31.5484 | 115.9978 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB14 | -31.5483 | 115.9977 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB32 | -31.5303 | 116.0395 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB33 | -31.5291 | 116.0406 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB34 | -31.5286 | 116.0460 | n/a | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes |
| NB41 | -31.5296 | 116.0384 | n/a | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes |
| NB42 | -31.5291 | 116.0372 | n/a | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes |
| NB46 | -31.5351 | 116.0255 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB55 | -31.5372 | 116.0126 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB57 | -31.5183 | 116.0403 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB58 | -31.5191 | 116.0381 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB59 | -31.5193 | 116.0375 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB60 | -31.5194 | 116.0374 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB61 | -31.5171 | 116.0307 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB62 | -31.4764 | 116.0469 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB63 | -31.4764 | 116.0469 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |

| HT ID* | Lat | Long | Baseline records (pre-2017) | Species | Baseline year | | Monitoring year | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-2024 onwards |
| NB64 | -31.4805 | 116.0475 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB65 | -31.4806 | 116.0475 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB66 | -31.4831 | 116.0464 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB67 | -31.4832 | 116.0467 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB68 | -31.4809 | 116.0472 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB69 | -31.4807 | 116.0472 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB71 | -31.4801 | 116.0474 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB76 | -31.5205 | 116.0262 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB77 | -31.5204 | 116.0265 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB78 | -31.5204 | 116.0257 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB79 | -31.5204 | 116.0254 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB99 | -31.5486 | 116.0022 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes | Yes |
| NB100 | -31.5277 | 116.0279 | HT04059 was cleared and this nest box was installed to replace it in 2019 | n/a | n/a | n/a | Yes | Yes | Yes | Yes | Yes |
| HTDylan | -31.5297 | 116.0459 | n/a | n/a | n/a | n/a | No | No | No | Yes | Yes |

## Appendix 2 Results for all hollows in all breeding seasons

Grey shadowed records represent trees/hollows that are not currently monitored (e.g. cleared, hollow is no longer suitable); Green highlight indicates confirmed breeding events, and yellow highlight indicates evidence of nesting.

| HT ID | 2017-18 | 2018-19 | 2019-20 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 |
|---|---|---|---|---|---|---|---|---|
| HT04059 | No evidence | No evidence | Tree cleared | n/a | n/a | n/a | n/a | n/a |
| HT04274 | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | Evidence of nesting |
| HT04579 | Confirmed breeding - failed | No evidence | No evidence | Evidence of nesting | No evidence | No evidence | No evidence | No evidence |
| HT04581 | Confirmed breeding - failed | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT04588 | Evidence of nesting activity | No evidence | Evidence of nesting | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT05911 | No access | Hollow not located | Tree cleared | n/a | n/a | n/a | n/a | n/a |
| HT05923 | No evidence | Tree cleared | n/a | n/a | n/a | n/a | n/a | n/a |
| HT05938 | No longer suitable hollow | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| HT05947 | No evidence | Not located | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT05954 | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT06017 | No access | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT06020 | No access | Tree cleared | n/a | n/a | n/a | n/a | n/a | n/a |
| HT06025 | No access | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT06046 | No access | Tree cleared | n/a | n/a | n/a | n/a | n/a | n/a |
| HT06148 | No longer suitable | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| HT06160 | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT06201 | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |

| HT ID | 2017-18 | 2018-19 | 2019-20 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 |
|---|---|---|---|---|---|---|---|---|
| HT06216 | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | Evidence of nesting | No evidence |
| HT06261 | No evidence | Tree cleared | n/a | No evidence | n/a | n/a | n/a | n/a |
| HT06278 | Evidence of nesting | Tree cleared | n/a | No evidence | n/a | n/a | n/a | n/a |
| HT06330 | Not sampled | No evidence | No evidence | No evidence | n/a | n/a | n/a | n/a |
| HT06348 | Evidence of nesting | No evidence | Confirmed breeding - failed | Evidence of nesting | No evidence | No evidence | No evidence | No evidence |
| HT06421 | No access. Evidence of nesting (from a distance) | No access | n/a | n/a | n/a | n/a | n/a | n/a |
| HT06655 | No longer suitable | Tree cleared | n/a | n/a | n/a | n/a | n/a | n/a |
| HT06678 | Evidence of nesting activity (FRTBC) | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT08752 | No evidence | Tree cleared | n/a | n/a | n/a | n/a | n/a | n/a |
| HT08753 | Evidence of nesting | No evidence | Tree cleared | n/a | n/a | n/a | n/a | n/a |
| HT08754 | No access | Confirmed breeding | Tree cleared | n/a | n/a | n/a | n/a | n/a |
| HT12761 | Hollow not located | Hollow not located | No evidence | n/a | n/a | n/a | n/a | n/a |
| HT12762 | Evidence of nesting | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT12763 | Evidence of nesting | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT12765 | Confirmed breeding event - successful | No evidence | Confirmed breeding | No evidence | Evidence of nesting | No evidence | No evidence | No evidence |
| HT13484 | No access | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT13497 | No access | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT13503 | No access | No longer suitable | n/a | n/a | n/a | n/a | n/a | n/a |
| HT13505 | No access | No longer suitable | n/a | n/a | n/a | n/a | n/a | n/a |

| HT ID | 2017-18 | 2018-19 | 2019-20 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 |
|---|---|---|---|---|---|---|---|---|
| HT13506 | No access | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT13507 | No access | Evidence of nesting | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT13508 | No access | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT13511 | No access | No longer suitable | n/a | n/a | n/a | n/a | n/a | n/a |
| HT13523 | No access | No longer suitable | n/a | n/a | n/a | n/a | n/a | n/a |
| HT13533 | No evidence | No evidence | Tree cleared | n/a | n/a | n/a | n/a | n/a |
| HT13534 | Evidence of nesting | Tree cleared | n/a | n/a | n/a | n/a | n/a | n/a |
| HT13535 | Evidence of nesting | Tree cleared | n/a | n/a | n/a | n/a | n/a | n/a |
| HT13585 | Not sampled | No evidence | Evidence of nesting activity | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT14633 | Evidence of nesting | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT14653 | Evidence of nesting | No evidence | No evidence | Evidence of nesting | No evidence | No evidence | Evidence of nesting | No evidence |
| HT14657 | No evidence | No evidence | Evidence of nesting | Evidence of nesting | No evidence | No evidence | Evidence of nesting | No evidence |
| HT14670 | No longer suitable | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| HT14672 | Evidence of nesting | Evidence of nesting | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| HT14748 | Confirmed breeding - successful | Evidence of nesting | No evidence | No evidence | Evidence of nesting | Confirmed breeding | No evidence | No evidence |
| HT14749 | Confirmed breeding - successful | Confirmed breeding | No evidence | Evidence of nesting | No evidence | No evidence | Evidence of nesting | Evidence of nesting |
| HT14805 | No access | No access | No longer suitable | n/a | n/a | n/a | n/a | n/a |
| HT14806 | No access | No access | No longer suitable | n/a | n/a | n/a | n/a | n/a |
| HT14807 | No access | No access | No longer suitable | n/a | n/a | n/a | n/a | n/a |
| HT14808 | No access | No access | No longer suitable | n/a | n/a | n/a | n/a | n/a |

