

Goomig Project Gouldian Finch Monitoring - Nesting Activity 2022-2023





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ABN 49 092 687 119
Level 4, 46 Colin Street,
West Perth Western Australia 6005
Ph: (08) 9328 1900 Fax: (08) 9328 6138

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Prepared by: H. Winter

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Goomig Gouldian Finch Monitoring 2022-23 - Nesting

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1.0 Executive Summary

The Goomig Project (Weaber Plains Development Project) is an irrigated agricultural development located approximately 30 km north of Kununurra, which involved clearing approximately 9,260 ha of vegetation for agriculture. Approximately 11,470 ha of native vegetation surrounding, or remaining between, the cleared areas has been designated as a buffer area (the study area for this report) to be managed to protect surrounding conservation reserves and watercourses (Strategen 2014). Gouldian Finch monitoring in the buffer area during ongoing operations is required as a condition of project approval, and is outlined in the Gouldian Finch Conservation Plan (GFCP; Strategen 2014). Item 7 of the monitoring regime requires “*annual monitoring of breeding populations, including timing and reproductive outputs (i.e. clutch size and fledging success), to be undertaken annually between February and July*”.

Breeding surveys in the buffer area were conducted across three phases, at monthly intervals in March, April and May 2023, to coincide with the primary breeding period previously recorded within the study area. Artificial nest boxes previously deployed in the study area were checked for evidence of usage by Gouldian Finches using a burrow scope camera, and if active nests were detected, details on the status of the nest (e.g. clutch size, development of chicks) were recorded.

A total of 166 nest box locations were checked for presence and condition of nest boxes and evidence of Gouldian Finch occupation on at least one of the survey phases. This included the 163 updated nest box locations provided by DPIRD following repair and replacement of boxes over the 2022 dry season, and three additional nest boxes located incidentally during the field surveys. One of these additional boxes was present in the 2021 dataset and was likely inadvertently discarded from the dataset though the box itself had not been physically removed, while the other two (one found in March, and one in May) were not present in either dataset. At the conclusion of the May survey:

- 113 nest boxes were still in good, useable condition;
- 16 were blocked;
- 8 were broken; and
- 29 nest boxes could not be found at their reported locations (these were located primarily in low-lying swampland and were moved to replace broken or missing boxes in other areas but appear to have inadvertently been left in the dataset).

No Gouldian Finches were recorded breeding in any of the 137 artificial nest boxes within the study area in the 2023 breeding season, nor was any evidence of recent usage recorded. The nest box not in the dataset that was located during the May survey contained a defunct nest but no evidence of current or recent use (e.g. eggs, chicks, eggshells). Due to the age of the nest, it also could not be determined with certainty whether the nest had belonged to Gouldian Finches. As all recorded breeding in the buffer area has taken place in artificial nest boxes since they were first installed in 2013 following a decline in breeding in natural hollows, it is likely that the decline in condition and hence availability of nest boxes over the 2019-2021 seasons is at least partly responsible for the decline in nesting activity in the study area.

The reduction in artificial nest box availability may have caused Gouldian Finches to shift back to using natural hollows in these breeding areas. However, no evidence of breeding in natural hollows was observed (e.g. adults entering hollows or carrying nesting material, calls of begging fledglings), but these were not systematically checked during the current surveys due to time constraints and because GPS locations for previously-checked hollows were not available, so it is possible that some nesting took place in natural hollows. However, as no Gouldian Finches were observed in the breeding areas during any of the surveys, and no evidence of breeding was observed, we consider that it is unlikely that significant numbers nested in natural hollows in the mapped breeding areas.

Seasonal conditions are unlikely to have resulted in the lack of breeding activity in the study area this season as minimum and maximum temperatures aligned with the long-term medians, and seasonal rainfall was higher than average. In addition, sorghum (*Sarga/Sorghum* spp.) were observed to be flowering and seeding in the breeding areas during the March grass phenology surveys (Biota 2023), indicating that food resources to support breeding were available.

The results of the monitoring during the 2023 season indicate that the target (identified in the GFCP) of “no reduction in baseline breeding numbers¹ which can be attributed to Buffer Area management” has not been achieved, as no Gouldian Finches were confirmed breeding in the buffer area. As such, we make the following recommendations:

1. Investigate other potential causes of decline in breeding activity, in accordance with corrective actions identified in the GFCP in the event of the identified target not being met.
2. Continue monitoring the existing nest boxes in the event that there is a lag in uptake of nest boxes due to prolonged absence of breeding activity in the study area.
3. Re-deploy the existing nest boxes remaining within low-lying seasonally-inundated areas to more suitable Gouldian Finch breeding habitat, ideally within the existing mapped breeding areas.
4. Systematic location and inspection of potentially suitable natural hollows should be recommenced, particularly if observed breeding activity does not increase following restoration of nest boxes.
- 5a. Consider expanding or revising the monitoring program to encompass known breeding locations outside of the buffer area to provide control data; OR
- 5b. Source and incorporate relevant data obtained by other monitoring programs at suitable control sites in the region into the assessment and reporting each year.

¹ Baseline breeding numbers have not been defined explicitly in the GFCP – we have treated the initial detailed survey in 2011 as the baseline survey for this purpose, as clearing commenced the following year.

2.0 Introduction

2.1 Project Background

The Goomig Project (formerly Weaber Plains Development Project) is an irrigated agricultural development located approximately 30 km north of Kununurra (Figure 2.1) and is an expansion of the existing stage 1 of the Ord River Irrigation Scheme. The project was approved by the then Department of Sustainability, Environment, Water, Population and Communities in 2011.

The project involved clearing approximately 9,260 ha of vegetation for agriculture. Approximately 11,470 ha of native vegetation surrounding, or remaining between, the cleared areas has been designated as a buffer area (the study area for this report) to be managed to protect surrounding conservation reserves and watercourses (Strategen 2014).

2.2 Project Scope

Gouldian Finch monitoring in the buffer area of the Goomig Project during ongoing operation is required as a condition of approval for the project. A Gouldian Finch Conservation Plan (GFCP) has been prepared, which includes a monitoring regime to be implemented to satisfy this condition (Strategen 2014). Biota Environmental Sciences (Biota) was engaged by the Department of Primary Industries and Regional Development (DPIRD) to implement this monitoring during the 2022-23 season.

The scope of the current study was to undertake monitoring surveys to meet the requirements of Items 7, 8 and 9 in Table 3 of the GFCP for the 2022-23 seasons:

- Item 7: Annual monitoring of breeding populations, including timing and reproductive outputs (i.e. clutch size and fledging success), to be undertaken annually between February and July;
- Item 8: Annual wet-season monitoring of foraging activity in critical wet-season feeding areas in close proximity to breeding areas, to be undertaken between November and April each year; and
- Item 9: Mapping and annual monitoring of the phenology and productivity of wet season feeding habitat, and assessment of their use by Gouldian Finches, to be undertaken between November and April each year.

This report addresses the results of the annual monitoring of breeding populations (Item 7). Item 8 and Item 9 are addressed in a separate report (Biota 2023).

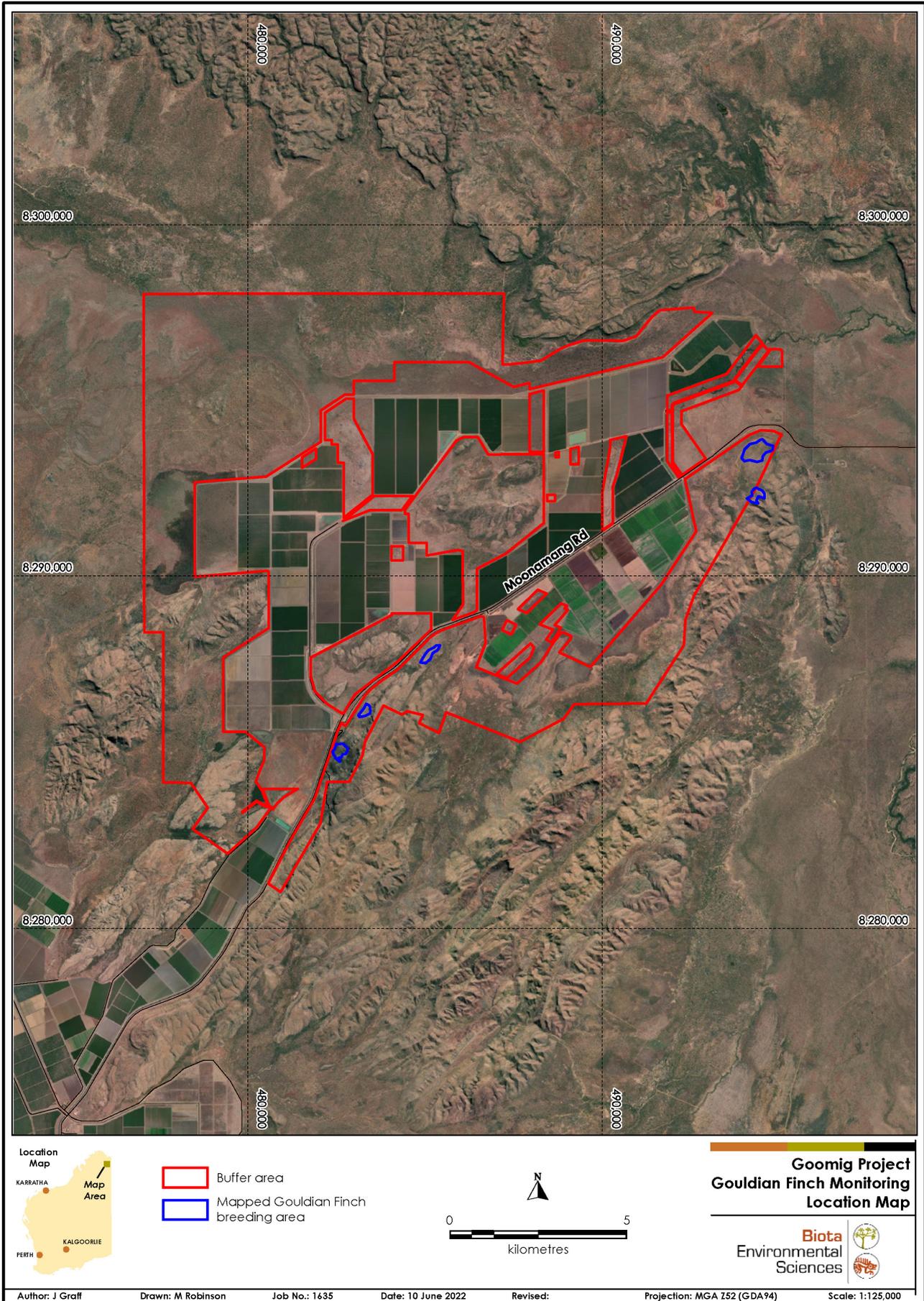


Figure 2.1: Gomig Project buffer area (the study area)

2.3 Gouldian Finch (*Chloebia gouldii*)

2.3.1 Distribution

The Gouldian Finch formerly occurred across large areas of tropical northern Australia from Cape York in Queensland to the Kimberley region of Western Australia. However, over the last 100 years the species has declined markedly in range and abundance, and is now recorded reliably only from the Northern Territory and Western Australia, with infrequent records in Queensland (O'Malley 2006). In Western Australia, the Gouldian Finch occurs throughout much of the Kimberley region in the north-east of the state, from the Dampier Peninsula in the west, south to Mornington Wildlife Sanctuary and Halls Creek, and east to Lake Argyle and the WA border (Johnstone and Storr 2004, Cornell Lab of Ornithology 2022).

