

APPENDIX A BAM MONITORING QUADRAT DATA SET

Table 24 Summary of vegetation C* (cover) and A* (abundance) per BAM plot.

Scientific name	Common name	G1		P1		P2		P3		P4(A)		P4(B)	
		C	A	C	A	C	A	C	A	C	A	C	A
<i>Acacia binervia</i>	Coast Myall							2	20				
<i>Acacia brownii</i>	Heath Wattle			10	10	0.1	3	0.5	20	0.1	1		
<i>Acacia decurrens</i>	Black Wattle			20	20								
<i>Acacia falcata</i>										0.5	1	0.5	5
<i>Acacia fimbriata</i>	Fringed Wattle									1	1		
<i>Acacia longifolia</i>				15	15	0.1	2						
<i>Acacia parramattensis</i>	Parramatta Wattle	0.1	1			10	15						
<i>Allocasuarina spp.</i>		0.1	1										
<i>Angophora bakeri</i>	Narrow-leaved Apple	2	2	10	10	2	4	20	30	8	7	20	20
<i>Aristida spp.</i>								0.1	1				
<i>Asperula conferta</i>	Common Woodruff									0.1	1		
<i>Austrostipa puberula</i>		1	50									10	200
<i>Banksia oblongifolia</i>	Fern-leaved Banksia	1	1					0.5	2	0.2	5	0.2	3
<i>Banksia spinulosa</i>	Hairpin Banksia									1	20	1	2
<i>Billardiera scandens</i>	Hairy Apple Berry	0.1	1	10	10			0.1	5				
<i>Bossiaea heterophylla</i>	Variable Bossiaea							0.2	20			20	200
<i>Brachyloma daphnoides</i>	Daphne Heath									1	50		
<i>Briza maxima</i>	Quaking Grass											0.1	1
<i>Burchardia umbellata</i>	Milkmaids	0.2	10			0.1	1					0.1	1
<i>Caesia parviflora</i>	Pale Grass-lily	0.1	20	1	1			0.1	2			0.1	1
<i>Callistemon linearifolius</i>	Netted Bottle Brush			20	20			2	5				
<i>Callistemon pinifolius</i>	Pine-leaved Bottlebrush	1	2							1	10		
<i>Calochilus campestris</i>	Copper Beard Orchid							0.1	15				
<i>Carex spp.</i>												0.1	3
<i>Cassytha glabella</i>		0.2	100	30	30	0.1	30	0.1	20			0.1	10

Annual EPBC Offset Site Monitoring (2025-26)

Scientific name	Common name	G1		P1		P2		P3		P4(A)		P4(B)	
		C	A	C	A	C	A	C	A	C	A	C	A
<i>Cassytha pubescens</i>	Downy Dodder-laurel									0.5	100		
<i>Cheilanthes sieberi</i>	Rock Fern			20	20								
<i>Conyza bonariensis</i>	Flaxleaf Fleabane											0.1	1
<i>Coronidium scorpioides</i>	Button Everlasting											0.2	50
<i>Cyathochaeta diandra</i>		35	1000					1	50			1	100
<i>Cynodon dactylon</i>	Common Couch			20	20								
<i>Dendrophthoe vitellina</i>								0.1	1				
<i>Dianella caerulea</i>	Blue Flax-lily	0.1	1									0.1	1
<i>Dianella longifolia</i>	Blueberry Lily			10	10	0.5	25	0.5	20				
<i>Empodisma minus</i>												1	1
<i>Entolasia stricta</i>	Wiry Panic	10	500	50	50	1	50	2	50	1	50	2	200
<i>Epacris microphylla</i>	Coral Heath	0.1	3										
<i>Eragrostis brownii</i>	Brown's Lovegrass	1	50										
<i>Eragrostis curvula</i>	African Lovegrass			2	2	1	50	0.5	20				
<i>Eucalyptus haemastoma</i>	Broad-leaved Scribbly Gum									12	6		
<i>Eucalyptus parramattensis</i>	Parramatta Red Gum	15	5	2	2	2	2					52	3
<i>Eucalyptus racemosa</i>	Narrow-leaved Scribbly Gum			3	3	15	4	5	2				
<i>Eucalyptus sclerophylla</i>	Hard-leaved Scribbly Gum											2	2
<i>Exocarpos cupressiformis</i>	Cherry Ballart					5	20						
<i>Gahnia aspera</i>	Rough Saw-sedge	0.2	5										
<i>Glycine clandestina</i>	Twining glycine			10	10	0.1	1						
<i>Gomphocarpus spp.</i>								0.5	10				
<i>Gompholobium minus</i>	Dwarf Wedge Pea											0.1	10
<i>Gonocarpus spp.</i>	Raspwort									0.5	10		
<i>Gonocarpus tetragynus</i>	Poverty Raspwort			5	5								
<i>Goodenia hederacea</i>	Ivy Goodenia											0.1	10

Annual EPBC Offset Site Monitoring (2025-26)

Scientific name	Common name	G1		P1		P2		P3		P4(A)		P4(B)	
		C	A	C	A	C	A	C	A	C	A	C	A
<i>Grevillea parviflora</i>		0.2	100										
<i>Hakea sericea</i>	Needlebush	10	100	20	20	5	20	5	30	10	200	20	250
<i>Hardenbergia violacea</i>	False Sarsaparilla							0.1	5			0.1	10
<i>Hibbertia aspera</i>	Rough Guinea Flower					0.5	20	0.1	5				
<i>Hibbertia puberula</i>		0.1	1					0.1	2	0.1	2	0.1	60
<i>Hovea linearis</i>										0.1	1		
<i>Hypericum gramineum</i>	Small St John's Wort	0.5	100	1	1							0.2	100
<i>Imperata cylindrica</i>	Blady Grass			30	30			10	100			0.1	1
<i>Isopogon anemonifolius</i>	Broad-leaf Drumsticks									3	50		
<i>Kunzea ambigua</i>	Tick Bush			10	10			0.1	5			0.1	1
<i>Laxmannia gracilis</i>	Slender Wire Lily					0.2	15						
<i>Lepidosperma latens</i>										10	50	1	20
<i>Leptochloa spp.</i>								5	20				
<i>Leptospermum parvifolium</i>				20	20	2	3	5	20	1	10	2	50
<i>Leptospermum polyanthum</i>		1	1										
<i>Leptospermum trinervium</i>	Slender Tea-tree	5	50	30	30					0	50	3	60
<i>Leucopogon ericoides</i>	Pink Beard-heath			1	1								
<i>Leucopogon spp.</i>										0.1	1		
<i>Leucopogon virgatus</i>								0.1	2				
<i>Lindsaea linearis</i>	Screw Fern											0.2	100
<i>Lobelia purpurascens</i>	Whiteroot							0.1	10	2	300		
<i>Lolium spp.</i>												0.1	1
<i>Lomandra filiformis</i>	Wattle Matt-rush					0.1	10						
<i>Lomandra gracilis</i>				5	5			0.1	10				
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	0.1	1			10	50	0.2	2	15	100		
<i>Melaleuca decora</i>				10	10	2	5	2	15				

Annual EPBC Offset Site Monitoring (2025-26)

Scientific name	Common name	G1		P1		P2		P3		P4(A)		P4(B)	
		C	A	C	A	C	A	C	A	C	A	C	A
<i>Melaleuca nodosa</i>		25	300	60	60	20	50			25	200	20	250
<i>Melaleuca thymifolia</i>	Thyme Honey-myrtle	0.1	2					3	20				
<i>Microlaena stipoides</i>	Weeping Grass			100	100	5	200	5	100	0.5	10		
<i>Mitrasacme polymorpha</i>		0.2	200									0.1	100
<i>Not Found</i>										10	50	0.1	1
<i>Olearia microphylla</i>										0.1	2		
<i>Opercularia diphylla</i>	Stinkweed			20	20							0.1	1
<i>Ozothamnus diosmifolius</i>	White Dogwood			3	3								
<i>Patersonia sericea</i>	Silky Purple-Flag							0.1	2			0.1	2
<i>Persoonia levis</i>	Broad-leaved Geebung									0.5	1		
<i>Persoonia linearis</i>	Narrow-leaved Geebung					1	2					0.1	1
<i>Persoonia nutans</i>	Nodding Geebung							0.2	3	0.5	3	0.1	1
<i>Petrophile pulchella</i>	Conesticks	1	1									0.5	20
<i>Petrophile sessilis</i>				5	5			5	40	5	150		
<i>Philothea salsolifolia</i>												0.2	10
<i>Pimelea linifolia</i>	Slender Rice Flower	0.1	10	20	20	1	50	1	40	0.2	50	1	150
<i>Platysace ericoides</i>		0.2	200									2	200
<i>Pomax umbellata</i>	Pomax											0.1	10
<i>Pteridium esculentum</i>	Bracken									1	50		
<i>Pultenaea daphnoides</i>	Large-leaf Bush-pea											0.1	1
<i>Pultenaea spp.</i>												5	100
<i>Pultenaea villifera</i>		0.1	3										
<i>Ricinocarpus pinifolius</i>	Wedding Bush							0.1	1				
<i>Rytidosperma spp.</i>		0.2	5					0.1	1	0.1	2		
<i>Schizaea bifida</i>	Forked Comb Fern									0.5	100		
<i>Senecio madagascariensis</i>	Fireweed											0.1	2