| HT ID | 2017-18 | 2018-19 | 2019-20 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 |
|---|---|---|---|---|---|---|---|---|
| HT14809 | Evidence of nesting | No evidence | No evidence | Confirmed breeding | No evidence | No evidence | Evidence of nesting | No evidence |
| HT14810 | Confirmed breeding - failed | No evidence | No evidence | Evidence of nesting | No evidence | Confirmed breeding | No evidence | No evidence |
| HT14811 | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | Evidence of nesting | No evidence |
| Dylan | n/a | n/a | n/a | n/a | n/a | Confirmed breeding | No evidence | No evidence |
| NB01 | n/a | No evidence | Evidence of nesting | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding |
| NB02 | n/a | Confirmed breeding | No evidence | No evidence | Confirmed breeding | No evidence | Evidence of nesting | No evidence |
| NB03 | n/a | No evidence | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding | No evidence | No evidence |
| NB04 | n/a | No evidence | Evidence of nesting | Evidence of nesting | Confirmed breeding | Evidence of nesting | Confirmed breeding | Confirmed breeding |
| NB05 | n/a | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | Evidence of nesting |
| NB06 | n/a | No evidence | No evidence | Evidence of nesting | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding |
| NB08 | n/a | No evidence | No evidence | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding | Evidence of nesting |
| NB09 | n/a | No evidence | No evidence | No evidence | No evidence | Evidence of nesting | No evidence | No evidence |
| NB10 | n/a | No evidence | Evidence of nesting | Confirmed breeding | Confirmed breeding | Confirmed breeding | No evidence | Confirmed breeding |
| NB11 | n/a | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| NB12 | n/a | No evidence | No evidence | Confirmed breeding | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding |
| NB13 | n/a | No evidence | No evidence | No evidence | Confirmed breeding | No evidence | No evidence | No evidence |
| NB14 | n/a | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| NB32 | n/a | No evidence/no access | No evidence | Confirmed breeding | Confirmed breeding | Evidence of nesting | Confirmed breeding | No evidence |
| NB33 | n/a | No evidence/no access | No evidence | No evidence | Confirmed breeding | Confirmed breeding | No evidence | Confirmed breeding |

| HT ID | 2017-18 | 2018-19 | 2019-20 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 |
|---|---|---|---|---|---|---|---|---|
| NB34 | n/a | n/a | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding | Evidence of nesting | Confirmed breeding |
| NB41 | n/a | n/a | Confirmed breeding | Confirmed breeding | Confirmed breeding | Evidence of nesting | Evidence of nesting | Confirmed breeding |
| NB42 | n/a | n/a | No evidence | Evidence of nesting | No evidence | No evidence | No evidence | No evidence |
| NB46 | n/a | No evidence | No evidence | No evidence | Confirmed breeding | Confirmed breeding | No evidence | No evidence |
| NB55 | n/a | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| NB57 | n/a | No evidence | No evidence | No evidence | No evidence | Confirmed breeding | No evidence | No evidence |
| NB58 | n/a | No evidence | Evidence of nesting | No evidence | No evidence | Confirmed breeding | Evidence of nesting | No evidence |
| NB59 | n/a | No evidence | No evidence | No evidence | Evidence of nesting | Confirmed breeding | No evidence | No evidence |
| NB60 | n/a | No evidence | Evidence of nesting | No evidence | No evidence | No evidence | Confirmed breeding | No evidence |
| NB61 | n/a | No evidence | No evidence | No evidence | Confirmed breeding | No evidence | No evidence | No evidence |
| NB62 | n/a | No evidence | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding |
| NB63 | n/a | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding | No evidence | Evidence of nesting |
| NB64 | n/a | Evidence of nesting | Evidence of nesting | Evidence of nesting | No evidence | Confirmed breeding | Confirmed breeding | Evidence of nesting |
| NB65 | n/a | No evidence | Evidence of nesting | No evidence | No evidence | No evidence | Confirmed breeding | Evidence of nesting |
| NB66 | n/a | Evidence of nesting | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| NB67 | n/a | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence | No evidence |
| NB68 | n/a | No evidence | Evidence of nesting | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding | Evidence of nesting |
| NB69 | n/a | No evidence | No evidence | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding |
| NB71 | n/a | No evidence | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding | No evidence | Evidence of nesting |

| HT ID | 2017-18 | 2018-19 | 2019-20 | 2020-2021 | 2021-2022 | 2022-2023 | 2023-2024 | 2024-2025 |
|---|---|---|---|---|---|---|---|---|
| NB76 | n/a | No evidence | Evidence of nesting | Evidence of nesting | Confirmed breeding | No evidence | Confirmed breeding | No evidence |
| NB77 | n/a | No evidence | Evidence of nesting | Evidence of nesting | Evidence of nesting | Confirmed breeding | No evidence | Confirmed breeding |
| NB78 | n/a | No evidence | No evidence | Confirmed breeding | Evidence of nesting | No evidence | No evidence | No evidence |
| NB79 | n/a | No evidence | No evidence | Evidence of nesting | Evidence of nesting | No evidence | Confirmed breeding | No evidence |
| NB99 | n/a | No evidence | No evidence | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding | Confirmed breeding |
| NB100 | n/a | n/a | Evidence of nesting | No evidence | No evidence | Evidence of nesting | No evidence | No evidence |

## Appendix 2: Australian Black Cockatoo Specialists 2025 Artificial Next Box Maintenance

Australian Black Cockatoo Specialists

# Report: Maintenance and Lowering/relocating of artificial nesting hollows in the GNH 'Muchea North' area, WA

Main Roads
Western Australia

02 June 2025

Australian Black Cockatoo Specialists

**CONTENTS**



All images source: Rick Dawson

## INTRODUCTION

**A**ustralian **B**lack **C**ockatoo **S**pecialists (ABCS) are pleased to submit this report to the Department of Main Roads Western Australia (MRWA) regarding the inspection, maintenance and lowering/relocating (where necessary) thirty (30) Artificial hollows (ANH) in GNH North Muchea project area, on Between Monday 26th and Wednesday 28 May 2025.