2.3.2 Habitat

Known breeding habitat for Gouldian Finches primarily comprises rocky hillslopes with smooth-barked eucalypts, including *Eucalyptus brevifolia*, *E. tinnitans* (O'Malley 2006), *E. miniata*, and *Corymbia dichromophloia* (Brazill-Boast et al. 2011), located in proximity (usually <2 km) to permanent fresh water sources for drinking (O'Malley 2006). An understorey of suitable foraging grasses is also typically an important component of breeding habitat (Brazill-Boast et al. 2011).

During the non-breeding season, Gouldian Finches disperse from breeding areas into adjacent lowland areas, favouring woodland areas with an understorey of suitable foraging grasses (Dostine et al. 2001).

2.3.3 Breeding Ecology

Gouldian Finches nest almost exclusively in eucalypt hollows, though there are historical reports of nesting in termite mounds (Tidemann 1996). In the east Kimberley, they nest in hollows in the cavity-bearing eucalypts *Corymbia dichromophloia* and *Eucalyptus miniata* (Brazill-Boast et al. 2010, 2011). Selection of hollows is highly dependent on structural characteristics of the hollow and the number of suitable hollows available in an area (Brazill-Boast et al. 2010, 2011).

Eggs are laid between February and June near Wyndham in Western Australia (Brazill-Boast et al. 2010), and between January and August, depending on wet season rainfall, on Newry Station in the Northern Territory (Tidemann et al. 1999). The average clutch size at Northern Territory study sites was 5.2 ± 1.3 , and pairs were recorded laying up to three clutches per season (Tidemann et al. 1999).

2.3.4 Diet

The Gouldian Finch is an obligate granivore, feeding almost entirely on grass seeds, though insects are occasionally taken (Johnstone and Storr 2004). Research in the Northern Territory found Gouldian Finches foraged mostly on the ground in burnt areas during the dry season, feeding on fallen seed from annual grasses, particularly sorghum (*Sarga*) species, that was exposed by the burning of the grass cover (Dostine et al. 2001). During the wet season, the finches fed on seeds of perennial grasses, including *Themeda triandra*, *Alloteropsis semialata*, *Chrysopogon fallax*, and *Heteropogon triticeus*, taking seeds directly off the grasses as they ripen (Dostine et al. 2001).

2.3.5 Conservation and Threatening Processes

The Gouldian Finch is listed as Endangered at federal level under the *Environment Conservation and Biodiversity Protection (EPBC) Act 1999*. It is not listed as threatened under state legislation in Western Australia, but is listed as a Priority 4 species by the Department of Biodiversity, Conservation and Attractions (DBCAs). Outside of Western Australia, the Gouldian Finch is also listed as Endangered under the *Nature Conservation Act 1992* in Queensland, and as Vulnerable under the *Territory Parks and Wildlife Conservation Act 2000* in the Northern Territory.

The key current threatening processes for Gouldian Finches are considered to be changes in vegetation due to altered fire regimes and grazing by introduced animals (O'Malley 2006, Legge et al. 2015). More regular, intense fires were found to be related to poorer body condition in Gouldian Finches from the late dry season to late wet season (Legge et al. 2015). This is likely because the fires reduce food availability by burning the annual grass seeds used for dry season foraging, damaging the perennial grasses used for wet season foraging, and reducing the spatial and temporal complexity in seed availability required to provide year-round food resources (Watkinson et al. 1989, Crowley and Garnett 2001, Legge et al. 2015). Regular intense fires have also been found to reduce nest hollow availability (Brazill-Boast et al. 2010, 2011). Heavy grazing is also likely to reduce food availability for Gouldian Finches, by decreasing seed yields and extent of key Gouldian Finch foraging grasses (Crowley and Garnett 2001)

Commercial trapping of wild finches also coincided with major declines in Gouldian Finch populations in the Kimberley until it ended in 1986 (Franklin et al. 1999). High levels of infestation by mites in the air sacs of wild Gouldian Finches have also been reported, and have been suggested as a possible cause of population declines, but the actual extent of the impact is uncertain (O'Malley 2006).

2.4 Gouldian Finches in the Study Area

2.4.1 Breeding

Suitable breeding and non-breeding habitat for Gouldian Finches exists within the Goomig Project development area and buffer area (Figure 2.2). Suitable breeding habitat was identified in 2010, with 11 areas of suitable habitat identified (Pryke 2010). Gouldian Finches were recorded breeding in five of these areas during a detailed survey in 2011, with 43 active nests recorded that season in natural hollows (Save The Gouldian Fund 2011a). As clearing for the project commenced following the 2011 season, we have treated this as the baseline breeding activity level for the purpose of addressing the GFCP target for breeding activity in the buffer areas. The number of active nests recorded declined in subsequent years, to 29 in 2012 and 12 in 2013 (Save The Gouldian Fund 2012, 2013).

Following the 2013 breeding season, 120 artificial nest boxes were erected in the five known breeding areas to provide additional suitable nesting sites (Save The Gouldian Fund 2014). The following breeding season (2014), nine active nests were recorded in the study area, all using the newly-installed artificial nest boxes (Save The Gouldian Fund 2014). The number of active nests recorded increased again in subsequent years, to 26 in 2015, 32 in 2016, and 43 in 2017, before declining again to 23 in 2018 (Save The Gouldian Fund 2015a, 2016a, 2017a, 2018). All active nests recorded since the installation of artificial nesting boxes have been recorded from these nest boxes, with none recorded from natural hollows, despite searches of all previously identified potentially suitable natural hollows. No monitoring was undertaken during the 2019 and 2020 breeding seasons, and no active nests were located during the 2021 breeding season, albeit from only a single phase of survey undertaken in March (Jackett 2021a). The 2021 survey also identified that a large proportion (79%) of the artificial nest boxes were missing or damaged and recommended repairing or installing new nest boxes (Jackett 2021a). As a result, additional nest boxes were erected in the northern section of the buffer area in 2021. Surveys in the 2022 breeding season again recorded no active nests in the study area (Biota 2022).

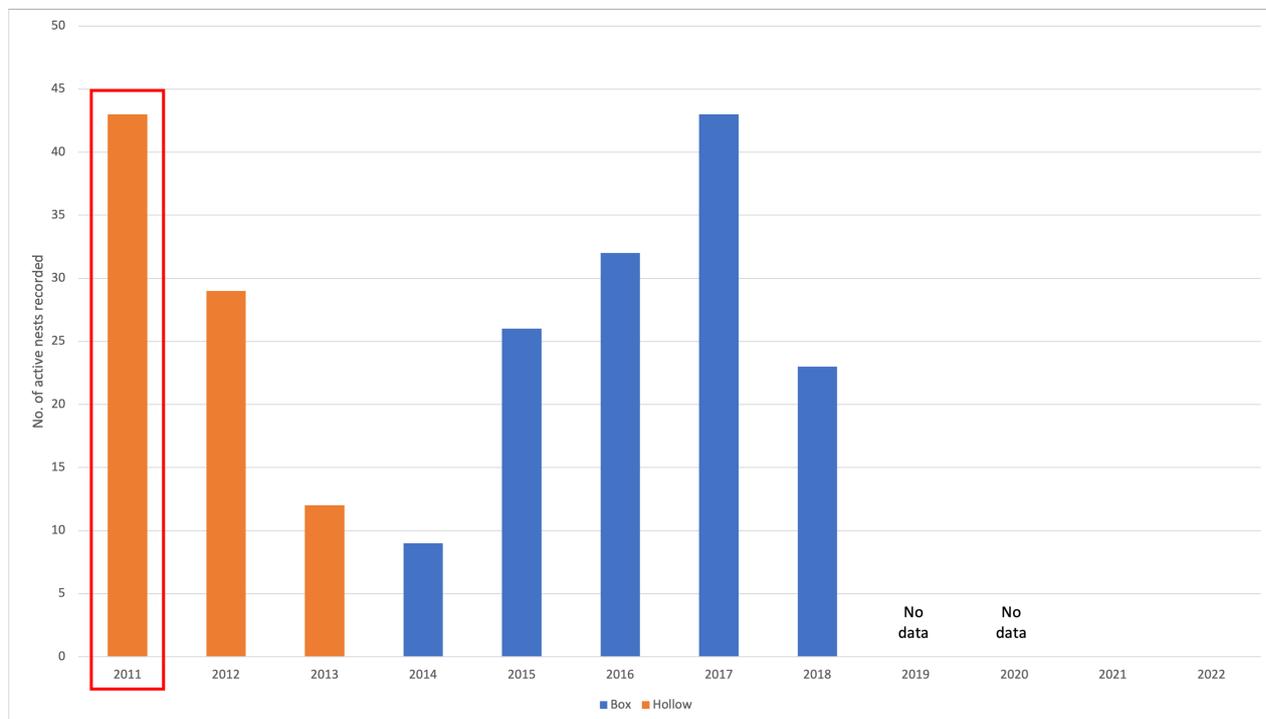


Figure 2.2: Gouldian Finch nesting activity recorded in study area (red box denotes baseline).

Gouldian Finches were recorded foraging in the buffer area during the breeding season each season from 2014 to 2018, with the number of individuals recorded ranging from 17 to 32, with all records from within the mapped breeding areas (Save The Gouldian Fund 2014, 2015a, 2016a, 2017a, 2018). The majority of these records were from breeding areas where active nests were also recorded, with the exception of the 2018 season when a single individual was seen in a breeding area where no nests were detected (Save The Gouldian Fund 2018). During the 2021 survey, a single adult male was recorded, also from within a mapped breeding area, though no active nests were recorded that season (Jackett 2021a). At least six juvenile Gouldian Finches were observed with adults in the study area during the May 2022 survey, which does indicate that successful breeding took place somewhere in the broader area during the 2022 breeding season (Biota 2022).

2.4.2 Non-breeding

Gouldian Finches have also been observed using the Gomig Project buffer area during the non-breeding season. Individuals were recorded by Animal Plant Mineral (APM) during general bird surveys in the project area in August 2010 (Save The Gouldian Fund 2015b), and 73 individuals were subsequently recorded during targeted surveys in 2011 (Save The Gouldian Fund 2011b). No Gouldian Finches were sighted in the development envelope or buffer areas during the initial land-clearing phase in 2012 (Save The Gouldian Fund 2011b). However, following completion of clearing, Gouldian Finches were again recorded in the buffer area, and the number of individuals recorded trended upwards with 14 individuals sighted in 2013, 29 in 2014, 38 in 2015, 33 in 2016, and a high count of 52 in 2017 (Save The Gouldian Fund 2011b, 2011b, 2015b, 2016b, 2017b). However, this high count post-clearing was still lower than the pre-clearing count of 73 individuals. No counts were undertaken during the 2018-19 and 2019-20 non-breeding seasons, and only a single juvenile individual was recorded during the October 2020 surveys (Jackett 2021b). No counts were made during the 2021 and 2022 non-breeding seasons as these counts were only required by the GFCP for the first five seasons following 50% completion of clearing.

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3.0 Methods

3.1 Survey Team and Timing

Surveys for breeding activity were conducted across three phases, at monthly intervals in March, April and May 2023. Timing was chosen to cover the primary breeding period in the area, based on past survey results. Specifically, during past breeding seasons the earliest estimated nest commencement dates have ranged from 16th to 28th February, and the latest estimated nest commencement dates have ranged from 6th April to 2nd May (Save The Gouldian Fund 2014, 2015a, 2016a, 2017a, 2018). The monthly intervals for surveys was based on expected duration of activity for a clutch, with eggs taking 12-14 days to hatch, and chicks then taking 20-21 days to fledge (Johnstone and Storr 2004). Thus, monthly surveys were selected to maximise likelihood of detecting any active nests, while minimising the number of field deployments.