Annual EPBC Offset Site Monitoring (2025-26)

Scientific name	Common name	G1		P1		P2		P3		P4(A)		P4(B)	
		C	A	C	A	C	A	C	A	C	A	C	A
<i>Stylidium graminifolium</i>	Grass Triggerplant	0.2	50									0.5	150
<i>Themeda triandra</i>				10	10							5	100
<i>Thysanotus tuberosus</i>	Common Fringe-lily											0.1	2
<i>Trachymene incisa</i>	Trachymene	0.1	2			0.1	5	0.1	5	0.5	200	0.2	50
<i>Tricoryne elatior</i>	Yellow Autumn-lily	0.1	2					0.1	15				
<i>Xanthorrhoea spp.</i>		0.2	3	5	5	0.1	2	1	5				

*C = cover, A = abundance

APPENDIX B BAM QUADRATS VEGETATION SCORE SUMMARY

Table 25 Vegetation score summary across Offset Plots P1, P2 and P3.

Vegetation Attributes	P1							P2							P3						
	"19	"20	"21	"22	"23	"24	"25	"19	"20	"21	"22	"23	"24	"25	"19	"20	"21	"22	"23	"24	"25
Total Count Tree (TG)	3	4	4	4	5	4	4	3	4	3	3	4	4	4	3	3	4	4	3	3	3
Total Count Shrub (SG)	11	11	12	13	11	14	13	11	13	11	11	14	11	9	19	20	22	25	21	19	16
Total Count Grass & grasslike (GG)	7	7	7	7	3	5	6	8	5	6	6	5	6	4	7	8	9	10	8	10	9
Total Count Forb (FG)	6	5	6	8	2	7	5	4	3	3	3	2	3	4	4	8	10	10	6	8	7
Total Count Fern (EG)	1	1	1	1	1	1	1	0	0	0	0	1	0	0	0	1	1	1	1	0	0
Total Count Other (OG)	6	6	6	6	5	5	4	3	5	5	4	4	4	4	3	3	3	3	3	3	5
Total Cover Tree (TG)	11.5	16	20.0	20	7.5	16.5	21	52.5	47.3	47.0	30.2	15	23	29.0	22.5	36	37.2	37	25.1	26	27
Total Cover Shrub (SG)	47.7	46	41.1	43.7	20.2	61.4	65.9	4.7	15.7	21.5	10.4	47	26.4	36.2	8	5.7	12.6	9.6	3.1	12.6	24.9
Total Cover Grass & grasslike (GG)	1.2	4.5	8.30	7.1	0.4	3.2	4.4	18.7	20.7	40.2	5.8	16.3	13.4	16.1	16.6	21.5	24.5	15.9	1.7	22.1	23.5
Total Cover Forb (FG)	1	1	1.20	0.9	0.2	0.7	0.5	0.4	0.8	1.2	0.3	0.6	0.3	0.9	0.4	0.9	1.1	1.3	0.9	0.8	1.1
Total Cover Fern (EG)	0.1	0.1	0.20	0.1	0.1	0.1	0.1	0	0	0.0	0	0.1	0	0	0	0.1	0.0	0	0	0	0

Annual EPBC Offset Site Monitoring (2025-26)

Vegetation Attributes	P1							P2							P3						
	"19	"20	"21	"22	"23	"24	"25	"19	"20	"21	"22	"23	"24	"25	"19	"20	"21	"22	"23	"24	"25
Total Cover Other (OG)	1.9	1.2	4.40	1.5	0.5	0.6	0.8	0.3	0.6	0.5	0.3	1.3	0.8	0.8	0.3	0.4	0.4	0.4	0.5	0.3	1.4
Total Cover Exotics	0.2	0.1	0.2	0.3	0.1	0.8	0.1	0.6	0	0.2	0.5	3.0	2.1	0	0.1	0.2	0.2	0.2	0.5	0.5	1.0
Total Cover High Threat Weeds	0.2	0.1		0.1	0.1	0.5	0.1	0.5	0	0.2	0.5	3.0	2	0.0	0.1	0.2	0.2	0.2	0.5	0.5	0.5
Vegetation Integrity Score	52.5	64.8	64.4	68.6	68.6	77.3	72.8	51.8	56.5	67.2	41.8	41.8	59.2	58.5	51.5	59.6	63.5	55.8	55.8	64.9	67.1

Table 26 Vegetation score summary across Offset Plots P4a, P4b and G1

Vegetation attributes	P4A						P4B						G1						
	"20	"21	"22	"23	"24	"25	"20	"21	"22	"23	"24	"25	"19	"20	"21	"22	"23	"24	"25
Total Count Tree (TG)	2	3	4	3	2	2	5	5	5	3	4	3	3	5	5	5	2	4	4
Total Count Shrub (SG)	17	16	18	16	16	19	14	15	15	13	13	19	12	11	11	12	9	13	13
Total Count Grass & grasslike (GG)	4	10	10	5	5	5	6	7	7	7	7	8	10	9	5	7	4	6	7
Total Count Forb (FG)	7	6	6	2	7	5	2	3	3	2	6	12	9	11	7	10	6	9	8
Total Count Fern (EG)	1	0	0	0	1	2	0	0	0	0	0	1	0	0	0	0	0	0	0

Annual EPBC Offset Site Monitoring (2025-26)

Vegetation attributes	P4A						P4B						G1						
	"20	"21	"22	"23	"24	"25	"20	"21	"22	"23	"24	"25	"19	"20	"21	"22	"23	"24	"25
Total Count Other (OG)	3	3	3	3	1	1	5	4	4	3	3	3	2	2	2	2	1	2	4
Total Cover Tree (TG)	45	40.5	8.1	0.8	10	20	32.4	32.2	12.1	17	10	74.0	9.1	24	27.3	21	5.5	20.5	17.2
Total Cover Shrub (SG)	43.9	49.8	15	37.9	39.8	50.3	18	46.4	40.1	56.9	34.8	76.0	22.6	21.2	41.2	28.5	16	13.8	43.9
Total Cover Grass & grasslike (GG)	24.2	24.4	2.9	11	24.2	26.6	7	17.6	3.4	17.7	32.7	20.2	7.5	13.5	14.7	6.3	0.5	25.4	47.5
Total Cover Forb (FG)	0.7	0.9	0.4	0.3	0.7	3.2	0.2	0.4	0.1	0.4	0.6	1.9	1.4	2.2	9.9	2.1	0.6	0.9	1.5
Total Cover Fern (EG)	0.1	0	0	0	0	0	0	0.0	0	0	0	0.2	0	0	0.0	0	0	0	0.0
Total Cover Other (OG)	0.4	0.9	4.1	15.6	0.1	0.5	1	1.7	0.8	5.2	0.3	.03	0.3	1.2	16.0	7	0.1	0.2	1.5
Total Cover Exotics	0	0	0	0	0	0	0	0.1	0.1	0	0	0.4	0.1	0.1	0.1	0.5	0	0	0
Total Cover High Threat Weeds	0	0	0	0	0	0	0	0.1	0.1	0	0	0	0.1	0.1	0.1	0.5	0	0	0
Vegetation Integrity Score	73.4	72.4	37	37	65.7	74.3	50	70.6	59.7	59.7	70.5	87.2	37.7	47	55.7	49.3	49.3	54.5	75.9

APPENDIX C ANNUAL MONITORING PHOTOGRAPHS

Monitoring Photographs – *Persoonia nutans* Offset site P1

						
PP_MP(North) - 2019	PP_MP(North) - 2020	PP_MP(North) - 2021	PP_MP(North) - 2022	PP_MP(North) - 2023	PP_MP(North) - 2024	PP_MP(North) - 2025
						
PP_MP(East) - 2019	PP_MP(East) - 2020	PP_MP(East) - 2021	PP_MP(East) - 2022	PP_MP(East) - 2023	PP_MP(East) - 2024	PP_MP(East) - 2025
						
PP_MP(South) - 2019	PP_MP(South) - 2020	PP_MP(South) - 2021	PP_MP(South) - 2022	PP_MP(South) - 2023	PP_MP(South) - 2024	PP_MP(South) - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P1

						
PP_MP(West) - 2019	PP_MP(West) - 2020	PP_MP(West) - 2021	PP_MP(West) - 2022	PP_MP(West) - 2023	PP_MP(West) - 2024	PP_MP(West) - 2025
						