## REPAIR AND INSPECTION METHOD

The objective is to ensure that every hollow is in peak condition, and at a height and location to enable maintenance from ladder or EWP without the need of traffic control. The scope of this project included:

- undertaking a close visual inspection of all ANH's via EWP, Arborist or ladder, any activity detected was photographed.
- Inspect tree, fixings, and ANH condition.
- Place up to 30lts of wood chips in ANH's as required, posts replaced or reset, and obstruction(s) removed.
- Lowering and relocating ANHs to safer, more accessible heights to facilitate future maintenance by ladder or EWP.
- Removing and disposing of three ANHs deemed unsuitable: HT04581, HT04588, and HT04579.
- Hollows were accessed using a 14m elevated work platform (EWP), the ABCS extension ladder, or by a qualified arborist, depending on the site-specific conditions and tree height. *(See Appendix 1 for access method details per site.)*

## REPLENISHMENT AND RESULTS OF THE NINE ANH

The following maintenance actions and observations were recorded over the course of three days:

- A total of thirty ANHs were either lowered, replenished, relocated, or removed: NB01, NB02, NB03, NB05, NB06, NB08, NB09, NB13, NB14, NB33, NB34, NB41, NB42, NB46, NB55, NB57, NB58, NB59, NB60, NB61, NB64, NB66, NB67, NB78, NB79, NB99, NB100, HT04579, HT04581, and HT04588.
- In line with observed compaction and natural substrate decay, up to 30 litres of wood chips (approximately 550 litres in total) were added to each hollow as required (see Appendix 1). Research (pers. obs. Rick Dawson and Dr Denis Saunders) indicates that excessive compaction or hollow base chewing by Carnaby's Cockatoos can result in eggs falling through if substrate levels are not maintained.
- Two dead adult Wood Ducks were removed from NB79, and a hatched clutch of deceased Wood Duck nestlings in NB42 was covered with wood chips. An abandoned Carnaby's Cockatoo egg was removed from NB06.
- The following hollows were removed from their original locations and donated to Carnaby's Crusaders: HT04579, HT04581, and HT04588.
- The following hollows were lowered, replenished, and **relocated** to other trees to allow safer future access and improved conditions due to tree death or poor shade: NB05, NB59, NB60, NB64, NB66 (Jarrah trees NB05, NB60, and NB66 had recently died).
- The following hollows were lowered and replenished to ensure safer access by ladder of EWP going forward: NB02, NB06, NB08, NB13, NB33, NB34, NB41, NB42, NB55, NB57, NB58, NB61, NB78.
- New Wandoo sacrificial posts were installed in NB33, NB34, NB41, and NB79.
- A large number of sacrificial posts were able to be reused by adjusting bracket height in the following hollows to ensure the post now reaches the substrate floor: NB01, NB02, NB03, NB05, NB06, NB08, NB09, NB13, NB14, NB33, NB34, NB41, NB42, NB46, NB55, NB57, NB58, NB59, NB60, NB61, NB64, NB66, NB67, NB78, NB99, NB100.

- It is recommended that if Wood Duck entrapments in ANHs increase, the old-style sacrificial posts be replaced with the **new Wandoo-style sacrificial post design** featuring **horizontal cuts along its length** to allow non-target species to exit more easily.
- Materials used during maintenance included:
    - **Four new sacrificial posts**
    - **550 litres of woodchips**
    - **5 metres of fixing chain**
    - **120 coach bolts and washers**
- All thirty trees housing ANHs were inspected and found to be in **good health**, with no immediate need to relocate additional hollows.
- All **structural fixings and hollows** were found to be **secure and in good condition**.

## RECOMMENDATIONS

- No additional substrate should be required in the replenished artificial nesting hollows (ANHs) for at least two years, unless compaction, significant leaching from heavy rain, or substrate decay from nesting attempts occurs.
- Research and field observations indicate that most ANHs require replenishment after approximately six years. Beyond this point, they are significantly less likely to be used by black cockatoos. This timeline should be incorporated into future maintenance planning.
- It is recommended that during future nesting surveys, each ANH be assessed not only for use but also for specific maintenance requirements. This will assist with effective planning and accurate quoting.

  ABCS assesses ANHs using the following priority categories:
    - Priority One: The sacrificial post and ladder do not reach the substrate. These hollows require maintenance prior to the next breeding season to ensure suitability and safety.
    - Priority Two: The ladder reaches the substrate, but the sacrificial post does not. While black cockatoos can still use these hollows, non-target species may struggle to exit due to lack of access. Maintenance should be scheduled when feasible.
- Artificial hollow NB100 was replenished to ensure safe exit for any animals using it. However, this hollow is one of the older, smaller-style designs. Research indicates it should be either replaced with a hollow measuring 375 mm in diameter and 1200 mm in length or removed altogether.
- Following recent works, all ANHs can now be accessed using ABCS' 10-metre ladder or the TZ34 trailer-mounted EWP, removing the need for specialist arborist access or annual traffic management.

## CONCULSIONS

All artificial nesting hollows serviced during this project are now in **peak condition** and are **ready for the upcoming breeding season**. The works completed significantly reduce future maintenance risks and ensure safer, more accessible monitoring conditions for years to come.