Survey personnel and their qualifications are outlined in Table 3.1, with survey timing and scope outlined in Table 3.2. Nest monitoring work was undertaken under Regulation 27 license number 27000596 (Appendix 1).

Table 3.1: Survey team and experience.

Personnel	Position	Qualifications	Years of Experience	Project Role
Garth Humphreys	Principal Ecologist/Director	BSc (Hons)	33	Project Director
John Graff	Senior Zoologist	BSc (Hons)	16	Project Manager, field survey, data analysis and reporting
Joshua Keen	Senior Zoologist	BSc (Hons)	8	Field survey
Hayley Winter	Graduate Zoologist	BSc (Hons)	1	Field survey, data analysis, reporting

Table 3.2: Survey timing and personnel.

Survey Dates	Team Members	Activities
10 th – 20 th March 2023	John Graff, Joshua Keen	Nest box monitoring (in addition to grass phenology and foraging surveys)
14 th – 17 th April 2023	John Graff, Hayley Winter	Nest box monitoring
8 th – 11 th May 2023	John Graff, Hayley Winter	Nest box monitoring

3.2 Weather and Seasonal Conditions

Weather conditions during the March and April surveys were hot and humid, with occasional brief showers on a few days (Table 3.3). Conditions were more moderate during the May survey, with lower minimum temperatures, lower humidity, and mostly sunny conditions, though maximum temperatures were still warm (Table 3.3).

Rainfall over the wet season leading into the surveys was above average overall (1046 mm against a long-term median of 769 mm), with extensive heavy rainfall recorded in November, December and January (Figure 3.1). As a result, flooding of low-lying areas near Gouldian Finch breeding areas in the study area was more extensive spatially and temporally than during the 2022 breeding season. Temperatures over the previous year were generally consistent with long-term average, though July was unusually cool, recording lower maximum and minimum temperatures compared to the long-term medians (Figure 3.1).

Table 3.3: Weather conditions during surveys.

Temperature and rainfall data taken from DPIRD Kimberley Research Station weather station, wind data from Bureau of Meteorology Kununurra Aero weather station

Survey	Date	Max Temp (°C)	Min Temp (°C)	Rainfall (mm)	Wind at 9am (km/h)	Wind at 3pm (km/h)
Nest Monitoring – Phase 1 (also inc. foraging surveys and grass transects)	10 th Mar 2023	38.0	23.4	0.0	9 S	9 ESE
	11 th Mar 2023	38.3	20.4	0.0	9 S	9 SSE
	12 th Mar 2023	39.1	18.0	0.0	13 WSW	13 E
	13 th Mar 2023	39.4	20.1	0.0	7 WSW	11 SSE
	14 th Mar 2023	38.3	21.2	0.0	15 ESE	22 ESE
	15 th Mar 2023	37.1	19.5	0.0	20 NE	15 NE
	16 th Mar 2023	38.1	24.0	0.2	9 N	13 NNE
	17 th Mar 2023	40.2	23.7	0.0	13 NW	11 SE
	18 th Mar 2023	39.5	22.9	0.0	4 E	6 SE
	19 th Mar 2023	38.1	23.2	0	7 NNW	26 NE
20 th Mar 2023	37.2	23.1	8	9 NE	20 N	
Nest Monitoring – Phase 2	14 th Apr 2023	35.6	23.2	3.2	7 E	22 N
	15 th Apr 2023	36.8	25.0	1.4	15 WSW	9 ESE
	16 th Apr 2023	32.3	24.2	0.4	22 SSE	15 SSE
	17 th Apr 2023	30.8	19.7	0.2	22 SE	19 S
Nest Monitoring – Phase 3	8 th May 2023	31.1	15.6	0.0	26 SE	19 SE
	9 th May 2023	29.3	14.3	0.0	24 SSE	17 SSE
	10 th May 2023	29.6	12.5	0.0	20 SE	15 SSE
	11 th May 2023	30.7	10.0	0.0	22 ESE	15 SSE

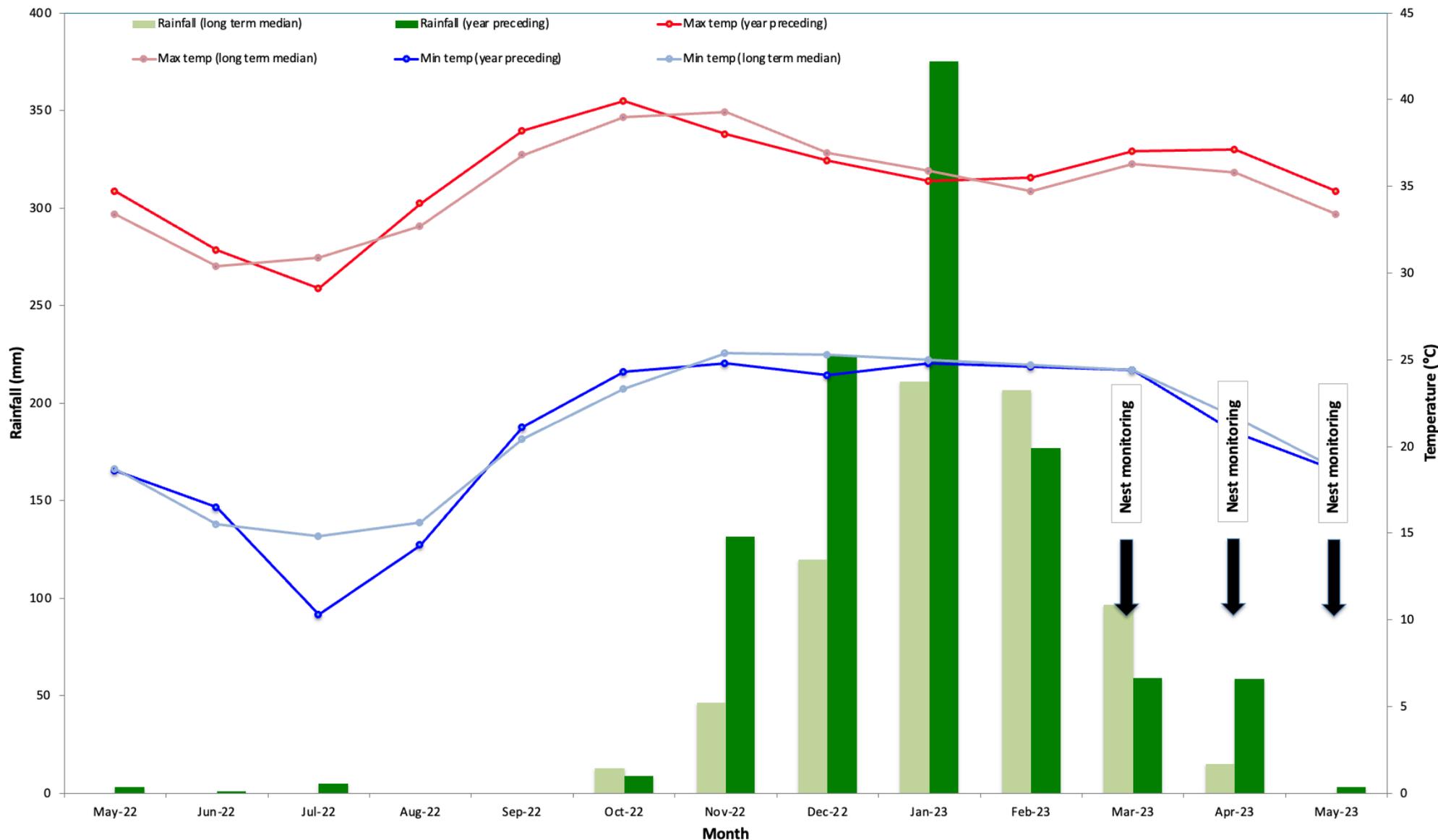


Figure 3.1: Rainfall and temperature data for the preceding 12 months compared to long-term averages

Rainfall data taken from DPIRD Kimberley Research Station weather station, temperature data from Bureau of Meteorology Kununurra Aero weather station.

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3.3 Nest Box Monitoring

Artificial nest boxes that had previously been installed in the study area were checked monthly from March to May, to align with previously recorded Gouldian Finch breeding timing at the site (see Section 3.1). The GPS locations of 163 nest boxes were visited and where the boxes could be located, their condition was initially inspected from ground level. If the boxes appeared to be intact and in suitable condition for use, they were examined with a Signet wireless inspection camera operated by a zoologist standing on a secured 3.8 m extension ladder. Video footage from the camera was streamed wirelessly to a second zoologist on the ground to check for evidence of nesting activity. Any evidence of nesting was recorded, and if an active nest had been located, details of the status of the nest would have recorded, including:

- clutch size (number of eggs/chicks);
- estimated age of chicks; and
- evidence of egg failure or chick mortality.

Nest boxes were re-checked at monthly intervals using the same methods, though boxes found to be broken were not re-checked during subsequent surveys. Boxes found to be blocked by ant, termite or other debris were re-checked in subsequent surveys, as observations showed that these blockages were sometimes only temporary. An additional three nest boxes not in the updated list of GPS locations were also located incidentally during the surveys, and checked as outlined above.

The locations of 158 natural hollows previously identified within the study area (Save The Gouldian Fund 2011a, 2012) could not be obtained prior to these surveys, so systematic searches of natural hollows were not undertaken due to this lack of location data and time constraints.

3.4 Limitations

The results of the 2022-23 breeding activity monitoring should be assessed giving consideration to the following potential limitations;

- Natural hollows potentially suitable for Gouldian Finch nesting were not systematically checked due to a combination of time constraints, lack of previous hollow location data, and recent exclusive usage of artificial nesting hollows by breeding Gouldian Finches in the study area. Hence, it is possible that some breeding activity took place undetected in natural hollows in the study area.
- Some nest boxes were not inspected internally using the ladder and inspection camera if a lack of stable ground/flooding around base of tree meant it was deemed unsafe to use the ladder, or if the nest box was positioned too high in the tree to be reached by the ladder used during the surveys (up to 11 boxes across all surveys). In these instances, the nest box was observed for signs of activity (e.g. chick begging calls, adults entering/exiting), and gently tapped with a long stick, if reachable, to check for occupation. These alternative methods are less effective at determining occupancy and may have resulted in nesting activity not being detected in these boxes.