PP1 – 2019	PP2 – 2020	PP1 - 2021	PP1 - 2022	PP1 - 2023	PP1 - 2024	PP1 - 2025
						
PP2 – 2019	PP2 – 2020	PP2 - 2021	PP2 - 2022	PP2 - 2023	PP2 - 2024	PP2 - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P1

						
PP3 – 2019	PP3 – 2020	PP3 - 2021	PP3 - 2022	PP3 - 2023	PP3 - 2024	PP3 - 2025
						
PP4 – 2019	PP4 – 2020	PP4 - 2021	PP4 - 2022	PP4 - 2023	PP4 - 2024	PP4 – 2025

Monitoring Photographs – *Persoonia nutans* Offset site P2

			Not captured			
PP_MP(North) - 2019	PP_MP(North) - 2020	PP_MP(North) - 2021	PP_MP(North) - 2022	PP_MP(North) - 2023	PP_MP(North) - 2024	PP_MP(North) - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P2

			Not captured			
PP_MP(East) - 2019	PP_MP(East) - 2020	PP_MP(East) - 2021		PP_MP(East) - 2023	PP_MP(East) - 2024	PP_MP(East) - 2025
			Not captured			
PP_MP(South) - 2019	PP_MP(South) - 2020	PP_MP(South) - 2021		PP_MP(South) - 2023	PP_MP(South) - 2024	PP_MP(South) - 2025
			Not captured			
PP_MP(West) - 2019	PP_MP(West) - 2020	PP_MP(West) - 2021		PP_MP(West) - 2023	PP_MP(West) - 2024	PP_MP(West) - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P2

						
PP1 – 2019	PP2 – 2020	PP1 - 2021	PP1 - 2022	PP1 - 2023	PP1 - 2024	PP1 - 2025
						
PP2 – 2019	PP2 – 2020	PP2 - 2021	PP2 - 2022	PP2 - 2023	PP2 - 2024	PP2 - 2025
						
PP3 – 2019	PP3 – 2020	PP3 - 2021	PP3 - 2022	PP3 - 2023	PP3 - 2024	PP3 - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P2

						
PP4 – 2019	PP4 – 2020	PP4 - 2021	PP4 - 2022	PP4 - 2023	PP4 - 2024	PP4 – 2025

Monitoring Photographs – *Persoonia nutans* Offset site P3

						
PP_MP(North) - 2019	PP_MP(North) - 2020	PP_MP(North) - 2021	PP_MP(North) - 2022	PP_MP(North) - 2023	PP_MP(North) - 2024	PP_MP(North) - 2025
						
PP_MP(East) - 2019	PP_MP(East) - 2020	PP_MP(East) - 2021	PP_MP(East) - 2022	PP_MP(East) - 2023	PP_MP(East) - 2024	PP_MP(East) - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P3

						
PP_MP(South) - 2019	PP_MP(South) - 2020	PP_MP(South) - 2021	PP_MP(South) - 2022	PP_MP(South) - 2023	PP_MP(South) - 2024	PP_MP(South) - 2025
						
PP_MP(West) - 2019	PP_MP(West) - 2020	PP_MP(West) - 2021	PP_MP(West) - 2022	PP_MP(West) - 2023	PP_MP(West) - 2024	PP_MP(West) - 2025
						
PP1 – 2019	PP2 – 2020	PP1 - 2021	PP1 - 2022	PP1 – 2023	PP1 - 2024	PP1 - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P3

						
PP2 – 2019	PP2 – 2020	PP2 - 2021	PP2 - 2022	PP2 – 2023	PP2 - 2024	PP2 - 2025
			Not captured			
PP3 – 2019	PP3 – 2020	PP3 - 2021		PP3 - 2023	PP3 - 2024	PP3 - 2025
						
PP4 – 2019	PP4 – 2020	PP4 - 2021	PP4 - 2022	PP4 – 2023	PP4 - 2024	PP4 – 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P4

N/A	N/A					
		PP_MP(A)_ (North) - 2021	PP_MP(A)_ (North) - 2022	PP_MP(A)_ (North) - 2023	PP_MP(A)_ (North) - 2024	PP_MP(A)_ (North) - 2025
N/A	N/A					
		PP_MP(A)_ (East) - 2021	PP_MP(A)_ (East) - 2022	PP_MP(A)_ (East) - 2023	PP_MP(A)_ (East) - 2024	PP_MP(A)_ (East) - 2025
N/A	N/A					
		PP_MP(A)_ (South) - 2021	PP_MP(A)_ (South) - 2022	PP_MP(A)_ (South) - 2023	PP_MP(A)_ (South) - 2024	PP_MP(A)_ (South) - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P4

N/A	N/A					
		PP_MP(A)_ (West) - 2021	PP_MP(A)_ (West) - 2022	PP_MP(A)_ (West) - 2023	PP_MP(A)_ (West) - 2024	PP_MP(A)_ (West) - 2025
N/A	N/A					
		PP_MP(B)_ (North) - 2021	PP_MP(B)_ (North) - 2022	PP_MP(B)_ (North) - 2023	PP_MP(B)_ (North) - 2024	PP_MP(B)_ (North) - 2025
N/A	N/A					
		PP_MP(B)_ (East) - 2021	PP_MP(B)_ (East) - 2022	PP_MP(B)_ (East) - 2023	PP_MP(B)_ (East) - 2024	PP_MP(B)_ (East) - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P4

N/A	N/A					
		PP_MP(B)_(South) - 2021	PP_MP(B)_(South) - 2022	PP_MP(B)_(South) - 2023	PP_MP(B)_(South) - 2024	PP_MP(B)_(South) - 2025
N/A	N/A					
		PP_MP(B)_(West) - 2021	PP_MP(B)_(West) - 2022	PP_MP(B)_(West) - 2023	PP_MP(B)_(West) - 2024	PP_MP(B)_(West) - 2025
N/A	N/A				Not captured	
		PP1 – 2021	PP1 – 2022	PP1 – 2023	PP1 – 2024	PP1 – 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs – *Persoonia nutans* Offset site P4

N/A	N/A					
		PP2 - 2021	PP2 - 2022	PP2 - 2023	PP2 - 2024	PP2 - 2025
N/A	N/A					
		PP3 – 2021	PP3 – 2022	PP3 – 2023	PP3 – 2024	PP3 – 2025
N/A	N/A					
		PP4 - 2021	PP4 - 2022	PP4 – 2023	PP4 – 2024	PP4 – 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs –*Grevillea parviflora* subsp. *Parviflora* Offset site G1

			Not captured			
PP_MP(North) - 2019	PP_MP(North) - 2020	PP_MP(North) - 2021	PP_MP(North) - 2022	PP_MP(North) - 2023	PP_MP(North) - 2024	PP_MP(North) - 2025
			Not captured			
PP_MP(East) - 2019	PP_MP(East) - 2020	PP_MP(East) - 2021	PP_MP(East) - 2022	PP_MP(East) - 2023	PP_MP(East) - 2024	PP_MP(East) - 2025
			Not captured			
PP_MP(South) - 2019	PP_MP(South) - 2020	PP_MP(South) - 2021	PP_MP(South) - 2022	PP_MP(South) - 2023	PP_MP(South) - 2024	PP_MP(South) - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs –*Grevillea parviflora* subsp. *Parviflora* Offset site G1

			Not captured			
PP_MP(West) - 2019	PP_MP(West) - 2020	PP_MP(West) - 2021	PP_MP(West) - 2022	PP_MP(West) - 2023	PP_MP(West) - 2024	PP_MP(West) - 2025
			Not captured			
PP1 – 2019	PP2 – 2020	PP1 - 2021	PP1 - 2022	PP1 – 2023	PP1 - 2024	PP1 - 2025
			Not captured			
PP2 – 2019	PP2 – 2020	PP2 - 2021	PP2 - 2022	PP2 - 2023	PP2 - 2024	PP2 - 2025

Annual EPBC Offset Site Monitoring (2025-26)

Monitoring Photographs –*Grevillea parviflora* subsp. *Parviflora* Offset site G1

			Not captured			
PP3 – 2019	PP3 – 2020	PP3 - 2021	PP3 - 2022	PP3 – 2023	PP3 - 2024	PP3 - 2025
			Not captured			
PP4 – 2019	PP4 – 2020	PP4 - 2021	PP4 - 2022	PP4 – 2023	PP4 - 2024	PP4 - 2025