## CONTACT INFORMATION


| | |
|---|---|
| **Contact Name:** | Rick Dawson |
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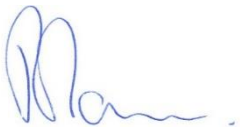


Rick Dawson
Director
Australian Black Cockatoo Specialist
02 June 2025

**APPENDIX 1 – LIST OF REPAIRS AND OBSERVATIONS.**

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| HT04579 | Ladder | YES | N/A | | | Hollow lowered and donated to Carnaby's Crusaders |
| HT04581 | On the ground | YES | N/A | | | Hollow fallen to base of tree and donated to Carnaby's Crusaders |
| HT04588 | Ladder | YES | N/A | | | Hollow lowered and donated to Carnaby's Crusaders |
| NB01 | Ladder | NO | 8000 | 15 | NO | Hollow replenished and had signs of being used last season |
| NB02 | Arborist 14.5 | YES | 7500 | 15 | NO | Hollow replenished and lowered, to 7.5m, post bracket relocated |
| NB03 | Ladder | NO | 7750 | 15 | NO | Hollow replenished and, Post bracket relocated |
| NB05 | Arborist 9m | YES | 6990 | 25 | NO | On a Jarrah that recently died, lowered and **relocated** to Wandoo and replenished |
| NB08 | Arborist 11.5m | YES | 7100 | 20 | NO | Hollow replenished and lowered, to 7.1m |
| NB09 | Ladder | NO | 9000 | 15 | NO | Above 8m however safe access point for ladder |
| NB100 | Ladder | NO | 7350 | 5 | NO | Old style small Hollow replenished and, recommend removed or replaced |
| NB13 | 14M EWP | YES | 7400 | 30 | NO | Hollow replenished and lowered to 7.4m and to other side away from road |
| NB14 | Ladder | NO | 7850 | 15 | NO | Hollow replenished, easy access |
| NB33 | 14M EWP | YES | 6650 | 15 | YES | Hollow replenished and lowered, to 6.6m new Wandoo post fitted |
| NB34 | Arborist 14.5m | YES | 6970 | 25 | YES | Hollow replenished and lowered, to 6.9m new Wandoo post fitted |
| NB41 | 14M EWP | YES | 6660 | 25 | YES | Hollow replenished and lowered, to 6.6m new Wandoo post fitted |
| NB42 | Arborist 14.5m | YES | 7770 | 15 | NO | Hollow replenished and lowered, to 7.7m new Wandoo post fitted. Dead ducklings |
| NB46 | Ladder | NO | 7750 | 15 | NO | Hollow replenished |
| NB55 | Arborist 13m | YES | 6800 | 30 | NO | Hollow replenished and lowered to 6.8m and to other side away from road |
| NB57 | Arborist 14m | YES | 7000 | 25 | NO | Hollow replenished and lowered, to 7m |
| NB58 | Arborist 14m | YES | 6740 | 15 | NO | Hollow replenished and lowered and relocated to another tree away from road to 7m |
| NB59 | Arborist 13m | YES | 7500 | 25 | NO | Hollow replenished and lowered and relocated to another tree away from road to 7.5m |
| NB60 | Arborist 12.5m | YES | 6740 | 25 | NO | Hollow replenished and lowered and relocated to another tree away from road to 6.7m |
| NB61 | Arborist 14m | YES | 6500 | 25 | NO | Hollow replenished and lowered, to 6.5m |
| NB66 | 14M EWP | YES | 8200 | 25 | NO | Tree dead, Hollow replenished and lowered and relocated to another tree away from road to 6.7m |

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB67 | Ladder | NO | 8300 | 20 | NO | Hollow replenished |
| NB78 | 14M EWP | YES | 8400 | 20 | NO | Hollow replenished and lowered to 8.4m |
| NB79 | Ladder | NO | 7370 | 20 | YES | Hollow replenished and new post |
| NB99 | Ladder | NO | 7900 | 15 | NO | Hollow replenished and, bracket on post relocated. |
| NB06 | 14M EWP | YES | 7500 | 55 | NO | Hollow replenished and Lowered, to 6.5m. Old Carnaby's egg removed, signs of fledging |
| NB64 | Arborist 9m | YES | 7500 | Done in 2024 | NO | Hollow lowered and relocated to another tree away from road to 7.5m |

**GPS DETAILS OF NEW LOCATION FOR ANH**

| HT_ID | Height | Lattitude | Longitude | Tree Species | Reason for Relocation |
|---|---|---|---|---|---|
| NB05 | 6990 | [redacted] | | *Eucalyptus Wandoo* | Jarrah tree died, moved to provide shade for hollow |
| NB59 | 7500 | | | *Eucalyptus Wandoo* | Too close to road, moved for safety. |
| NB60 | 6740 | | | *Corymbia calophylla*. | Jarrah tree died, moved to provide shade for hollow |
| NB064 | 7500 | | | *Corymbia calophylla*. | Active nesting hollow already in tree, and near creek, dangerous to climb |
| NB066 | 8200 | | | *Corymbia calophylla*. | Jarrah tree died, moved to provide shade for hollow |

**APPENDIX 2 – PHOTOGRAPS OF REPAIRS TO ANH's.**

# Removal and Disposal of HT04581, HT04588 and HT04579

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| HT04579 | Ladder | YES | | | | Hollow lowered and donated to Carnaby's Crusaders |
| HT04581 | On Ground | NO | | | | Hollow fallen to base of tree and donated to Carnaby's Crusaders |
| HT04588 | Ladder | YES | | | | Hollow lowered and donated to Carnaby's Crusaders |

# Replenishment of NB01


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB01 | Ladder | NO | 8000 | 15 | NO | Hollow replenished and had signs of being used last season |