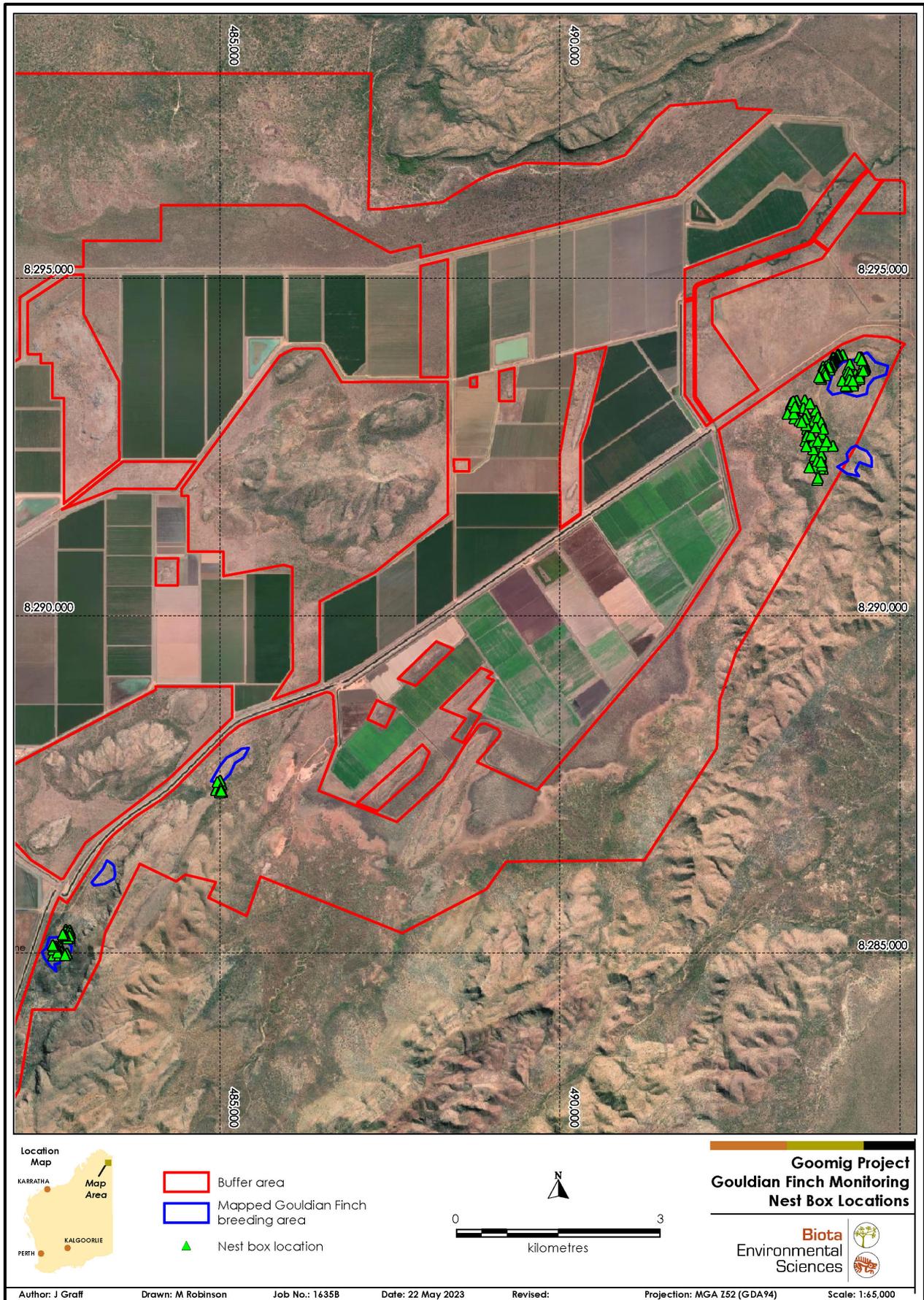


Figure 3.2: Provided locations of artificial nest boxes previously installed in study area.

4.0 Results

4.1 Nest Box Condition

Of the 163 provided nest box locations for the 2023 season, 134 nest boxes were found, while 29 were missing. The missing nest boxes were all located in the low-lying swampland area where boxes were deployed in 2021, and had been moved following recommendations in Biota (2022) but likely had not been removed from the dataset. Three nest boxes that were not at locations in the 2022 dataset were located incidentally and checked. One of these was present in the 2021 dataset and was likely inadvertently removed from the dataset though the box itself had not been removed, and two (one found in March, and one in May) were not present in either dataset. As such, a total of 137 nest boxes were checked for condition and evidence of Gouldian Finch occupation on at least one of the survey phases. Of these, 113 were still in good, useable condition by the May 2023 survey, while 16 were blocked, and 8 were broken.

A summary of the status of nest boxes in each section is provided below in Table 4.1. The locations and status of each nest box as at the conclusion of the May 2023 survey are mapped in Figure 4.1 and Figure 4.2, and provided in tabular form in Appendix 2.

Table 4.1: Nest box status by section.

Section	Deployed	Population ¹	Condition (at May 2023)				Total
			Good	Blocked	Broken	Missing	
Southern	Original	Population 1	29	1	1	0	31
		Population 3	7	1	2	0	10
Sorby	Original	Population 4	37	6	2	0	45
		Population 5	36	1	3	0	36
	2021	New	4	7	0	29 ²	40
Total			113	16	8	29	166

¹ Based on mapped location – listed population in provided data often inconsistent with mapped location.

² Removed from location but had not been removed from the dataset.

4.2 Nest Box Occupancy

No Gouldian Finches were recorded breeding within the study area during the 2023 breeding surveys, either during systematic checking of nest boxes or through incidental observations. A single nest box (Y001) was found to contain a defunct nest. Unfortunately, the location of this nest box was not included in the provided data in 2021 or 2022, and thus it had not been checked until it was located incidentally in May 2023. Due to the age of the nest, it was not possible to determine with certainty whether the nest had been used by Gouldian Finches or another species, nor precisely when it had been used.

No other bird species were recorded using the nest boxes. Other fauna recorded occupying the boxes included microbats, Spotted Tree Goannas (*Varanus scalaris*), Green Tree Frogs (*Litoria caerulea*), geckos (*Gehyra* sp./spp.), and a variety of invertebrates including ants, and spiders. The results of each nest box check are provided in Appendix 3.

Table 4.2: Occupancy of nest boxes in 2023.

Month	Gouldian Finch	Other birds	Microbats	python sp.	<i>Varanus scalaris</i>	<i>Litoria caerulea</i> / <i>rubella</i>	<i>Gehyra</i> sp.	Ants/ Termites*
March	0	0	3	0	2	16	4	26
April	0	0	0	0	5	39	5	31
May	0	0	0	1	4	8	6	23

* Other invertebrates not reported in table

This is the third consecutive breeding season where no Gouldian Finches were recorded using artificial nest boxes in the study area (Table 4.3). Nest box occupancy had increased steadily in the study area from 2014 to 2017, but declined again in 2018 and had reached nil occupancy by 2021 (Table 4.3).

Table 4.3: Comparison of Gouldian Finch nest box occupancy each breeding season.

Year	Occupied Nest Boxes	Available Nest Boxes	Occupancy (%)
2014	9	120 ¹	7.5
2015	26	120 ¹	21.7
2016	32	120 ¹	26.7
2017	41	120 ¹	34.2
2018	23	120 ¹	19.2
2019 ²	-	-	-
2020 ²	-	-	-
2021	0	22	0.0
2022	0	71	0.0
2023	0 ³	113	0.0

¹ Assumes all nest boxes were available for use

² No monitoring undertaken in 2019 and 2020 breeding seasons

³ Excluding the nest found in May 2023 due age of nest and inability to assign usage to Gouldian Finches with certainty

4.3 Other Breeding Activity

No adult Gouldian Finches were observed entering natural hollows or carrying nesting material during any of the survey phases, nor were any begging juveniles heard from natural hollows.

A pair of Long-tailed Finches were observed attending a natural hollow in the northern part of the study area during the April survey and were likely nesting, though the height of the hollow precluded inspection with the inspection camera. No activity was observed at this hollow during the May survey.

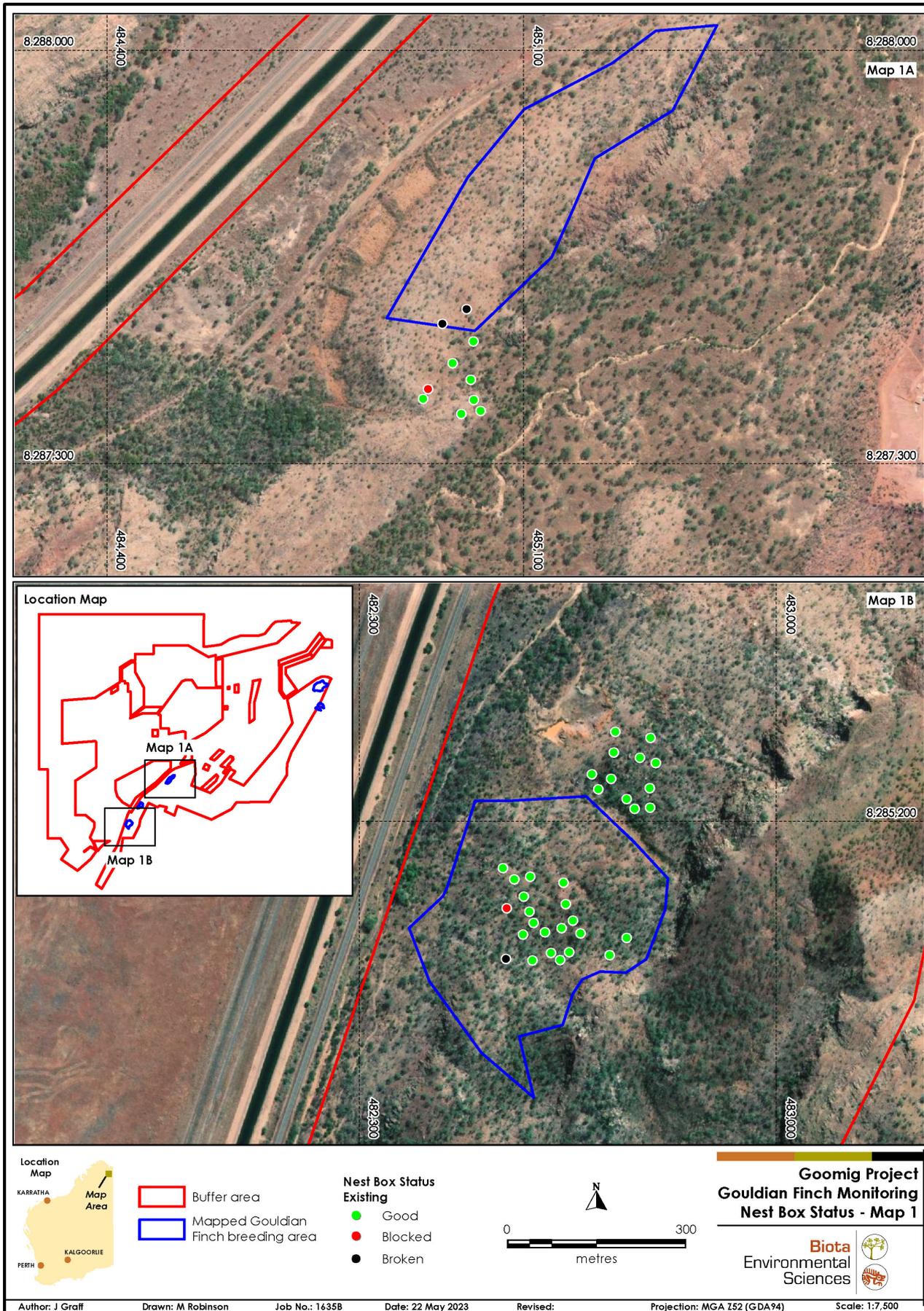


Figure 4.1: Status of artificial nest boxes following final survey in May – southern section.

5.0 Discussion

Gouldian Finches were not directly recorded breeding in the study area for the third consecutive breeding season, following a hiatus in the monitoring program during the 2019 and 2020 breeding seasons. Prior to this, the number of Gouldian Finch breeding records from the study area had increased from 2014 through to 2017, but declined again in 2018 (see Table 4.3). No monitoring was undertaken in 2019 or 2020, so it is not possible to determine whether the declining trend continued through these seasons, or precisely which season nest box usage completely ceased. Unfortunately, this makes it more difficult to definitively identify the reasons for the decline.