APPENDIX D PHOTO POINT DETAILS

Offset Site	Photo point identifier	Location of Photo Point		Direction of Photograph (degrees)
		Latitude	Longitude	
P1	MP (North)	-33.960619°	150.921811°	0/360
	MP (East)			90
	MP (South)			180
	MP (West)			270
	PP1	-33.960425°	150.921772°	140
	PP2	-33.960478°	150.922122°	200
	PP3	-33.960833°	150.922291°	250
	PP4	-33.960773°	150.921709°	340
P2	MP (North)	-33.960663°	150.923187°	0/360
	MP (East)			90
	MP (South)			180
	MP (West)			270
	PP1	-33.960550°	150.922926°	130
	PP2	-33.960670°	150.923663°	250
	PP3	-33.960702°	150.923512°	270
	PP4	-33.960783°	150.922837°	335
P3	MP (North)	-33.960451°	150.926147°	0/360
	MP (East)			90
	MP (South)			180
	MP (West)			270
	PP1	-33.960278°	150.925545°	65
	PP2	-33.960469°	150.927180°	260
	PP3	-33.960495°	150.927074°	260
	PP4	-33.960421°	150.925524°	35
P4	MP(A) (North)	-33.954026	150.93522	0/360
	MP(A) (East)			90
	MP(A) (South)			180
	MP(A) (West)			270
	MP(B) (North)	-33.953164	150.93527	0/360
	MP(B) (East)			90
	MP(B) (South)			180
	MP(B) (West)			270
	PP1	-33.953362	150.93603	268
	PP2	-33.954238	150.93568	316
	PP3	-33.955183	150.93529	352
	PP4	-33.953414	150.93472	90

Annual EPBC Offset Site Monitoring (2025-26)

Offset Site	Photo point identifier	Location of Photo Point		Direction of Photograph (degrees)
		Latitude	Longitude	
G1	MP (North)	-33.963454°	150.923047°	0/360
	MP (East)			90
	MP (South)			180
	MP (West)			270
	PP1	-33.963401°	150.922906°	50
	PP2	-33.963163°	150.922886°	140
	PP3	-33.963321°	150.923232°	200
	PP4	-33.963650°	150.923207°	320

APPENDIX E POPULATION CENSUS

Table 27. Comparison of *Persoonia nutans* population census across monitoring years

Offset site	Census year	Life stage	Sub-count	Count
P1	2019	Adult	0	9
		Juvenile	9	
	2020	Adult	0	13
		Juvenile	13	
	2021	Adult	0	12
		Juvenile	12	
	2022	Adult	0	7
		Juvenile	7	
	2023	Adult	2	7
		Juvenile	5	
	2024	Adult	7	7
		Juvenile	0	
	2025	Adult	0	7
		Juvenile	7	
P2	2019	Adult	0	3
		Juvenile	3	
	2020	Adult	0	0
		Juvenile	0	
	2021	Adult	0	0
		Juvenile	0	
	2022	Adult	1	1
		Juvenile	0	
	2023	Adult	1	1
		Juvenile	0	
	2024	Adult	1	1
		Juvenile	0	
	2025	Adult	0	3
		Juvenile	3	
P3	2019	Adult	2	100
		Juvenile	98	
	2020	Adult	2	77
		Juvenile	75	
	2021	Adult	2	39
		Juvenile	37	
	2022	Adult	6	28
		Juvenile	22	

Annual EPBC Offset Site Monitoring (2025-26)

Offset site	Census year	Life stage	Sub-count	Count
	2023	Adult	17	28
		Juvenile	11	
	2024	Adult	27	38
		Juvenile	11	
	2025	Adult	6	40
		Juvenile	34	
P4	2019	Adult	N/A	N/A
		Juvenile		
	2020	Adult	43	43
		Juvenile	0	
	2021	Adult	41	41
		Juvenile	0	
	2022	Adult	32	32
		Juvenile	0	
	2023	Adult	31	32
		Juvenile	1	
	2024	Adult	33	34
		Juvenile	1	
	2025	Adult	1	36
		Juvenile	35	
Total	2019	Adult	N/A	N/A
		Juvenile		
	2020	Adult	45	133
		Juvenile	88	
	2021	Adult	43	92
		Juvenile	49	
	2022	Adult	39	68
		Juvenile	29	
	2023	Adult	52	68
		Juvenile	16	
	2024	Adult	68	80
		Juvenile	12	
	2025	Adult	7	86
		Juvenile	79	

Table 28. Comparison of *Grevillea parviflora* subsp. *parviflora* population census across monitoring years

Offset site	Census year	Count
G1	2019	142

Annual EPBC Offset Site Monitoring (2025-26)

Offset site	Census year	Count
G1	2020	60
G1	2021	50
G1	2022	112
G1	2023	146
G1	2024	75
G1	2025	77

APPENDIX D. KEY PERFORMANCE INDICATORS (KPIs) FOR RVMP WORKS

Key Performance Indicator	Status	Comments
Certification that all plant stock used for revegetation are of local botanical provenance	Not applicable	No revegetation activities have occurred over the 2025/6 monitoring year. Works have focused on weed control.
Gradual improvement of native plant establishment with the aim of achieving 80 per cent cover of native vegetation after five years following the initial planting	Failed	Quadrat monitoring of revegetated areas identified, on average, a native plant coverage of 14 per cent. It should be noted that this average includes areas that were not subject to revegetation, rather bush regeneration practices to enhance the condition of existing native vegetation. Planting occurred on the eastern side of the Georges River in June 2019 and is therefore required to meet the KPI by June 2024. Currently the per cent cover of native species is about 17% which is significantly less than the KPI of 80%. The KPI was not achieved by June 2024 with the current management routine. Planting occurred on the western side of the Georges River in December 2019 and is therefore required to meet the KPI by December 2024. Currently the per cent cover of native species is about 4% which is significantly less than the KPI of 80%. The KPI was not achieved by December 2024 with the current management routine. Although the entire management site is not on-track to achieve an 80 per cent native vegetation cover, several areas of bare earth were observed, which are anticipated to be increasingly colonised by native species over the coming years, with support from bush regenerators. It is recommended that instead of installing additional plants in this area to make up shortfalls in native per cent cover, bush regeneration activities should aim to reduce exotic species cover and encourage natural recruitment of bare areas by native species that are already present.
Gradual reduction in weed density to 5 per cent of the total area of each management site (eastern bank of Georges River)	Failed	Baseline monitoring occurred in June 2018 which has been taken to mark the completion of construction. Therefore, reduction of weeds across the management site to less than 5 per cent total cover by June 2023 is required to achieve the KPI. An average weed cover of about 17.9% was recorded for the eastern side of the Georges River management site during surveys completed in February 2026. The total weed cover across the management site has not been reduced to less than 5% by June 2023 with the current management routine. The previous estimation based on the presence of native species throughout the management site and the types of weed species present, it was anticipated that if a concerted effort is applied to removing weeds, a reduction to 5% cover could be achieved by

Key Performance Indicator	Status	Comments
		June 2026. However, considering the increase in weeds observed at the start of 2026 (February) this is no longer considered realistic. Fixed monitoring quadrats conducted within revegetated areas recorded an average weed cover of 17.9%. Weed species cover has increased since previous monitoring periods from 8.1% in March 2020. Native plants are showing signs of being outcompeted by exotic species at many of the monitored quadrats. It is recommended that weed control works are commenced immediately within the management site on the eastern bank of the Georges River to support natural regeneration and further colonisation by native species. Weed control works should remove scattered weeds from revegetated areas and remove weeds encroaching from infested areas adjacent to the management site
Reduction in weed density to 5 per cent of the total area of management site 5 years after construction (western bank of Georges River only)	Failed	Baseline monitoring occurred in June 2018 which has been taken to mark the completion of construction. Therefore, reduction of weeds across the management site to less than 5 per cent total cover by June 2023 is required to meet the KPI. An average weed cover of about 32.4% was recorded for the western side of the Georges River management site during surveys completed in February 2026. The total weed cover across the management site has not been reduced to less than 5% by June 2023 with the current management routine. The previous estimation based on the presence of native species throughout the management site and the types of weed species present, it was anticipated that if a concerted effort is applied to removing weeds, a reduction to 5% cover could be achieved by June 2026. However, considering the increase in weeds observed at the start of 2026 (February) this is no longer considered realistic. It is recommended that weed control works are commenced immediately within the management site on the western bank of Georges River to support recent plantings and encourage natural regeneration and colonisation by native species. Weed control works should remove scattered weeds from revegetated areas and remove weeds encroaching from infested areas adjacent to the management site
Gradual extension of native plant cover in each management site through natural regeneration	Progressing – works required	Evidence of natural regeneration was observed at the eastern side of the Georges River management site. Bare areas between plantings are showing signs of increasing colonisation by native species, including <i>Cassytha glabella</i> (Slender Devil's Twine), <i>Commelina cyanae</i> (Scurvy Weed), <i>Entolasia marginata</i> (Bordered Panic Grass), <i>Kangaroo Grass</i> and <i>Austrostipa ramosissima</i> (Stout Bamboo Grass).