# Replenishment of NB02

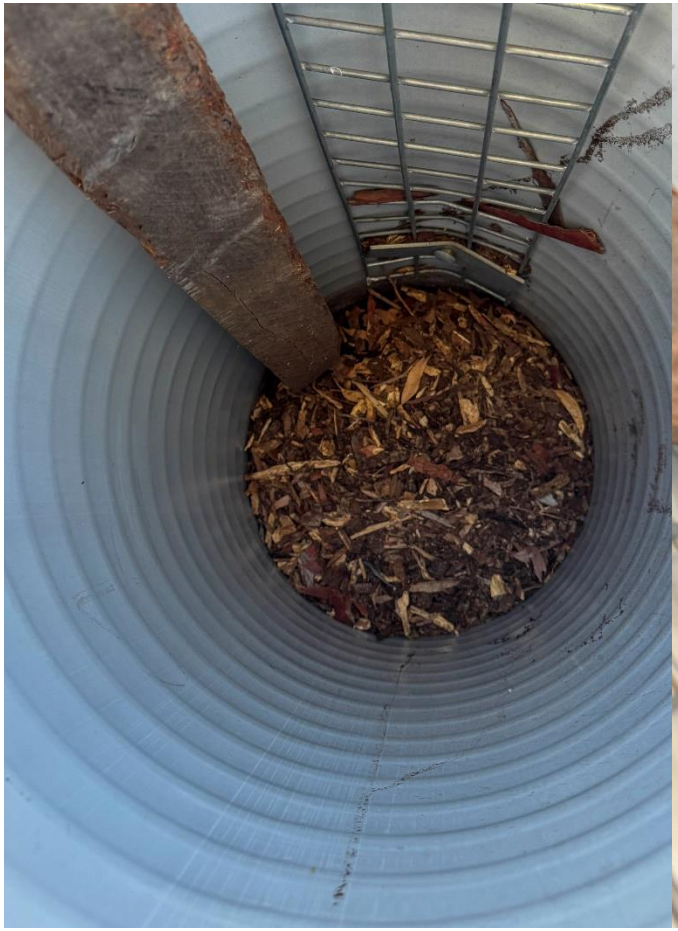


| HT_ID | Access | **Lowered** | **Height** | **Wood chips Lts** | **New Post** | **Comments** |
|---|---|---|---|---|---|---|
| NB02 | Arborist 14.5 | YES | 7500 | 15 | NO | Hollow replenished and lowered, to 7.5m, post bracket relocated |

# Replenishment of NB03

| HT_ID | Access | **Lowered** | **Height** | **Wood chips Lts** | **New Post** | **Comments** |
|---|---|---|---|---|---|---|
| NB03 | Arborist 9m | NO | 7750 | 15 | NO | Hollow replenished and, Post bracket relocated |

# Replenishment of NB05




| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB05 | Arborist 9m | YES | 6990 | 25 | NO | On a Jarrah that recently died, lowered and relocated to Wandoo and replenished |

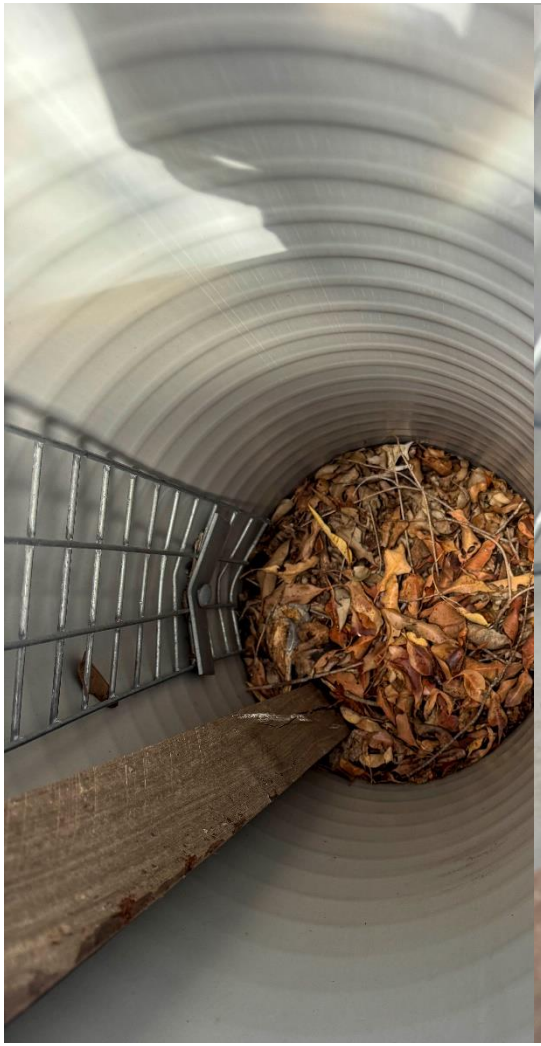
# Replenishment of NB06


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB06 | 14M EWP | YES | 7500 | 55 | NO | Hollow replenished and Lowered, to 6.5m. Old Carnaby's egg removed, signs of fledging |

# Replenishment of NB08


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB08 | Arborist 11.5m | YES | 7100 | 20 | NO | Hollow replenished and lowered, to 7.1m |

# Replenishment of NB09



| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB09 | Ladder | NO | 9000 | 15 | NO | Above 8m, however safe access point for ladder |

# Replenishment of N100

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB100 | Ladder | NO | 7350 | 5 | NO | Old style small Hollow replenished and, **recommend removed or replaced** |

# Replenishment of NB13



| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB13 | 14M EWP | YES | 7400 | 30 | NO | Hollow replenished and lowered to 7.4m and to other side away from road |