All active nests recorded in the study area from the 2014 season onwards were recorded from artificial nest boxes (Save The Gouldian Fund 2014, 2015a, 2016a, 2017a, 2018), following a decline in the number of birds nesting in natural hollows, so it is likely that the deterioration in condition of the nest boxes was at least partly responsible for the decline in nesting activity in the study area. Nest boxes at original installation locations were repaired or replaced prior to the 2023 breeding season, so the number of available nest boxes should have been sufficient this season. However, there may be a lag in uptake of these new nest boxes given the lack of breeding activity in the study area during the 2021 and 2022 seasons (and possibly prior to that). Although Gouldian Finches were recorded using the original nest boxes during the first breeding season following installation, multiple pairs had nested in natural hollows in the same areas during the previous season, whereas there was no evidence of this during the 2021 or 2022 breeding seasons.

It is possible that the reduction in artificial nest box availability caused Gouldian Finches to shift back to using natural hollows in these breeding areas. As natural hollows were not systematically sampled this breeding season, it is possible that some nesting took place in the breeding areas in natural hollows. However, during past surveys where breeding was recorded, individuals were also observed foraging in the breeding areas. No individuals were recorded in any of the three breeding season surveys during this phase of monitoring (Biota 2023), which suggests it is unlikely that any significant numbers bred in the existing breeding areas this season. It is also worth noting that prior to the installation of artificial nest boxes in 2013, the number of active nests recorded in natural hollows had declined from 43 to 12 between 2011 and 2013 (Save The Gouldian Fund 2011a, 2012, 2013), suggesting that there may have been some decline in quality or quantity of natural hollows available for breeding. However, this period also coincided with the commencement of clearing in the project area and a decline in the number of birds observed during the non-breeding season, so it is difficult to draw strong conclusions from the decline in breeding numbers over this period.

In early October 2022, the majority of nest boxes installed in low-lying, seasonally-inundated habitat in 2021 were removed and redeployed at original nest box locations. However, 11 remained in this section, including one that was not present in the dataset in 2021. In addition, it was also apparent that a number of the original nest boxes installed south of the identified breeding area in the northern (Sorby) section of the study area are also installed in similar lower-lying seasonally-inundated habitat. This was not noted during the 2021-22 monitoring as the majority of these boxes were broken or missing, and conditions were drier. It seems likely that these nest boxes are not in optimal Gouldian Finch breeding habitat, though information on which nest boxes had been used previously is lacking. A significant proportion of the boxes in these low-lying areas were also occupied by mud ants during all three surveys, possibly because the ants were driven into the trees to escape the inundation at ground level. This meant that a significant proportion of the nest boxes in these areas were not available for use by Gouldian Finches.

Seasonal conditions are unlikely to have affected breeding in the study area this season as minimum and maximum temperatures aligned with the long-term medians, and seasonal rainfall provided adequate surface water availability. Seeding of sorghum (*Sarga/Sorghum*

spp.) in the breeding areas was also observed to be commencing during the March survey (Biota 2023), which appears the primary driver of breeding timing in Gouldian Finches in the region (Weier et al. 2018).

6.0 Conclusions and Recommendations

The target for the monitoring of Gouldian Finch breeding populations in the study area identified in the GFCP (Strategen 2014) is:

- No reduction in baseline breeding numbers which can be attributed to Buffer Area management.

The results of the 2023 monitoring indicate that this target has not been met, as no Gouldian Finches were confirmed breeding in the buffer area. This represents a significant decline from the number of active nests recorded from natural hollows during the first year of survey which we have taken as the baseline breeding number (43 in 2011; Save The Gouldian Fund 2011a) and from the peak breeding activity levels since installation of artificial nest boxes (43 again in 2017; Save The Gouldian Fund 2017a), and also represents at least the third season with no recorded breeding in the study area. It is possible that some Gouldian Finches nested within the breeding areas in natural hollows, but the lack of any observations of Gouldian Finches in the breeding areas on any of the survey phases this year suggests it is unlikely that this represented a significant number of birds if this did occur.

It is likely that the decline in breeding activity in the study area was at least partly a result of the loss of available artificial nest boxes for use. However, restoration of nest boxes undertaken during the 2022 dry season did not result in any detected increase in breeding in the study area, so we recommend the following actions:

- Investigate other potential causes of decline in breeding activity, in accordance with corrective actions identified in the GFCP in the event of the identified target not being met; and
- Continue monitoring the existing nest boxes in the event that there is a lag in uptake of nest boxes due to prolonged absence of breeding activity in the study area.

Some nest boxes remain in low-lying seasonally-inundated areas which are likely to be less suitable for Gouldian Finch breeding. Thus, we recommend the following action:

- Re-deploy the existing nest boxes remaining within low-lying seasonally-inundated areas to more suitable Gouldian Finch breeding habitat, ideally within the existing mapped breeding areas.

Gouldian Finch breeding activity within the study area shifted entirely to artificial nesting hollows following their installation, but it is possible that following the deterioration in condition of the nest boxes some pairs have shifted back to natural hollows. In response to this, we recommend the following, particularly if breeding activity is not detected following restoration of artificial nest boxes:

- Systematic location and inspection of potentially suitable natural hollows within the study area recommences.

More broadly, the identified target requires that any reductions in breeding numbers not be "attributed to Buffer Area management". Identifying whether any recorded changes are attributable to buffer area management is difficult to do with certainty without concurrent data from control locations outside of the buffer area. This could, for example, allow the separation of the impact of any regional stochastic processes such as drought from local influences arising from the project itself. To address this, we recommend consideration be given to either:

- Expanding or revising the monitoring program to encompass known breeding locations outside of the buffer area to provide control data; OR
- Incorporating relevant data obtained by other monitoring programs at suitable control sites in the region into the assessment and reporting each year.

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7.0 References

- Biota (2022). Goomig Project Gouldian Finch Monitoring: Nesting Activity 2021-2022. Unpublished report prepared for Department of Primary Industries and Regional Development, Biota Environmental Sciences, Leederville, Western Australia.
- Biota (2023). Goomig Project Gouldian Finch Monitoring: Foraging Activity and Grass Phenology 2022-2023. Unpublished report prepared for Department of Primary Industries and Regional Development, Biota Environmental Sciences, West Perth, Western Australia.
- Brazill-Boast, J., J. K. Dessmann, G. T. O. Davies, S. R. Pryke, and S. C. Griffith (2011). Selection of breeding habitat by the endangered Gouldian Finch (*Erythrura gouldiae*) at two spatial scales. *Emu - Austral Ornithology* 111:304–311.
- Brazill-Boast, J., S. R. Pryke, and S. C. Griffith (2010). Nest-site utilisation and niche overlap in two sympatric, cavity-nesting finches. *Emu - Austral Ornithology* 110:170–177.
- Cornell Lab of Ornithology (2022). eBird [WWW Document]. Retrieved from <https://ebird.org/home>.
- Crowley, G. M., and S. T. Garnett (2001). Growth, seed production and effect of defoliation in an early flowering perennial grass, *Alloteropsis semialata* (Poaceae), on Cape York Peninsula, Australia. *Australian Journal of Botany* 49:735–743.
- Dostine, P. L., G. C. Johnson, D. C. Franklin, Y. Zhang, and C. Hempel (2001). Seasonal use of savanna landscapes by the Gouldian finch, *Erythrura gouldiae*, in the Yinberrie Hills area, Northern Territory. *Wildlife Research* 28:445–458.
- Franklin, D., A. Burbidge, and P. L. Dostine (1999). The harvest of wild birds for aviculture: an historical perspective on finch trapping in the Kimberley with special emphasis on the Gouldian Finch. *Australian Zoologist* 31:92–109.
- Jackett, N. A. (2021a). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Breeding Survey (2021). Unpublished report for Department of Primary Industry and Regional Development, Broome, WA.
- Jackett, N. A. (2021b). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Non-Breeding Counts (2020). Unpublished report for Department of Primary Industry and Regional Development, Broome, WA.
- Johnstone, R. E., and G. M. Storr (2004). *Handbook of Western Australian Birds Volume II - Passerines (Blue-winged Pitta to Goldfinch)*, 2nd edition. Western Australian Museum, Perth.
- Legge, S., S. Garnett, K. Maute, J. Heathcote, S. Murphy, J. C. Z. Woinarski, and L. Astheimer (2015). A Landscape-scale, Applied Fire Management Experiment Promotes Recovery of a Population of the Threatened Gouldian Finch, *Erythrura gouldiae*, in Australia's Tropical Savannas. *PLoS ONE* 10:1–27.
- O'Malley, C. (2006). National Recovery Plan for the Gouldian Finch (*Erythrura gouldiae*). WWF Australia, Sydney, and Parks and Wildlife NT, Palmerston.
- Pryke, S. R. (2010). Ord River Expansion: Stage 2 - Gouldian Finch: Preliminary Survey and Recommendations. Unpublished report for Department of Regional Development and Lands.
- Save The Gouldian Fund (2011a). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Breeding Assessment. Unpublished report for Department of Regional Development and Lands, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2011b). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Non-breeding Population Assessment. Unpublished report for Department of Regional Development and Lands, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2012). Ord-East Kimberley Expansion Project: Gouldian Finch Breeding Assessment. Unpublished report for Department of Regional Development and Lands, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2013). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Breeding Assessment. Unpublished report for Department of Regional Development and Lands, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2014). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Breeding Surveys (2014). Unpublished report for Department of Regional Development, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2015a). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Breeding Surveys (2015). Unpublished report for Department of Regional Development, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2015b). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Non-Breeding Counts (2015). Unpublished report for Department of Regional Development, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2016a). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Breeding Surveys (2016). Unpublished report for Department of Regional Development, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2016b). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Non-Breeding Counts (2016). Unpublished report for Department of Regional Development, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2017a). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Breeding Surveys (2017). Unpublished report for Department of Regional Development, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2017b). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Non-Breeding Counts (2017). Unpublished report for Department of Regional Development, Save The Gouldian Fund, Queensland.

Save The Gouldian Fund (2018). Ord-East Kimberley Expansion Project - Weaber Plain Development Area: Gouldian Finch Breeding Surveys (2018). Unpublished report for Department of Regional Development, Save The Gouldian Fund, Queensland.

Strategen (2014). Ord Project - Gouldian Finch Conservation Management Plan - Updated Jan 2014 (V2). Revised from original management plan prepared for LandCorp, Strategen Environmental Consultants, Subiaco, WA.

Tidemann, S. C. (1996). Causes of the decline of the Gouldian Finch *Erythrura gouldiae*. *Bird Conservation International* 6:49–61.

Tidemann, S. C., C. Lawson, R. Elvish, J. Boyden, and J. Elvish (1999). Breeding Biology of the Gouldian Finch *Erythrura gouldiae*, an Endangered Finch of Northern Australia. *Emu - Austral Ornithology* 99.

Watkinson, A., W. Lonsdale, and M. Andrew (1989). Modelling the population dynamics of an annual plant *Sorghum intrans* in the Wet-Dry tropics. *Journal of Ecology* 77:162–181.

Weier, A., I. J. Radford, S. M. Bellairs, and M. J. Lawes (2018). Seed set in *Sorghum stipoides*, and not fire, determines the timing of breeding by Gouldian finches (*Erythrura gouldiae*). *Austral Ecology* 44:151–162.

Appendix 1

Fauna License





FAUNA TAKING (BIOLOGICAL ASSESSMENT) LICENCE

Regulation 27, Biodiversity Conservation Regulations 2018

Licence Number: BA27000596-4
Licence Holder: John Konrad Graff
Biota Environmental Sciences
PO Box 155
Leederville WA 6903

Date of Issue: 14/04/2023

Date Valid From: 14/04/2023

Date of Expiry: 21/02/2024

LICENSED ACTIVITIES

Subject to the terms and conditions on this licence, the licence holder may –

1. Take and disturb fauna for Goomig Development Project Gouldian Finch Monitoring, the Weaber Plain Development Project (Goomig Project) was referred under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) on 14 May 2010, condition of the approval requires annual monitoring of Gouldian Finches in accordance with the approved Gouldian Finch Conservation Plan (EPBC 2010/5491). Monitoring to be undertaken by visual observation, photography or videography, habitat assessment and Nest boxes will be monitored for use by Gouldian Finches using burrow scope cameras to check for usage by Gouldian Finches. Each nest box will be checked at monthly intervals from March to May to check for occupation by Gouldian Finches, and reproductive output if present (clutch size and fledging success) as required by the conservation management plan.