Key Performance Indicator	Status	Comments
Stability of riparian banks, including maintenance or reduction of erosion within management sites	Achieving	Groundcover and shrubs species installed amongst coir mesh on steep slopes on the eastern side of the Georges River management site have established and provide stabilisation to the substrate. Natural regeneration of native species was observed on slopes which will increase the stabilisation of the slope across the monitoring year. Coir mesh has been installed and secured with intermittent planting of groundcover and shrubs species on exposed sections of the riverbank at the western side of the Georges River management site. As plantings mature, they will offer increased stabilisation of soils. Several major flooding events were experienced along the Georges River system during the 2021/2022 monitoring year. High floodwaters inundated the lower floodplain on the site, completely submerging revegetated areas. Following the receding of the floodwaters, revegetation areas were observed to be in good condition and had acted to stabilise soils and previously exposed banks. The vegetation in flood-affected areas remains intact as of the February 2026 survey.
Re-establish and maintain connectivity for fauna habitat, particularly in the Georges River management site.	Progressing – works required and review of adequacy	Habitat connectivity is not consistent with the approved habitat connectivity strategy as documented within the RVMP produced by Hyder (2015) and other project-related documents. Changes to habitat connectivity beneath the Rail Link bridge and the potential impacts this is having on the dispersal of native species are discussed in detail in Sections 4.4.1. Habitat connectivity across the Georges River management site, linking bushland within the MIP site with bushland to the south, currently consists of large logs placed on rock ballast with small piles of thin course wood debris assembled on either side. These have not been observed to be used and are in poor condition. A total of three fauna species were captured on the two remote cameras traversing the area beneath the Rail Link bridge, including Red Fox (<i>Vulpes vulpes</i>), Domestic/Feral Cat (<i>Felis catus</i>) and Swamp Wallaby (<i>Wallabia bicolor</i>).

APPENDIX E. RIPARIAN VEGETATION MANAGEMENT - NATIVE FLORA INVENTORIES

Table 23 Native species detected within the Riparian Vegetation Management monitoring quadrats. Species with an * are characteristic of River-Flat Eucalypt Forest on Coastal Floodplains of the NSW North Coast, Sydney Basin and South East Corner Bioregions (RFEFCF) Endangered Ecological Community (EEC)

Scientific name	Common name	RFEF CF*	MR0 9	MR1 0	MR1 1	MR1 2	MR1 3	MR1 4	MR1 5	MR1 6	MR1 8(W)	MR1 9(W)
<i>Acacia binervata</i>	Two-veined Hickory		X	X	X			X			X	X
<i>Acacia decurrens</i>	Black Wattle											X
<i>Acacia floribunda</i>	White Sally	*								X	X	
<i>Acacia longifolia</i>			X					X			X	
<i>Acacia parramattensis</i>	Parramatta Wattle	*						X				
<i>Austrostipa ramosissima</i>	Stout Bamboo Grass	*	X		X						X	
<i>Breynia oblongifolia</i>	Coffee Bush	*		X	X						X	
<i>Callistemon salignus</i>	Willow Bottlebrush											X
<i>Cassytha glabella</i>				X	X						X	
<i>Casuarina glauca</i>	Swamp Oak	*							X			
<i>Cayratia clematidea</i>	Native Grape	*			X							
<i>Clematis aristata</i>	Old Man's Beard	*	X	X	X							
<i>Clematis glycinoides</i>	Headache Vine	*		X	x					X		
<i>Commelina cyanea</i>	Native Wandering Jew	*				X	X	X	X	X		
<i>Cymbopogon refractus</i>	Barbed Wire Grass	*										

Scientific name	Common name	RFEF CF*	MR09	MR10	MR11	MR12	MR13	MR14	MR15	MR16	MR18(W)	MR19(W)
<i>Cynodon dactylon</i>	Common Couch		X									X
<i>Dichondra repens</i>	Kidney Weed	*				X	X		X			X
<i>Dodonaea truncatiales</i>	Angular Hop-bush							X				
<i>Einadia hastata</i>	Berry Saltbush	*							X	X		
<i>Entolasia marginata</i>	Bordered Panic	*	X	X					X		X	
<i>Entolasia stricta</i>	Wiry Panic	*				X						X
<i>Erythrina crista-galli</i>	Cockspur Coral Tree					X						
<i>Eucalyptus amplifolia</i>	Cabbage Gum								X			
<i>Eucalyptus botryoides</i>	Bangalay	*	X		X	X	X			X		
<i>Exocarpos cupressiformis</i>	Cherry Ballart		X									
<i>Geranium solanderi</i>	Native Geranium	*				X	X		X	X		
<i>Hardenbergia violacea</i>	False Sarsaparilla	*										X
<i>Hydrocotyle laxiflora</i>	Stinking Pennywort						X		X			X
<i>Imperata cylindrica</i>	Blady Grass						X		X	X		X
<i>Juncus usitatus</i>									X			X
<i>Kunzea ambigua</i>	Tick Bush			X								
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	*					X			X	X	X
<i>Melaleuca decora</i>		*							X	X		

Scientific name	Common name	RFEF CF*	MR09	MR10	MR11	MR12	MR13	MR14	MR15	MR16	MR18(W)	MR19(W)
<i>Melaleuca linariifolia</i>	Flax-leaved Paperbark	*				X				X		
<i>Melaleuca spp.</i>						X						
<i>Melaleuca styphelioides</i>	Prickly-leaved Tea Tree	*							X	X	X	
<i>Microlaena stipoides</i>	Weeping Grass		X	X	X		X	X	X	X		
<i>Oplismenus aemulus</i>		*		X	X		X	X	X	X	X	X
<i>Oplismenus imbecillis</i>						X						
<i>Oxalis perennans</i>				X								
<i>Parsonsia straminea</i>	Common Silkpod		X									
<i>Persicaria hydropiper</i>	Water Pepper					X	X		X	X		
<i>Plectranthus parviflorus</i>					X						X	
<i>Pteridium esculentum</i>	Bracken					X				X		
<i>Rubus parvifolius</i>	Native Raspberry	*							X	X		
<i>Sigesbeckia orientalis</i>							X					X
<i>Themeda triandra</i>												X
<i>Trema tomentosa</i>									X			
<i>Viola hederacea</i>	Ivy-leaved Violet	*					X				X	
<i>Vittadinia spp.</i>	Fuzzweed						X					

APPENDIX F. RIPARIAN VEGETATION COMPARISON OF EXOTIC AND NATIVE COVER PER CENTAGES FOR EACH VEGETATION QUADRAT ACROSS MONITORING EVENTS (JUNE 2018 - FEBRUARY 2026)

Table 24 Exotic cover across the Riparian Monitoring Quadrats

Quadrat identifier	Zone	Jun '18	Sep '18	Dec '18	Mar '19	Jun '19	Sep '19	Dec '19	Mar '20	Nov '21	Apr '23	Jan '24	Apr '25	Feb'26
MR09	GZ1	10.1	4.8	3.9	5.8	5.4	3	3.9	19.3	6.25	23.2	21.3	5.25	0.38
MR10	GZ1	23.8	0.3	2.8	1.3	2	2.4	0.3	2.8	4	4.2	1.8	4.25	2.9
MR11	GZ1	43.8	2	13.1	10.5	13.1	18.9	13.9	17.6	39.75	37.5	23.0	4.5	12.75
MR12	GZ2	104.3	8.5	1.8	2	0	0.4	0.2	0.1	2.5	2	21.8	22.5	37
MR13	GZ2	82.1	38.5	2	1.1	0	0.9	1.3	2	20	26.7	16.3	25	22.63
MR14	GZ4	89.1	49.8	50.5	32.3	2	7.5	10.6	14.1	48.75	44.5	11.8	2.75	10.15
MR15	GZ2	79.6	69.8	12.3	7.9	0.1	4.4	6.2	6.3	14.25	9.8	24.0	8.75	46
MR16	GZ4	28.9	20.8	24	14	0.5	2.3	3.1	3.9	27.25	7.4	13.3	11.5	11.53
MR18	GZ2	-	-	-	-	-	47.6	1.2	14	51.75	76.8	20.3	14.75	53.63
MR19	GZ5	-	-	-	-	-	11.3	0.1	0.4	6.43	10.5	22.5	6.25	11.25
Average		-	57.7	24.3	13.8	9.4	8.9	9.9	4.1	22.09	24.3	17.6	10.55	20.82