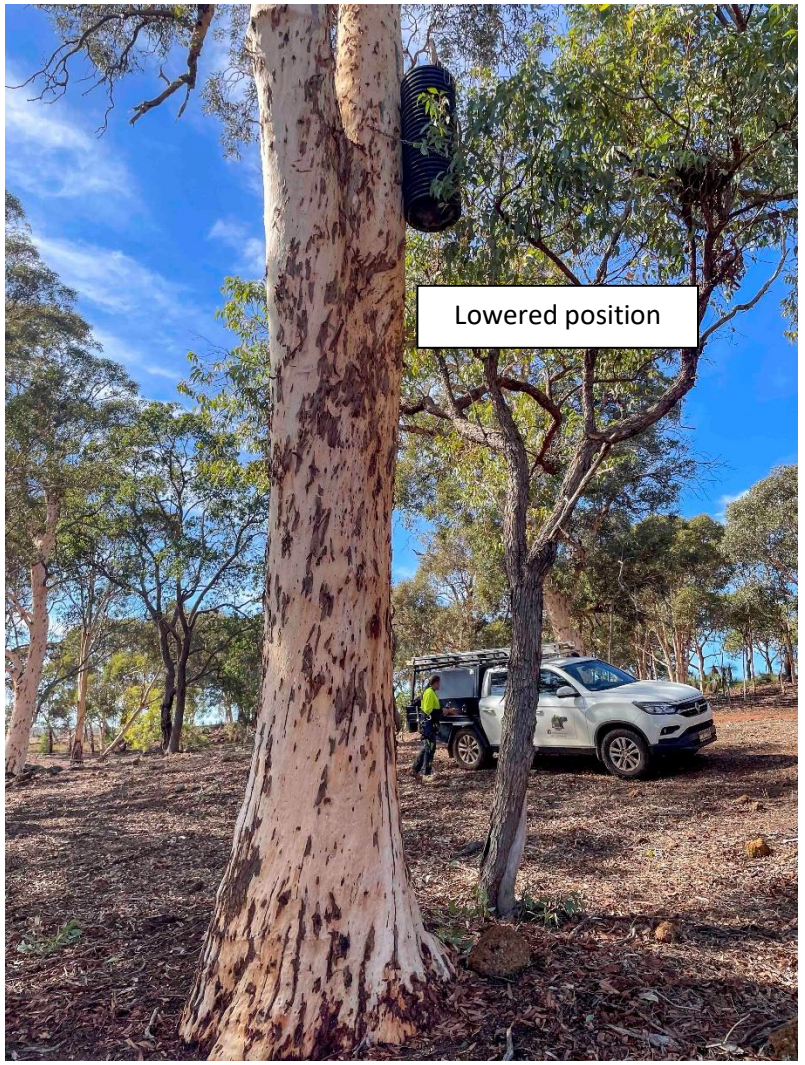
# Replenishment of NB14

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB14 | Ladder | NO | 7850 | 15 | NO | Hollow replenished, easy access |

# Replenishment of NB33


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB33 | 14M EWP | YES | 6650 | 15 | YES | Hollow replenished and lowered, to 6.6m new Wandoo post fitted |

# Replenishment of NB34




| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB34 | Arborist 14.5m | YES | 6970 | 25 | YES | Hollow replenished and lowered, to 6.9m new Wandoo post fitted |

# Replenishment of NB41


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB41 | 14M EWP | YES | 6660 | 25 | YES | Hollow replenished and lowered, to 6.6m new Wandoo post fitted |

# Replenishment of NB42


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB42 | Arborist 14.5m | YES | 7770 | 15 | NO | Hollow replenished and lowered, to 7.7m new Wandoo post fitted. Dead ducklings |

# Replenishment of NB46

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB46 | Ladder | NO | 7750 | 15 | NO | Hollow replenished |

# Replenishment of NB55


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB55 | Arborist 13m | YES | 6800 | 30 | NO | Hollow replenished and lowered to 6.8m and to other side away from road |

# Replenishment of NB57


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB57 | Arborist 14m | YES | 7000 | 25 | NO | Hollow replenished and lowered, to 7m |

# Replenishment of NB58


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB58 | Arborist 14m | YES | 6740 | 15 | NO | Hollow replenished and lowered and relocated to another tree away from road to 7m |

# Replenishment of NB59

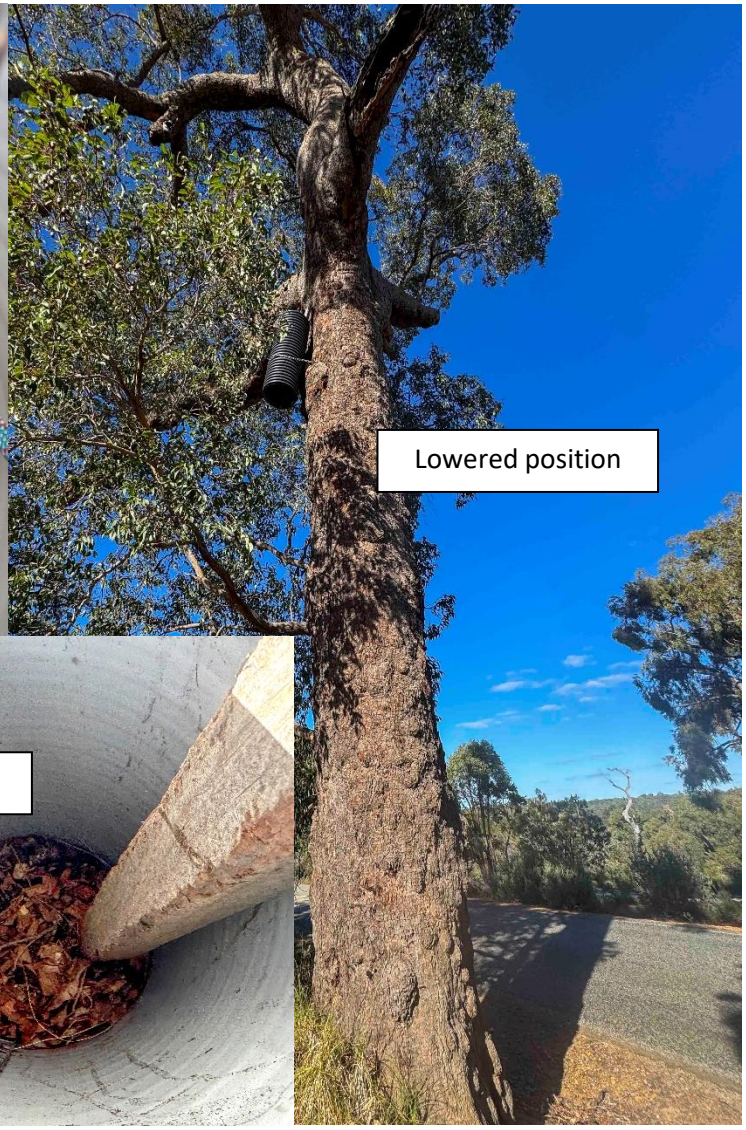

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB59 | Arborist 13m | YES | 7500 | 25 | NO | Hollow replenished and lowered and relocated to another tree away from road to 7.5m |

# Replenishment of NB60


| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB60 | Arborist 12.5m | YES | 6740 | 25 | NO | Hollow replenished and lowered and relocated to another tree away from road to 6.7m |