LOCATIONS

1. *Goomig Project (Weaber Plains Development Project)* buffer area, including Goomig Conservation Park, approximately 30 km north-northeast of Kununurra.

AUTHORISED PERSONS

The following persons or persons of the specified class may assist in carrying out the licensed activities:

1. Nathan Beerkens
2. Joshua Keen
3. Michael Greenham
4. Victoria Ford
5. Louis Masarei
6. Robert Hooper
7. Roxanne de Vos
8. Hayley Winter

CONDITIONS



1. Fauna must not be taken on CALM land, (as defined in the Conservation and Land Management Regulations 2002), unless authorised by a written notice of a lawful authority issued under regulations 4 and 8 of the Conservation and Land Management Regulations 2002.
2. If persons, other than the licence holder, are authorised to carry out/assist in carrying out the activities under the licence, the licence holder must ensure those persons have read and understand the licence terms and conditions.
3. The written authorisation of the person in possession or occupation of the land accessed and upon which fauna is taken, as required under regulation 101(2) and referred to in “Additional information” below, must:
 - a) state location details (including lot or location number, street/road, suburb and local government authority);
 - b) state land owner or occupier name, and contact phone number;
 - c) specify the time period that the authorisation is valid for;
 - d) be signed and dated; and
 - e) be attached to this licence at all times.
4. This licence, and any written authorisation or lawful authority which authorises the take of fauna on specified locations must be carried at all times while conducting licensed activities and be produced on demand by a wildlife officer.
5. If a species of fauna listed as a threatened species under Section 19 of the *Biodiversity Conservation Act 2016* is inadvertently captured, that species is to be released immediately at the point of capture. If the fauna is injured or deceased, the licence holder shall contact the DBCA Wildlife Licensing Section (wildlifelicensing@dbca.wa.gov.au) for advice on treatment or disposal. Details of any capture of threatened fauna must be included in the “Return of Fauna Taken.”
6. The licence holder must not:
 - a) release any fauna in any area where it does not naturally occur;
 - b) transfer fauna to any other person or authority (other than the Western Australian Museum) unless approved in writing by the CEO; or
 - c) dispose of the remains of fauna in any manner likely to interfere the natural or present day distribution of the species.
7. The licence holder must not take and remove more than ten specimens of any one protected species of fauna from any location less than 20km apart. Where exceptional circumstances make it necessary to take a larger number of specimens from a particular location in order to obtain adequate statistical data, the collector must proceed with circumspection and justify their actions to the Director General in advance.
8. All holotypes and syntypes and a half share of paratypes of species or subspecies permitted to be permanently taken under this licence must be donated to the Western Australian Museum. Duplicates (one pair in each case) of any species collected, which represents a significant extension of geographic range must be offered to the Western Australian Museum.
9. All specimens and material retained under the authority of this licence must be offered to the Western Australian Museum for loan, for inclusion in its collection, or on request be made available to other persons involved in relevant scientific studies.
10. The licence holder must create, compile and maintain records and information as required in a DBCA approved “Return of Fauna Taken” of all fauna taking activities as they occur.
11. A DBCA approved “Return of Fauna Taken” must be completed in full (including nil taking details) and submitted to DBCA Wildlife Licensing Section (wildlifelicensing@dbca.wa.gov.au) prior to the end of each annual period of the licence (from the valid from date) (refer to “Additional Information” section below).



A handwritten signature in blue ink, appearing to read 'NP', with a horizontal line underneath.

Norman Press
LICENSING OFFICER
WILDLIFE PROTECTION BRANCH

Delegate of CEO

ADDITIONAL INFORMATION

1. It is an offence to take any species of fauna listed as a threatened species under Section 19 of the *Biodiversity Conservation Act 2016* unless the person is authorised under Section 40. The penalty ranges between \$300 000 and \$500 000; Section 150 Biodiversity Conservation Act 2016.
2. Regulation 82 empowers the CEO to add, substitute or delete a term or condition of a licence or to correct errors. Such power may be exercised on application of a licence holder or by the CEO's own initiative. If an amendment to a licence term or condition is required, please contact the CEO or the Licensing Section on wildlifelicensing@dbca.wa.gov.au in the first instance. The licence holder, if adversely affected by a condition imposed in this licence, may apply to the State Administrative Tribunal for review of the decision of the CEO to impose that condition on a licence: regulation 89(2) Biodiversity Conservation Regulations 2018.
3. A person must not contravene a condition of a licence. The penalty for an offence involving the contravention of a condition of a licence is a fine of \$10 000: regulation 84 of the Biodiversity Conservation Regulations 2018.
4. It is an offence for persons authorised by this licence to enter land that is not in their possession or under their control without first having the *prior* written authorisation of the current owner or occupier of the land to:
 - a) enter the land; and
 - b) carry out the activity authorised by this licence.

The penalty for this offence is a fine of \$5 000: regulation 101(2) of the Biodiversity Conservation Regulations 2018.

5. The licence holder must be able to produce for inspection upon request any information or records required by regulation 85(2) of the Biodiversity Conservation Regulations 2018 Penalty \$10 000. It is an offence to knowingly include false or misleading information or make statements in records: regulation 85(3) of the Biodiversity Conservation Regulations 2018 Penalty \$10 000. It is an offence to include any information or make any statement in a return that the licence holder knows to be false or misleading in a material particular: regulation 86 (2) of the Biodiversity Conservation Regulations 2018 Penalty \$10 000.
6. The approved DBCA "Return of Fauna Taken" data file can be downloaded from the DBCA webpage (<https://www.dpaw.wa.gov.au/plants-and-animals/licences-and-authorities>).
7. The issuing of a licence under the Biodiversity Conservation Regulations 2018 does not constitute an animal ethics approval or a licence to use animals for scientific purposes as required under the *Animal Welfare Act 2002*, Animal Welfare (Scientific Purposes) Regulations 2003. It is the responsibility of a licence applicant / licence holder to ensure that they comply with the requirements of all applicable legislation. Enquiries relating to the Animal Welfare Act licences and animal ethics approvals are to be directed to the Department of Primary Industries and Regional Development (<https://www.agric.wa.gov.au/animalwelfare>).



8. Threatened fauna can only be taken under a *Biodiversity Conservation Act 2016* Section 40 authorisation, Occurrences of threatened species must be reported to the CEO. For more information please see <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-animals>.
9. Any interaction involving Nationally Listed Threatened Fauna that may be invasive and/or harmful to the fauna may require approval from the Commonwealth Department of the Environment and Energy <http://www.environment.gov.au/about-us/business-us/permits-assessments-licences>. Interaction with such species is controlled by the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and Environment Protection and Biodiversity Conservation Regulations 2000 as well as the *Biodiversity Conservation Act 2016* and Biodiversity Conservation Regulations 2018.

Appendix 2

Nest Box Locations with May 2023 Status



Box No.	Section	In data or New	Latitude	Longitude	Box Status (May 2023)
100	Southern	In data	-15.48999	128.85997	Good
101	Southern	In data	-15.51001	128.83871	Good
102	Sorby	In data	-15.44216	128.94064	Good
103	Sorby	In data	-15.44477	128.94197	Good
104	Southern	In data	-15.49073	128.86041	Good
105	Sorby	In data	-15.44602	128.94255	Good
106	Sorby	In data	-15.43484	128.94727	Broken
107	Sorby	In data	-15.44574	128.94168	Good
108	Sorby	In data	-15.44403	128.94098	Good
109	Sorby	In data	-15.43889	128.93838	Good
110	Sorby	In data	-15.44067	128.94107	Blocked
111	Sorby	In data	-15.44749	128.94280	Good
112	Southern	In data	-15.49039	128.85959	Blocked
113	Sorby	In data	-15.44274	128.94072	Good
114	Sorby	In data	-15.43472	128.94785	Good
115	Southern	In data	-15.50913	128.83898	Good
116	Southern	In data	-15.51016	128.83915	Good
117	Southern	In data	-15.50945	128.83895	Good
118	Sorby	In data	-15.43607	128.94683	Good
119	Southern	In data	-15.51144	128.83816	Good
120	Sorby	In data	-15.44047	128.93926	Good
121	Southern	In data	-15.51135	128.83764	Good
122	Sorby	In data	-15.43608	128.94702	Good
123	Southern	In data	-15.48966	128.86030	Good
124	Sorby	In data	-15.43643	128.94647	Good
125	Sorby	In data	-15.43900	128.93998	Good
126	Southern	In data	-15.51177	128.83820	Good
127	Sorby	In data	-15.43813	128.94022	Good
128	Sorby	In data	-15.44375	128.94041	Broken
129	Sorby	In data	-15.43643	128.94680	Good
130	Sorby	In data	-15.44483	128.94148	Good
131	Sorby	In data	-15.43860	128.93850	Blocked
132	Sorby	In data	-15.43929	128.94017	Blocked
133	Sorby	In data	-15.43964	128.94182	Good
134	Sorby	In data	-15.44003	128.94056	Blocked
135	Sorby	In data	-15.44682	128.94211	Good
136	Sorby	In data	-15.44072	128.93892	Good
137	Sorby	In data	-15.44383	128.94147	Good
138	Southern	In data	-15.51202	128.83831	Good
139	Southern	In data	-15.49054	128.85951	Good
140	Southern	In data	-15.51029	128.83952	Good
141	Sorby	In data	-15.44104	128.94157	Good
142	Sorby	In data	-15.44161	128.94053	Good
143	Sorby	In data	-15.43562	128.94736	Good

Box No.	Section	In data or New	Latitude	Longitude	Box Status (May 2023)
144	Sorby	In data	-15.44077	128.94036	Good
145	Southern	In data	-15.50922	128.83953	Good
146	Sorby	In data	-15.51252	128.83796	Good
147	Southern	In data	-15.51031	128.83927	Good
148	Sorby	In data	-15.44742	128.94245	Good
149	Southern	In data	-15.50953	128.83936	Good
150	Sorby	In data	-15.44677	128.94273	Good
151	Southern	In data	-15.51206	128.83769	Good
152	Sorby	In data	-15.44100	128.93963	Blocked
153	Southern	In data	-15.50961	128.83961	Good
154	Sorby	In data	-15.43954	128.93883	Good
155	Sorby	In data	-15.43931	128.93834	Good
156	Sorby	In data	-15.44556	128.94262	Good
157	Sorby	In data	-15.44308	128.94067	Blocked
158	Sorby	In data	-15.43998	128.93817	Good
159	Sorby	In data	-15.43832	128.93920	Good
160	Sorby	In data	-15.43839	128.93875	Good
161	Sorby	In data	-15.44895	128.94203	Good
162	Sorby	In data	-15.44292	128.94121	Good
163	Sorby	In data	-15.44721	128.94169	Good
164	Southern	In data	-15.48917	128.86019	Broken
165	Sorby	In data	-15.44702	128.94271	Good
166	Sorby	In data	-15.44636	128.94204	Good
167	Sorby	In data	-15.44122	128.93992	Good
168	Southern	In data	-15.51214	128.83813	Good
169	Sorby	In data	-15.44444	128.94055	Good
170	Sorby	In data	-15.43543	128.94785	Good
171	Sorby	In data	-15.44403	128.94259	Good
172	Southern	In data	-15.48939	128.85981	Broken
173	Sorby	In data	-15.44003	128.93888	Good
174	Sorby	In data	-15.51188	128.83763	Good
175	Sorby	In data	-15.43646	128.94606	Broken
176	Sorby	In data	-15.44867	128.94213	Good
177	Sorby	In data	-15.43410	128.94622	Good
178	Sorby	In data	-15.43333	128.94845	Good
179	Sorby	In data	-15.44728	128.94096	Good
180	Sorby	In data	-15.43519	128.94786	Good
181	Southern	In data	-15.51263	128.83767	Good
182	Sorby	In data	-15.44431	128.94310	Good
183	Sorby	In data	-15.44057	128.94214	Good
184	Sorby	In data	-15.43630	128.94593	Good
185	Sorby	In data	-15.44280	128.94264	Good
186	Sorby	In data	-15.44124	128.94261	Good
187	Southern	In data	-15.51223	128.83753	Good