Table 25 Native cover across the Riparian Monitoring Quadrats

Quadrat identifier	Zone	Jun '18	Sep '18	Dec '18	Mar '19	Jun '19	Sep '19	Dec '19	Mar '20	Nov '21	Apr '23	Jan '24	Apr '25	
MR09	GZ1	15.4	16.8	20.3	18	32.5	21.8	29.8	42.8	44.0	20.6	23.0	8.7	15.67
MR10	GZ1	24.5	21.8	16	23.5	28.5	24.8	26.5	40.5	41.5	48.8	33.8	25.1	20
MR11	GZ1	12.5	12.3	18.3	12.5	31.3	26	23.5	37.3	25.9	35	27.1	16.3	27.33
MR12	GZ2	1	0.3	0.3	1.5	6	8.3	4	23	32.3	33.8	3.7	3.8	8.75
MR13	GZ2	3.6	5.5	4.8	4.6	9.5	7.8	7.8	24.8	45.0	25	15.4	17.1	11.58
MR14	GZ4	30.8	38.8	80	63	26.3	13.3	7.8	26	12.9	5	13.3	13.8	23.5
MR15	GZ2	3.8	1.8	0.1	0	8.5	4	6.3	23.2	35.0	27.3	2.3	30.8	13.83
MR16	GZ4	11.3	28.5	16.3	14.5	10.8	9.8	13	39.8	45.8	42.5	45	12.6	14.25
MR18	GZ2	-	-	-	-	-	11.5	3.8	22	22.6	32.1	3.3	6.2	5.33
MR19	GZ5	-	-	-	-	-	0	0.5	6.5	2.6	24.1	2.5	2.2	3.42
Average		12.8	15.7	19.5	17.2	17.1	12.7	12.3	28.6	30.8	29.4	16.9	13.7	14.37

APPENDIX G. RIPARIAN VEGETATION MANAGEMENT - PHOTO POINTS



MR09



MR10



MR11



MR12



MR13



MR14



MR15



MR16



MR18



MR19

APPENDIX H. BA341 LANDS ADJOINING RAIL LINK - QUADRAT MONITORING DATA

Scientific name	Common name	Rail Link East (Q2)		Rail Link West (Q1)	
		Cover	Abundance	Cover	Abundance
<i>Acacia falcata</i>	Sickle Wattle	0.5	100	0	0
<i>Acacia longifolia</i>	Sydney Golden Wattle	0	0	1	5
<i>Angophora bakeri</i>	Narrow-leaved Apple	20	20	15	35
<i>Anisopogon avenaceus</i>	Oat Speargrass	0	0	5	100
<i>Austrostipa pubescens</i>	Speargrass	10	200	0	0
<i>Banksia oblongifolia</i>	Fern-leaved Banksia	0.2	3	0.1	2
<i>Banksia spinulosa</i>	Hairpin Banksia	1	2	5	5
<i>Bossiaea heterophylla</i>	Variable Bossiaea	20	200	1	30
<i>Briza maxima</i>	Quaking Grass	0.1	1	0	0
<i>Briza subaristata</i>	Shivery Grass	0	0	0.1	10
<i>Burchardia umbellata</i>	Milkmaids	0.1	1	0	0
<i>Caesia parviflora</i>	Pale Grass-lily	0.1	1	0	0
<i>Carex spp.</i>	Sedge	0.1	3	0	0
<i>Cassytha glabella</i>	Slender Dodder-Laurel	0.1	10	0.1	25
<i>Conyza bonariensis</i>	Flatleaf Fleabane	0.1	1	0	0
<i>Conyza spp.</i>	Fleabane	0	0	0.1	10
<i>Coronidium scorpioides</i>	Button Everlasting	0.2	50	1	30
<i>Cyathochaeta diandra</i>	Cyathochaeta	1	100	5	1000
<i>Dianella caerulea</i>	Blue Flax-lily	0.1	1	0	0
<i>Dianella longifolia</i>	Pale Flax-lily	0	0	0.1	5
<i>Empodisma minus</i>	Spreading Rope-rush	1	1	10	100
<i>Entolasia stricta</i>	Wiry Panic	2	200	3	100
<i>Eucalyptus parramattensis</i>	Parramatta Red Gum	2	3	0	0

Scientific name	Common name	Rail Link East (Q2)		Rail Link West (Q1)	
		Cover	Abundance	Cover	Abundance
<i>Eucalyptus racemosa</i>	Scribbly Gum	0	0	5	5
<i>Eucalyptus sclerophylla</i>	Scribbly Gum	8	2	0	0
<i>Gompholobium glabratum</i>	Smooth Wedge-pea	0	0	0.1	10
<i>Gompholobium minus</i>	Dwarf Wedge-pea	0.1	10	0	0
<i>Goodenia hederacea</i>	Ivy Goodenia	0.1	10	0	0
<i>Hakea dactyloides</i>	Finger Hakea	0	0	0.1	2
<i>Hakea sericea</i>	Bushy Needlewood	20	250	8	40
<i>Hardenbergia violacea</i>	False Sarsaparilla	0.1	10	0.1	1
<i>Hibbertia puberula</i>	Downy Guinea Flower	0.1	10	0.1	3
<i>Hypericum gramineum</i>	Small St John's Wort	0.2	100	0.2	20
<i>Imperata cylindrica</i>	Blady Grass	0.1	1	0	0
<i>Kunzea ambigua</i>	Tick Bush	0.1	1	3	10
<i>Lepidosperma laterale</i>	Variable Sword-sedge	1	20	0	0
<i>Leptospermum parvifolium</i>	Lemon-scented Tea-tree	2	50	3	20
<i>Leptospermum trinervium</i>	Flaky-barked Tea-tree	3	60	5	20
<i>Leucopogon virgatus</i>	Common Beard-heath	0	0	0.1	1
<i>Lindsaea linearis</i>	Screw Fern	0.2	100	0.2	50
<i>Lolium spp.</i>	Ryegrass	0.1	1	0	0
<i>Lomandra filiformis</i>	Wattle Mat-rush	0	0	0.5	30
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	0	0	0.2	5
<i>Medicago polymorpha</i>	Burr Medic	0	0	0.1	3
<i>Melaleuca nodosa</i>	Prickly-leaved Paperbark	20	250	15	50
<i>Mitrasacme polymorpha</i>	Native Mitre Plant	0.1	100	0	0
<i>Mitrasacme spp.</i>	Mitre Plant (sp.)	0	0	0.1	30
<i>Opercularia diphylla</i>	Twin-leaf	0.1	1	0	0

Scientific name	Common name	Rail Link East (Q2)		Rail Link West (Q1)	
		Cover	Abundance	Cover	Abundance
<i>Patersonia sericea</i>	Silky Purple-flag	0.1	2	0	0
<i>Persoonia linearis</i>	Narrow-leaved Geebung	0.1	1	0	0
<i>Persoonia nutans</i>	Nodding Geebung	0.1	1	0	0
<i>Petrophile pulchella</i>	Conestick sp.	0.5	20	0	0
<i>Petrophile sessilis</i>	Conestick sp.	0	0	5	40
<i>Philothea salsolifolia</i>	Philothea	0.2	10	3	20
<i>Pimelea linifolia</i>	Slender Rice Flower	1	150	0	0
<i>Plantago lanceolata</i>	Ribwort Plantain*	0	0	0.1	10
<i>Platysace ericoides</i>	Heath Platysace	2	200	0	0
<i>Platysace linearifolia</i>	Narrow Platysace	0	0	0.2	20
<i>Pomax umbellata</i>	Pomax	0.1	10	0	0
<i>Poranthera microphylla</i>	Small Poranthera	0	0	0.1	10
<i>Pultenaea daphnoides</i>	Large-leaf Bush-pea	0.1	1	0	0
<i>Pultenaea spp.</i>	Bush-pea (sp.)	5	100	0	0
<i>Pultenaea villosa</i>	Hairy Bush-pea	0	0	0.2	2
<i>Senecio madagascariensis</i>	Fireweed*	0.1	2	0.1	10
<i>Stylidium graminifolium</i>	Grass Trigger-plant	0.5	150	0.2	50
<i>Themeda triandra</i>	Kangaroo Grass	5	100	0.1	10
<i>Thysanotus tuberosus</i>	Common Fringe-lily	0.1	2	0	0
<i>Trachymene incisa</i>	Wild Parsnip	0.2	50	0.2	20
<i>Tricoryne elatior</i>	Yellow Rush-lily	0	0	0.1	20
<i>Trifolium arvense</i>	Hare's-foot Clover	0	0	0.1	1
<i>Vicia sativa</i>	Common Vetch	0	0	0.1	5
<i>Xanthorrhoea spp.</i>	Grass Tree	0	0	0.5	5

APPENDIX I. NEST BOX MONITORING REPORT (SPRING 2025)

DATE

13/05/2026

CLIENT**SUBJECT**

Moorebank Logistics Park - Spring Nest Box Monitoring 2025

Arcadis were commissioned by Tactical Group on behalf of ESR Australia & NZ to conduct the annual spring nest box monitoring survey within the Moorebank Logistics Park (MLP). The spring 2025 monitoring event marks the eighth year that Arcadis has monitored nest boxes installed within the Bootland and Georges River corridor to offset the removal of hollow-bearing trees for the construction of the MLP development.