# Replenishment of NB61





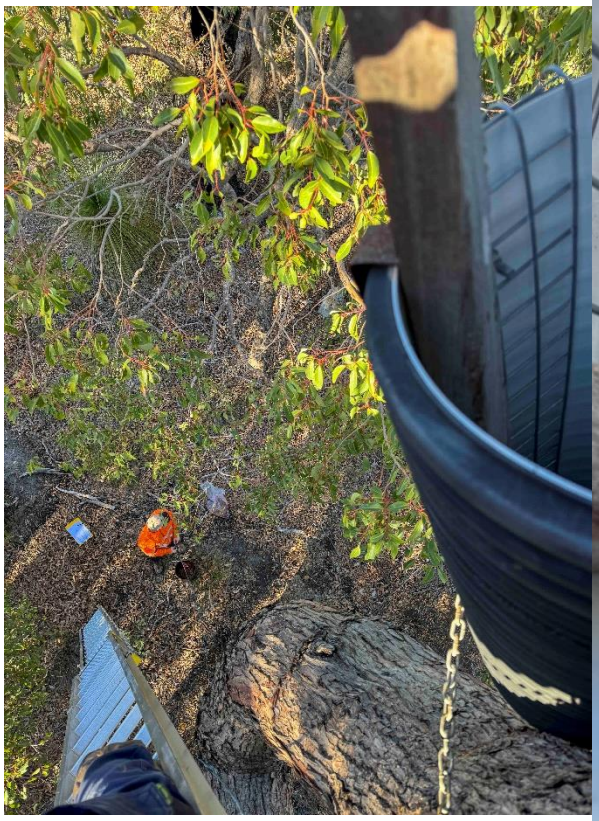

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB61 | Arborist 14m | YES | 6500 | 25 | NO | Hollow replenished and lowered, to 6.5m |

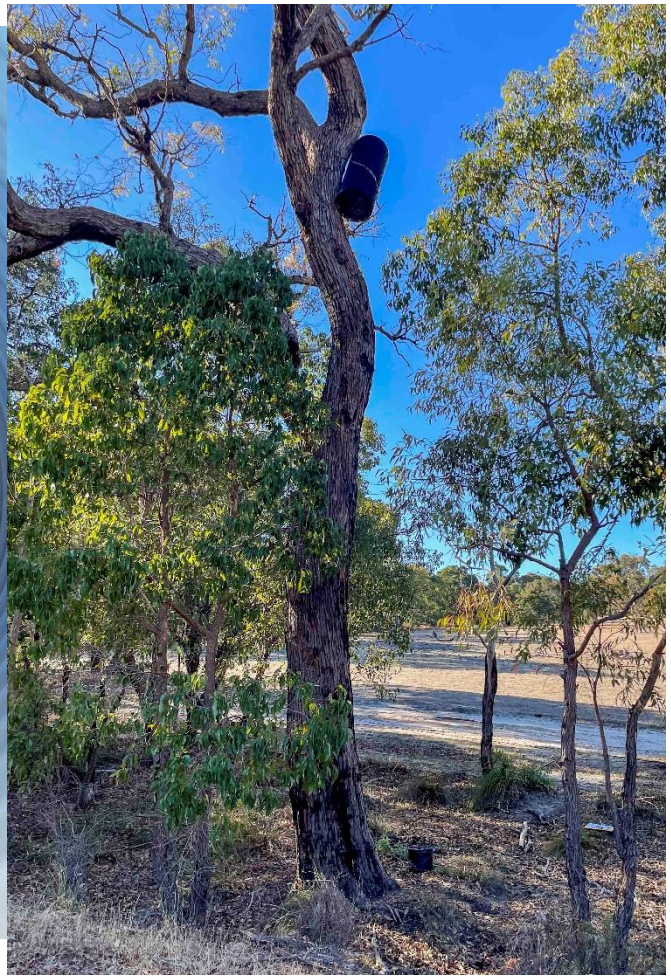
# Replenishment of NB66




| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB66 | 14M EWP | YES | 8200 | 25 | NO | Tree dead, Hollow replenished and lowered and relocated to another tree away from road to 6.7m |

# Replenishment of NB67

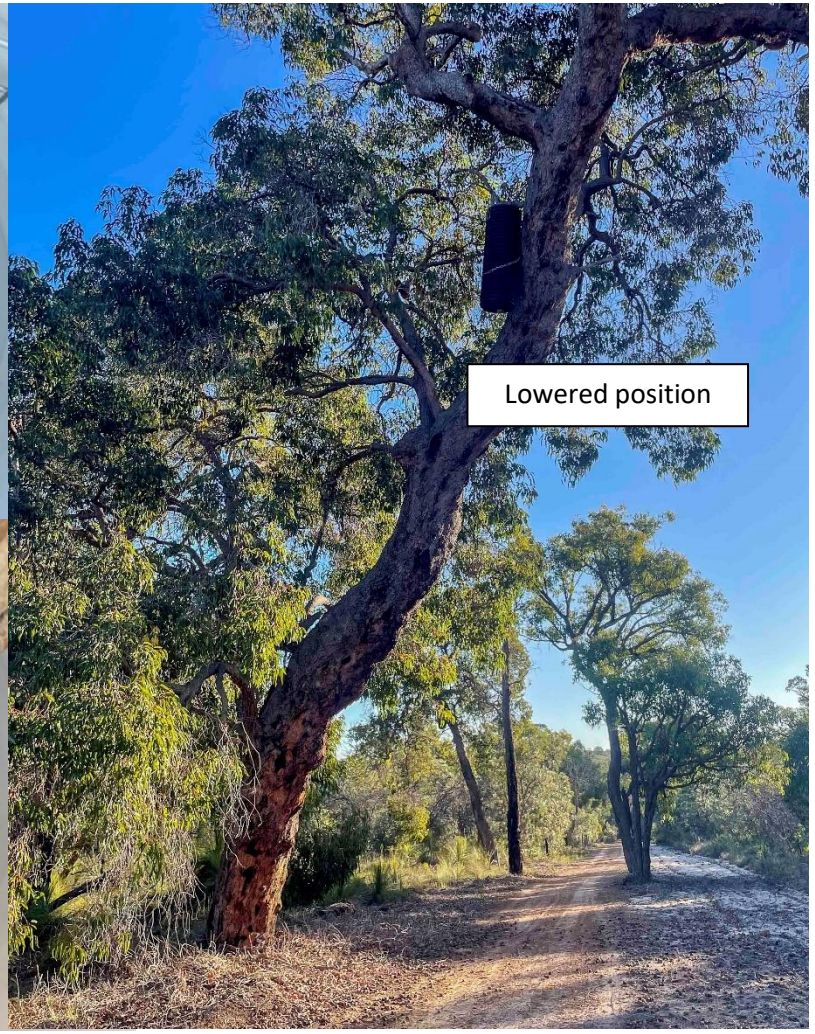




| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB67 | Ladder | NO | 8300 | 20 | NO | Hollow replenished |