Box No.	Section	In data or New	Latitude	Longitude	Box Status (May 2023)
188	Sorby	In data	-15.43385	128.94866	Good
189	Sorby	In data	-15.44207	128.94286	Good
190	Sorby	In data	-15.43415	128.94858	Broken
191	Southern	In data	-15.51261	128.83726	Broken
192	Sorby	In data	-15.44428	128.94415	Good
193	Sorby	In data	-15.43249	128.94807	Good
194	Sorby	In data	-15.43345	128.94649	Good
195	Southern	In data	-15.51222	128.83842	Good
196	Sorby	In data	-15.43247	128.94780	Good
197	Sorby	In data	-15.43913	128.93902	Blocked
198	Southern	In data	-15.51251	128.83825	Good
199	Southern	In data	-15.51229	128.83915	Good
200	Sorby	In data	-15.43567	128.94549	Good
201	Sorby	In data	-15.44659	128.94255	Good
202	Southern	In data	-15.49025	128.86026	Good
203	Southern	In data	-15.49077	128.8601	Good
204	Sorby	In data	-15.43288	128.94816	Good
205	Southern	In data	-15.51165	128.83754	Good
206	Sorby	In data	-15.43449	128.94631	Broken
207	Sorby	In data	-15.44182	128.94220	Good
208	Sorby	In data	-15.43434	128.94836	Good
209	Sorby	In data	-15.44374	128.94216	Good
210	Southern	In data	-15.50100	128.83951	Good
211	Southern	In data	-15.51263	128.83810	Good
212	Sorby	In data	-15.43907	128.94105	Good
213	Southern	In data	-15.51183	128.83727	Blocked
214	Sorby	In data	-15.44377	128.94331	Good
215	Southern	In data	-15.50985	128.83891	Good
216	Southern	In data	-15.50978	128.83861	Good
218	Southern	In data	-15.51220	128.83787	Good
219	Southern	In data	-15.51255	128.83888	Good
220	Southern	In data	-15.49056	128.86031	Good
415	Sorby	In data	-15.43219	128.94553	Blocked
416	Sorby	New	-15.43249	128.94537	Blocked
417	Sorby	In data	-15.43230	128.94493	Blocked
418	Sorby	In data	-15.43220	128.94489	Blocked
419	Sorby	In data	-15.43214	128.94492	Blocked
420	Sorby	In data	-15.43265	128.94458	Missing
421	Sorby	In data	-15.43231	128.94483	Good
422	Sorby	In data	-15.43266	128.94462	Missing
423	Sorby	In data	-15.43269	128.94446	Missing
424	Sorby	In data	-15.43260	128.94443	Missing
425	Sorby	In data	-15.43264	128.94447	Good
426	Sorby	In data	-15.43251	128.94426	Missing

Box No.	Section	In data or New	Latitude	Longitude	Box Status (May 2023)
427	Sorby	In data	-15.43251	128.94421	Missing
428	Sorby	In data	-15.43265	128.94425	Missing
432	Sorby	In data	-15.43301	128.94424	Missing
433	Sorby	In data	-15.43313	128.94423	Missing
434	Sorby	In data	-15.43316	128.94423	Missing
435	Sorby	In data	-15.43327	128.94407	Missing
436	Sorby	In data	-15.43335	128.94414	Blocked
437	Sorby	In data	-15.43338	128.94391	Missing
438	Sorby	In data	-15.43339	128.94384	Missing
439	Sorby	In data	-15.43378	128.94381	Missing
440	Sorby	In data	-15.43357	128.94406	Missing
441	Sorby	In data	-15.43347	128.94361	Blocked
442	Sorby	In data	-15.43382	128.94382	Missing
443	Sorby	In data	-15.43416	128.94371	Missing
445	Sorby	In data	-15.43379	128.94339	Missing
446	Sorby	In data	-15.43368	128.94331	Missing
447	Sorby	In data	-15.43377	128.94286	Missing
449	Sorby	In data	-15.43385	128.94358	Missing
452	Sorby	In data	-15.43413	128.94301	Missing
453	Sorby	In data	-15.43420	128.94281	Missing
456	Sorby	In data	-15.43454	128.94319	Good
457	Sorby	In data	-15.43462	128.94301	Missing
459	Sorby	In data	-15.43490	128.94316	Missing
460	Sorby	In data	-15.43542	128.94262	Good
461	Sorby	In data	-15.43525	128.94242	Missing
462	Sorby	In data	-15.43522	128.94239	Missing
463	Sorby	In data	-15.43519	128.94240	Missing
464	Sorby	In data	-15.43516	128.94230	Missing
X001	Sorby	In data	-15.43471	128.94656	Good
X002	Southern	In data	-15.51139	128.83739	Good
X003	Southern	In data	-15.51122	128.83721	Good
X004	Sorby	In data	-15.43554	128.94647	Good
X005	Sorby	In data	-15.43567	128.94694	Good
Y001	Sorby	New	-15.43512	128.94733	Good

* Not at point location provided and no numbers visible on boxes – some/all may be boxes reported as missing in 2022 with inaccurate co-ordinates

Appendix 3

Results of Nest Box Assessments



Box No.	Date	Status	Notes
100	15/03/2023	Good	Gehyra sp.
	14/04/2023	Good	Empty
	10/05/2023	Good	Gehyra sp.
101	17/03/2023	Good	Gehyra sp.
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
102	18/03/2023	Good	<i>Varanus scalaris</i>
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
103	18/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Green Tree Frog
104	15/03/2023	Good	Gehyra sp. and two Green Tree Frogs
	14/04/2023	Good	2 Green Tree Frogs
	10/05/2023	Good	Empty
105	18/03/2023	Good	Green Tree Frog
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
106	19/03/2023	Broken	Box detached
107	18/03/2023	Good	Green Tree Frog
	16/04/2023	Good	2 Green Tree Frogs
	9/05/2023	Good	Empty
108	18/03/2023	Good	Too high for ladder. No response to tapping
	16/04/2023	Good	Gehyra sp. and Green Tree Frog
	9/05/2023	Good	2 Green Tree Frogs
109	19/03/2023	Blocked	Blocked by ants
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Good	Empty
110	18/03/2023	Blocked	Blocked by ants
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
111	18/03/2023	Good	Ants in box
	16/04/2023	Good	Ants in box
	9/05/2023	Good	Gehyra sp..
112	15/03/2023	Blocked	Blocked by ants
	14/04/2023	Blocked	Blocked by ants
	10/05/2023	Blocked	Blocked by ants
113	19/03/2023	Blocked	Blocked by ants
	16/04/2023	Good	2 Green Tree Frogs
	9/05/2023	Good	2 Green Tree Frogs
114	19/03/2023	Good	Empty
	15/04/2023	Good	Gehyra sp. and Green Tree Frog
	9/05/2023	Good	Spider, web and eggs
115	17/03/2023	Good	2 Green Tree Frogs
	15/04/2023	Good	Green Tree Frog
	10/05/2023	Good	A few leaves in box

Box No.	Date	Status	Notes
116	17/03/2023	Good	Spout almost vertically down. Not checked.
	15/04/2023	Good	Spout almost vertically down. Not checked.
	10/05/2023	Good	Spout almost vertically down. Checked and empty
117	17/03/2023	Good	Not suitable for ladder, no response to tapping.
	15/04/2023	Good	Not suitable for ladder, no response to tapping.
	10/05/2023	Good	Not suitable for ladder, no response to tapping.
118	19/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
119	17/03/2023	Good	Unsafe for ladder, no response to tapping.
	15/04/2023	Good	Unsafe for ladder, no response to tapping.
	10/05/2023	Good	Unsafe for ladder, no response to tapping.
120	20/03/2023	Good	2 Green Tree Frogs
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
121	17/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
122	19/03/2023	Good	Empty
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
123	15/03/2023	Good	Empty
	14/04/2023	Good	Green Tree Frog
	10/05/2023	Good	Empty
124	19/03/2023	Good	Empty
	16/04/2023	Good	Ants in box
	9/05/2023	Good	Numerous (100+) bugs
125	20/03/2023	Good	Empty
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Hollow entrance clear, back blocked
126	17/03/2023	Good	Huntsman spider
	15/04/2023	Good	Green Tree Frog
	10/05/2023	Good	<i>Gehyra</i> sp.
127	19/03/2023	Good	Too high for ladder. <i>Varanus scalaris</i> at hollow entrance.
	16/04/2023	Blocked	Too high for ladder. Blocked by ants.
	9/05/2023	Blocked	Too high for ladder. Partially blocked.
128	18/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Broken	Empty. Tree hollow breaking apart
129	19/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
130	18/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
131	19/03/2023	Blocked	Blocked by ants

Box No.	Date	Status	Notes
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
132	19/03/2023	Blocked	Blocked by ants
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
133	18/03/2023	Blocked	Partially blocked by ant debris
	16/04/2023	Blocked	Partially blocked by ants.
	9/05/2023	Good	Ant debris in box
134	19/03/2023	Blocked	Blocked by ants
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
135	18/03/2023	Good	Empty
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
136	20/03/2023	Good	<i>Varanus scalaris</i>
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
137	18/03/2023	Good	<i>Varanus scalaris</i>
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
138	17/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
139	15/03/2023	Good	Empty
	14/04/2023	Good	<i>Gehyra</i> sp. and Green Tree Frog
	10/05/2023	Good	Empty
140	17/03/2023	Good	Empty
	15/04/2023	Good	Green Tree Frog
	10/05/2023	Good	Empty
141	18/03/2023	Good	2 Green Tree Frogs
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	2 Green Tree Frogs
142	18/03/2023	Blocked	Blocked by ants
	16/04/2023	Good	Ants in box
	9/05/2023	Good	Empty
143	19/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
144	20/03/2023	Good	Empty
	16/04/2023	Good	Ants in box
	9/05/2023	Good	Ants and bugs in box
145	17/03/2023	Good	Ladder too unstable. No response to tapping
	15/04/2023	Good	Ladder too unstable. No response to tapping
	10/05/2023	Good	Ladder too unstable. No response to tapping
146	16/03/2023	Good	Empty
	15/04/2023	Good	Green Tree Frog
	10/05/2023	Good	Empty