As a requirement of the State Conditions of Consent and Commonwealth Conditions of Approval and to guide the replacement of hollows removed during construction, a Nest Box Management Strategy (CPB, 2017) was prepared. This project document also included the requirement for monitoring of nest boxes. In 2025, an updated Artificial Hollow Management Strategy (Arcadis, 2025) was prepared to supersede the original Nest Box Management Strategy (CPB, 2017). This updated strategy reflects contemporary best practice and incorporates findings from previous monitoring events, including observed declines in nest box condition and functionality over time.

This memorandum has been prepared to document the findings of the spring 2025 nest box monitoring survey in accordance with the requirements of the original NBS, however recommendations for future maintenance and replacement of artificial hollows will be implemented in accordance with the updated Artificial Hollow Management Strategy. This transition ensures that ongoing management of artificial hollows across the MLP continues to meet offset obligations while improving the longevity, effectiveness, and ecological value of installed structures.

Background

The Sydney Intermodal Terminal Alliance (SIMTA) and Moorebank Intermodal Company entered an agreement to develop the Moorebank Precinct East (MPE) Project and Moorebank Precinct West (MPW) Project into the Moorebank Logistics Park (MLP). MLP is located in the suburb of Moorebank within the Liverpool Local Government Area (LGA).

The MLP development comprises an Import Export (IMEX) terminal on MPE and interstate terminal on MPW including rail links to the Southern Sydney Freight Line (SSFL); warehouse and distribution facilities; freight village; road and intersection upgrades; and ancillary activities such as landscaping and utilities installation and diversion.

Approval for the construction and operation of the MLP is divided into respective east and west precincts as follows:

- Stage 1 (SSD 6766), divided into Package 1 - Rail Access Land Package (RALP) and Package 2 - Import Export (IMEX) Terminal, and Stage 2 (SSD 7628) of MPE under the MPE Concept Consent (MP10_0193) was provided in March 2018 (as amended through the Land and Environment Court) and January 2018 respectively. Commonwealth approval (EPBC 2011/6299) was received in March 2014.

- MPW Concept and Stage 1 (SSD 5066) received approval in June 2016, with commonwealth approval (EPBC 2011/6086) in September 2016. MPW Stage 2 (SSD 7709) received approval on 11 November 2019.

Prior to construction, vegetation clearing was conducted across the two project sites: MPE and MPW. Vegetation clearing was conducted in a staged approach and included the removal of important habitat features including hollow-bearing trees. To offset impacts associated with the removal of hollow-bearing trees a Nest Box Strategy Report (NBS) (CPB 2017) was prepared. Preparation of an NBS was a requirement of the approval (refer to Table 1) and was initially developed for MPE Stage 1 – RALP and MPW Stage 1. The MPE Stage 1 – RALP NBS was further adapted for implementation on MPE Stage 1 – IMEX and MPE Stage 2.

Table 1: Conditions relevant to installation and monitoring of nest boxes within MLP

Condition	Requirement
MPE Stage 1 (SSD 6766)	
CoC E34(d)(ii)(b)	The identification of areas to be cleared and details of management measures to avoid residual habitat damage or loss and to minimise or eliminate time lags between the removal and subsequent replacement of habitat such as: clearing procedures (including nest box plan)
Final compilation of mitigation measures: 8C	A nest box management strategy will be prepared prior to clearing hollow-bearing trees. The strategy will inform the installation of nest boxes in retained native vegetation in the riparian corridor of the Georges River and the woodland in the Southern Bootland and the ongoing monitoring and maintenance of nest boxes through the construction and operational phases.
MPW Stage 1 (SSD 5066)	
CoC D21(d)(ii)	The identification of areas to be cleared and details of management measures to avoid residual habitat damage or loss and to minimise or eliminate time lags between the removal and subsequent replacement of habitat such as: - clearing procedures (including nest box plan)
MLP EPBC Approval	
Commonwealth mitigation measures: 7.4.1.3 n	Consider the installation of nest boxes in woodland vegetation in the rail corridor that may offer alternative nesting habitats to hollow-dependent species recorded in the study area.

Hollow loss and replacement

Prior to vegetation removal to facilitate construction, pre-clearing surveys were conducted by the construction contractor's ecologist to record an inventory of tree hollows subject to removal. A review of the pre-clearing survey data identified that 108 tree hollows were removed during construction, as follows:

- IMEX: 25 hollows were identified across 13 hollow-bearing trees.
- Rail Access Link Package (RALP): 33 hollows were identified across 30 hollow-bearing trees.
- Precinct East Demolition Remediation (PEDR) Stage 2: 50 hollows across 39 hollow-bearing trees.

Nest boxes of an appropriate size and specification were required to be installed within retained vegetation in MLP at a ratio of 2:1 to offset the loss of hollows as per the Nest Box Strategy (NBS) (CPB, 2017). As such a total of 216 nest boxes were required to be installed to offset the removal of 108 hollows. The updated Artificial Hollow Management Strategy (AHMS) however recognises that a 1:1 offset ratio is more appropriate as the preliminary 2:1 offset ratio was recommended for the removal of 25 hollows for Stage 1 of the development. As such, the maintenance of 108 hollows is now required to comply with the new AHMS.

Nest boxes were progressively installed within native vegetation at the Bootland and along the Georges River corridor. The majority of the areas where nest boxes were installed were included in the BA341 biobank site when it was established in January 2019. Nest boxes that were not within the biobank site have since been relocated into bushland within the Wattle Grove offset area (Bootland) and Moorebank offset area (Georges River corridor).

As of the 2025 nest box monitoring surveys, there are a total of 208 nest boxes within the BA341 biobank site; 52 in the Wattle Grove offset area (Bootland) and 156 in the Moorebank offset area (Georges River corridor).

Monitoring

The MPE NBS (based on MPE Stage 1 – RALP) recommended that nest boxes installed for the project should be monitored shortly after installation and then on an annual basis in the spring thereafter. The monitoring requirements have not changed with the implementation of the updated AHMS. There is a requirement for these nest boxes to be monitored and maintained to ensure they offer suitable habitat to locally occurring hollow-dependant fauna.

The first round of nest box monitoring on the Moorebank Precinct was completed by Arcadis in spring 2018. Arcadis was engaged to undertake the proceeding annual nest boxes spring monitoring surveys within the Moorebank Precinct in 2019 – 2024 and 2025 (the subject of this report) per the requirements specified in the MPE NBS and AHMS.

This memo summarises the results of the eighth round of nest box monitoring undertaken by Arcadis in spring 2025 across the Bootland and Georges River corridor.

Nest box details

The types of nest boxes installed within the Bootland and Georges River corridor and details of installation are summarised in Table 2. Examples of nest boxes installed in these areas are shown in Plate 1.

It is no longer recommended that nest boxes be installed using the 'Habisure' method due the damage the wire causes the trees they are installed on. Nest boxes installed in this manner should be eventually changed to the preferred direct screw attachment method. Nest boxes with fixed lids are unable to be inspected during monitoring and thus cannot be used when calculating occupancy rates. It is recommended that fixed nest box lids be phased out in favour of hinged lids to allow for internal inspection, as required by the AHMS..

Table 2: Nest box designs and methods of installation utilised

Types	Installation method	Installation height	Other comments
Possum/Lorikeet Glider Microbat Cockatoo/Owl Kookaburra	'Habisure' method hung using a wire Screwed directly into the trunk of the tree	3 – 15 metres above the ground	Fixed or hinged lid



Plate 1: Examples of nest box designs and installation methods in the Moorebank Logistics Park. Left to right: cockatoo/owl installed using habisure method, arboreal mammal/orikey nest box installed using the screws attaching to the tree, arboreal mammal/orikey nest box installed using the habisure method.

Previous surveys

Nest box monitoring surveys have been conducted annually by Arcadis since 2018. The number of nest boxes located within the Bootland and along the Georges River corridor has been varied between monitoring years for the following reasons:

- The initial number of nest boxes installed within the Bootland and along the Georges River corridor was unknown due to nest boxes being installed progressively and a lack of installation records.
- Nest boxes not being located during annual monitoring events.
- The decommissioning of damaged or fallen nest boxes during management works between monitoring years.

The number of nest boxes internally inspected has also changed between survey years, due to constraints such as box condition and access through vegetation (see Survey limitations). A summary of the number of nest boxes found and inspected across all previous years of monitoring is included in Table 3.

Table 3: Number of nest boxes located and internally inspected during monitoring events.