# Replenishment of NB78

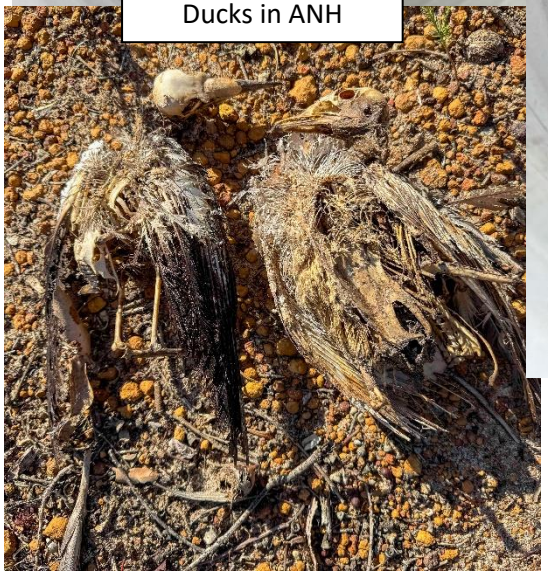




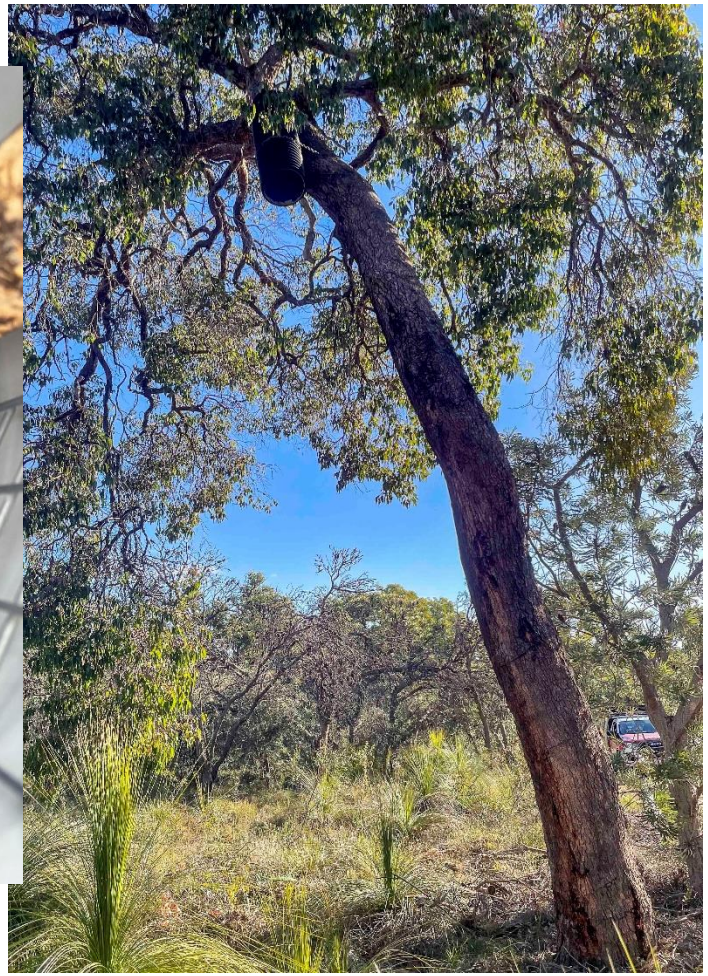

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB78 | 14M EWP | YES | 8400 | 20 | NO | Hollow replenished and lowered to 8.4m |

# Replenishment of NB79

Two dead Wood Ducks in ANH

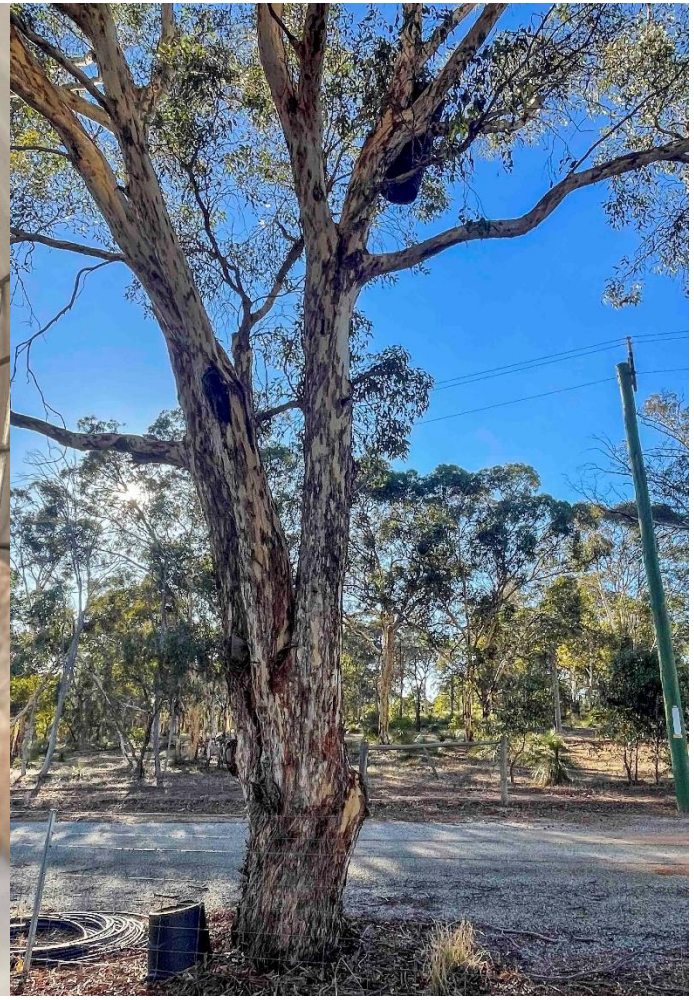


Replenished



| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB03 | Arborist 9m | NO | 7750 | 15 | NO | Hollow replenished and, Post bracket relocated |

# Replenishment of NB99



| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB99 | Ladder | NO | 7900 | 15 | NO | Hollow replenished and, bracket on post relocated. |

# Replenishment of NB64

| HT_ID | Access | Lowered | Height | Wood chips Lts | New Post | Comments |
|---|---|---|---|---|---|---|
| NB64 | Arborist 9m | YES | 7500 | Done in 2024 | NO | Hollow lowered and relocated to another tree away from road to 7.5m |