Box No.	Date	Status	Notes
147	17/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
148	18/03/2023	Good	Two Green Tree Frogs
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
149	17/03/2023	Good	Empty
	15/04/2023	Good	Green Tree Frog
	10/05/2023	Good	<i>Varanus</i> sp.
150	18/03/2023	Good	Ants in box
	16/04/2023	Good	Spider eggs
	9/05/2023	Good	Empty
151	17/03/2023	Good	Empty
	15/04/2023	Good	empty
	10/05/2023	Good	Empty
152	19/03/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
153	17/03/2023	Good	2+ roosting microbats
	15/04/2023	Good	Green Tree Frog
	10/05/2023	Good	A few leaves in box
154	20/03/2023	Good	Green Tree Frog
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
155	20/03/2023	Good	<i>Varanus scalaris</i>
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	<i>Varanus scalaris</i>
156	18/03/2023	Good	Green Tree Frog
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
157	19/03/2023	Blocked	Blocked by ants and overgrown by vine
	16/04/2023	Blocked	Partially blocked and full of ants
	9/05/2023	Blocked	Blocked by ants
158	20/03/2023	Good	Green Tree Frog
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
159	19/03/2023	Blocked	Blocked by ants
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Good	<i>Gehyra</i> sp.
160	19/03/2023	Blocked	Blocked by ants/termites
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Good	Ant debris in box
161	18/03/2023	Good	Green Tree Frog
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
162	19/03/2023	Blocked	Blocked by ants/termites
	16/04/2023	Good	Some detritus in hollow, <i>Gehyra</i> sp.
	9/05/2023	Good	Ants and <i>Varanus</i> sp. in box

Box No.	Date	Status	Notes
163	18/03/2023	Good	Empty
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
164	15/03/2023	Good	Green Tree Frog and <i>Varanus scalaris</i>
	14/04/2023	Good	Green Tree Frog
	10/05/2023	Broken	Box partially detached from hollow, empty
165	18/03/2023	Good	Empty
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
166	18/03/2023	Good	Microbats.
	16/04/2023	Good	Empty
	9/05/2023	Good	A few leaves in box
167	19/03/2023	Blocked	Blocked by ants
	16/04/2023	Good	Open but full of detritus and ants
	9/05/2023	Good	Python sp. Uniform greenish colour and small scales but balled up in box
168	17/03/2023	Good	Huntsman
	15/04/2023	Good	Ants in box
	10/05/2023	Good	Ants in box
169	18/03/2023	Good	Empty
	16/04/2023	Good	Ants in box
	9/05/2023	Good	Empty
170	19/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
171	18/03/2023	Good	Small mammal, likely microbat
	16/04/2023	Good	A few leaves in box
	9/05/2023	Good	Empty
172	15/03/2023	Broken	Broken on ground
173	16/04/2023	Good	Two Green Tree Frogs
173	9/05/2023	Good	Empty
174	17/03/2023	Good	Empty
	15/04/2023	Good	Green Tree Frog
	10/05/2023	Good	Empty
175	19/03/2023	Broken	Empty. Box starting to detach.
	16/04/2023	Broken	Gehyra sp. Box starting to detach.
	9/05/2023	Broken	Empty. Box starting to detach.
176	18/03/2023	Good	Too high for ladder. No response to tapping
	16/04/2023	Good	Too high for ladder. No response to tapping
	9/05/2023	Good	Too high for ladder. No response to tapping
177	19/03/2023	Good	Green Tree Frog
	16/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
178	19/03/2023	Good	Empty
	15/04/2023	Good	Empty but with detritus on bottom
	9/05/2023	Good	Empty, detritus and frog scat on bottom
179	18/03/2023	Good	Empty

Box No.	Date	Status	Notes
	16/04/2023	Good	Empty, some detritus on bottom
	9/05/2023	Good	Empty
180	19/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
181	16/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
182	18/03/2023	Good	Empty
	16/04/2023	Good	Spider web and egg sack
	9/05/2023	Good	Spider web
183	18/03/2023	Good	Empty
	16/04/2023	Good	Two Varanus sp.
	9/05/2023	Good	Empty
184	19/03/2023	Good	Empty, old frog scat on bottom
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
185	18/03/2023	Blocked	Blocked by ants
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
186	18/03/2023	Good	Collection of eucalypt leaves and some detritus
	16/04/2023	Good	Some leaves and detritus
	9/05/2023	Good	Green Tree Frog
187	17/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Spider and web
188	19/03/2023	Good	Empty
	15/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty, some detritus on bottom
189	18/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Green Tree Frog
190	19/03/2023	Good	Too high for ladder, no response to tapping
	15/04/2023	Good	Too high for ladder, no suitable tapping stick
	9/05/2023	Broken	Box loose. Too high for ladder, no response to tapping stick.
191	16/03/2023	Broken	Empty. Box starting to detach.
	15/04/2023	Broken	Empty. Box starting to detach.
	10/05/2023	Broken	Spider. Box starting to detach.
192	18/03/2023	Good	Too high for ladder, no response to tapping
	16/04/2023	Good	Too high for ladder, no response to tapping
	9/05/2023	Good	Too high for ladder, no response to tapping
193	19/03/2023	Good	Green Tree Frog
	15/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
194	19/03/2023	Good	Three Green Tree Frogs
	16/04/2023	Good	Two Green Tree Frogs

Box No.	Date	Status	Notes
	9/05/2023	Good	Empty
195	17/03/2023	Good	Full of ants
	15/04/2023	Good	Full of ants
	10/05/2023	Good	Green ants
196	19/03/2023	Good	Empty
	15/04/2023	Good	Empty
	9/05/2023	Good	Empty
197	19/03/2023	Blocked	Blocked by ants
	16/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
198	16/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
199	17/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
200	19/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
201	18/03/2023	Good	Empty
	16/04/2023	Good	Gehyra sp.
	9/05/2023	Good	Empty
202	15/03/2023	Good	Gehyra sp.
	14/04/2023	Good	Empty
	10/05/2023	Good	Empty
203	15/03/2023	Good	Empty
	14/04/2023	Good	Green Tree Frog
	10/05/2023	Good	Gehyra sp.
204	19/03/2023	Good	Empty
	15/04/2023	Good	Spider web and egg sack
	9/05/2023	Good	Spider web and egg sack
205	17/03/2023	Good	Empty
	15/04/2023	Good	Huntsman spider
	10/05/2023	Good	Empty
206	19/03/2023	Broken	Box detached
207	18/03/2023	Good	Empty
	16/04/2023	Good	High ant activity
	9/05/2023	Good	Empty
208	19/03/2023	Good	Empty
	15/04/2023	Good	Green Tree Frog
	9/05/2023	Good	Empty
209	18/03/2023	Good	Empty
	16/04/2023	Good	Empty
	9/05/2023	Good	Empty
210	17/03/2023	Good	Unsafe for ladder. No response to tapping
	15/04/2023	Good	Unsafe for ladder. No response to tapping
	10/05/2023	Good	Unsafe for ladder. No response to tapping

Box No.	Date	Status	Notes
211	16/03/2023	Good	Empty
	15/04/2023	Good	Two Green Tree Frogs
	10/05/2023	Good	Empty
212	19/03/2023	Good	Too flooded for ladder, no evidence of use
	16/04/2023	Good	Too flooded for ladder, no evidence of use
	9/05/2023	Good	Too flooded for ladder, no evidence of use
213	17/03/2023	Blocked	Blocked by ants
	15/04/2023	Blocked	Blocked by ants
	10/05/2023	Blocked	Blocked by ants
214	18/03/2023	Good	Empty, frog scat on bottom. Only just reachable with ladder.
	16/04/2023	Good	Too high for ladder, no response to tapping
	9/05/2023	Good	Too high for ladder, no response to tapping
215	17/03/2023	Good	Unsafe for ladder. No response to tapping
	15/04/2023	Good	Unsafe for ladder. No response to tapping
	10/05/2023	Good	Unsafe for ladder. No response to tapping
216	17/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
218	16/03/2023	Good	Empty
	15/04/2023	Good	Empty
	10/05/2023	Good	Empty
219	17/03/2023	Good	Empty
	15/04/2023	Good	Green Tree Frog
	10/05/2023	Good	Empty
220	15/03/2023	Good	<i>Gehyra</i> sp. Possibly old bird scat stains.
	14/04/2023	Good	Empty
	10/05/2023	Good	Empty
415	19/03/2023	Blocked	Blocked by ants
	17/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
416	19/03/2023	Good	Empty
	17/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
417	19/03/2023	Blocked	Blocked by ants
	17/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
418	19/03/2023	Blocked	Blocked by ants
	17/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
419	19/03/2023	Good	Green Tree Frog
	17/04/2023	Good	Green Tree Frog
	9/05/2023	Blocked	Blocked by ants near the nest box opening
420	19/03/2023	Not Found	Box missing
421	19/03/2023	Good	<i>Varanus scalaris</i>
	17/04/2023	Good	<i>Varanus scalaris</i>
	9/05/2023	Good	<i>Varanus scalaris</i>

Box No.	Date	Status	Notes
422	19/03/2023	Not Found	Box missing
423	19/03/2023	Not Found	Box missing
424	19/03/2023	Not Found	Box missing
425	19/03/2023	Good	<i>Varanus scalaris</i>
	17/04/2023	Good	Empty
	9/05/2023	Good	Empty
426	19/03/2023	Not Found	Box missing
427	19/03/2023	Not Found	Box missing
428	19/03/2023	Not Found	Box missing
432	19/03/2023	Not Found	Box missing
433	19/03/2023	Not Found	Box missing
434	19/03/2023	Not Found	Box missing
435	19/03/2023	Not Found	Box missing
436	19/03/2023	Blocked	Blocked by ants
	17/04/2023	Blocked	Blocked by ants
	9/05/2023	Blocked	Blocked by ants
437	19/03/2023	Not Found	Box missing
438	19/03/2023	Not Found	Box missing
439	19/03/2023	Not Found	Box missing
440	19/03/2023	Not Found	Box missing
441	19/03/2023	Blocked	Blocked by ants
	16/04/2023	Blocked	Blocked by ants/
	9/05/2023	Blocked	Blocked by ants
442	19/03/2023	Not Found	Box missing
443	19/03/2023	Not Found	Box missing
445	19/03/2023	Not Found	Box missing
446	19/03/2023	Not Found	Box missing
447	19/03/2023	Not Found	Box missing
449	19/03/2023	Not Found	Box missing
452	19/03/2023	Not Found	Box missing
453	19/03/2023	Not Found	Box missing
456	19/03/2023	Good	Empty
	17/04/2023	Blocked	Blocked by ants
	9/05/2023	Good	<i>Litoria rubella</i> in hollow
457	19/03/2023	Not Found	Box missing
459	19/03/2023	Not Found	Box missing
460	19/03/2023	Good	Green Tree Frogs
	17/04/2023	Good	Three Green Tree Frogs
	9/05/2023	Good	Empty
461	19/03/2023	Not Found	Box missing
462	19/03/2023	Not Found	Box missing
463	19/03/2023	Not Found	Box missing
464	19/03/2023	Not Found	Box missing
X001	15/04/2023	Good	Two Green Tree Frogs
X001	9/05/2023	Good	Empty
X002	17/03/2023	Good	Empty
X002	15/04/2023	Good	Empty

Box No.	Date	Status	Notes
X002	10/05/2023	Good	Empty
X003	17/03/2023	Good	Too high for ladder, no response to tapping
X003	15/04/2023	Good	Too high for ladder, no response to tapping
X003	10/05/2023	Good	Too high for ladder, no response to tapping
X004	19/03/2023	Good	Empty
X004	16/04/2023	Good	Empty
X004	9/05/2023	Good	Empty
X005	19/03/2023	Good	Empty
X005	16/04/2023	Good	Empty
X005	9/05/2023	Good	Empty
Y001	9/05/2023	Good	An old box, possibly the original 106. Old nest in box, no soft lining, no sign of eggs, chicks, or adults.