Survey year	Survey area	Number of nest boxes located	Number internally inspected
2018	Bootland	52	50
	Georges River corridor	195	169
	Total	247	219
2019	Bootland	54	51
	Georges River corridor	199	152
	Total	253	200
2020	Bootland	52	52
	Georges River corridor	161	140
	Total	213	192
2021	Bootland	51	51
	Georges River corridor	178	143

Nest box annual monitoring report

Survey year	Survey area	Number of nest boxes located	Number internally inspected
	Total	229	194
2022	Bootland	51	51
	Georges River corridor	174	146
	Total	225	197
2023	Bootland	51	51
	Georges River corridor	163	144
	Total	214	195
2024	Bootland	53	53
	Georges River corridor	160	130
	Total	213	183
2025	Bootland	52	52
	Georges River Corridor	156	121
	Total	208	173

Summary of findings from last year's (2024) monitoring

The outcomes of the previous years (2024) nest box monitoring survey are summarised below:

- 213 nest boxes were located: 160 in the Georges River corridor and 53 in the Bootland.
- 183 nest boxes were inspected internally using a pole-mounted camera.
- 30 nest boxes were not internally inspected.
- 52 nest boxes were occupied by native fauna: 41 in the Georges River corridor and 11 in the Bootland.
- 99 nest boxes were utilised by native fauna: 68 in the Georges River corridor and 31 in the Bootland.
- 13 nest boxes were utilised by invasive fauna (European Honeybee (*Apis mellifera*) and Common Myna (*Acridotheres tristis*)).
- During the 2024 survey period, 50 nest boxes were identified as requiring maintenance or removal, with 27 of these classified as needing urgent action.

In accordance with Section 5 of the updated AHMS, existing nest boxes would not be prematurely decommissioned or relocated to expediate implementation of the AHMS. Rather when nest boxes are identified for decommissioning or relocation, replacements would not be provided until the number of nest boxes reduces to 108. At which point any nest boxes that need replacing to meet the minimum offset requirement of 108 artificial hollows would consider the recommendations discussed in the AHMS.

As the 27 nest boxes classified as requiring urgent action were not considered to present a hazard to fauna, and the total number of nest boxes accounted for during the 2024 survey period was 213, maintenance actions were not undertaken.

Methodology

Nest box monitoring surveys within the Bootland and Georges River corridor were undertaken by Arcadis ecologists Taylor Bliss-Henaghan, Acacia Jennings, Emily Cleghorn, and Chris Power across three days in Spring, 2025. Survey dates and weather conditions on the dates of survey are outlined in Table 4.

Nest box annual monitoring report

Table 4: Survey dates and climate data from the weather station closest to MLP, Holsworthy Aerodrome (066161) (BoM, 2025)

Date	Min (°C)	Max (°C)	Rain (mm)	Max wind gust	
				Direction	Speed (km/h)
6 November 2025	7.9	26.4	0	ENE	37
24 November 2025	15.7	24.5	0	SSE	43
26 November 2025	16.5	34.9	0	WSW	74

Ecologists traversed the Bootland and Georges River corridor on foot, using an Arc-GIS enabled iPad to locate nest boxes and record survey data. Initial external inspections were made for each nest box, and if no fauna could be observed externally, internal inspections were conducted using a GoPro (Wi-Fi connected) camera attached to an 8-metre telescopic pole. The following information was collected for each nest box, as recommended in Section 7 of the AHMS:

- Date and time.
- Nest box number.
- Nest box location (GPS).
- Occupancy status (identification of fauna to a species level where possible).
- Life stage of occupying fauna (eggs, juvenile, adults).
- Condition of occupying fauna (healthy, deceased).
- Evidence of previous occupancy (such as nesting material, feathers, scratch/claw marks).
- General condition of the nest box and mount.
- Any recommendations for maintenance actions, such as:
 - Reinstallation of the nest box to resecure, lower, or increase shade cover.
 - Replacement, repair or re-installation of missing, damaged or fallen nest boxes or mounts.
 - Removal of excess nesting material.
 - Amending or moving nest boxes that aren't functioning correctly.

Survey limitations

Some nestboxes were unable to be reached or inspected during the survey event. Only nest boxes internally inspected or with fauna observed from outside the box were included in the calculation of occupancy and utilisation rates.

Results

A total of 208 nest boxes were located by Arcadis during the spring 2025 survey period: 52 in the Bootland and 156 in the Georges River corridor. Of the 208 nest boxes located during the 2025 survey period, 173 nest boxes were internally inspected using a pole-mounted camera or had fauna observed from outside the box. The remaining 35 were not inspected internally for the following reasons:

- 12 nest boxes were installed greater than 10 metres above the ground and could not be reached with a pole-mounted camera.
- 14 nest boxes were not fitted with hinged lids and therefore could not be internally inspected with a pole-mounted camera.
- 6 boxes were inaccessible due to the high cover of vegetation, primarily Lantana.
- 1 nest box was installed greater than 10 metres above the ground and could not be reach and was not fitted with a hinged lid.
- 1 nest box was inaccessible due to the high cover of vegetation and was not fitted with a hinged lid.

- 1 nest box was unable to be located.

Twenty-seven of the nest boxes located during the spring 2025 monitoring did not have ID numbers. 14 of these unnumbered boxes can be accounted for using data from 2022 to 2024, with some installed prior to 2020 when the tree-tag numbering system was implemented. The remaining 13 unidentified nest boxes could not be accounted for using 2023 or 2024 data.

A summary of the utilisation and condition of nest boxes from the spring 2025 monitoring period is discussed below and presented in Figure 1.

Nest box occupancy

Nest box 'occupancy' was determined based on the number of nest boxes recorded as being occupied by fauna at the time of survey, including nests containing eggs or hatchlings. Only nest boxes that could be internally inspected or nest boxes with fauna observable from the outside were assessed for occupancy. The following occupancy rates were recorded for nest boxes during the spring 2025 monitoring period:

- 56 nest boxes were occupied by native fauna, 24 nest boxes in the Bootland and 32 nest boxes in the Georges River corridor.
- Five nest boxes were occupied by invasive fauna, all located in the Georges River corridor
- Signs of movement were observed in two nest boxes in the Georges River corridor. The fauna species was not visible for identification.

Table 5 provides a list of species recorded occupying or utilising nest boxes during the 2025 monitoring period, and examples of nest boxes occupied by native fauna are shown in Plate 2. A detailed record of nest boxes identified as being occupied by fauna is included in Appendix B.

Table 5: Species observed occupying or utilising nest boxes within the survey area.

Native fauna	Invasive fauna
Australian Owlet-nightjar (<i>Aegotheles cristatus</i>) Australian Wood Duck (<i>Chenonetta jubata</i>) Common Ringtail Possum (<i>Pseudocheirus peregrinus</i>) (Plate 2) Green Tree Frog (<i>Litoria caerulea</i>) Rainbow Lorikeet (<i>Trichoglossus haematodus</i>) Sugar Glider (<i>Petaurus breviceps</i>) (Plate 2) Sulphur-crested Cockatoo (<i>Cacatua galerita</i>)	Black Rat (<i>Rattus rattus</i>) European Honeybee (<i>Apis mellifera</i>)



Plate 2: Native fauna recorded occupying nest boxes within the survey area – Common Ringtail Possum (left), Sugar Gliders (right)

Nest box utilisation

Nest box 'utilisation' is measured for nest boxes currently occupied or with evidence of previous occupancies such as nesting material, or eggshells. Utilisation by invasive species was determined by the presence of an invasive species, or evidence of use by an invasive species, such as nesting materials not used by native fauna.

Common Myna's are known to use non-organic nesting materials including plastics, rubber, and metal (Dhandukia & Patel, 2012). All nest boxes with evidence of utilisation not associated with invasive fauna were considered to be utilised by native fauna. Nesting material indicative of occupation by native fauna included eucalypt leaves, bark shredding and other organic matter. The presence of feathers was also relied upon to determine whether a nest box was utilised by native or introduced species. Examples of nest boxes with evidence of utilisation by both native and invasive species are shown in Plate 3.



Plate 3: Examples of nest boxes utilised by fauna – Invasive Indian Myna nesting material (left) and native Sugar glider nesting material (right)

A summary of nest box utilisation observed during the spring 2025 survey event includes:

- 87 nest boxes are considered to be utilised by native fauna, 33 in the Bootland and 54 in the Georges River corridor, equating to a utilisation rate of 42 per cent for all nest boxes in the 2025 survey period.

- Five nest boxes are considered to be utilised by invasive species, all of which are located in the Georges River corridor, equating to an overall utilisations rate of two per cent.

A summary of nest box utilisation by invasive fauna during the spring 2025 survey event includes:

- Three nest boxes contained old or active European Honeybee hives.
- Two nest boxes showed signs of utilisation by Common Myna, containing nesting material (litter) used by the species.

Nest box condition

Observations on nest box 'condition' assessed the structural condition of boxes as well as box mounts. The condition of each nest box was assessed upon inspection to identify if any maintenance actions are required.

The majority of nest boxes located during the spring 2025 survey period showed minor deterioration due to weathering or use by fauna.

Of the 208 nest boxes located, 52 were identified as requiring assessment for maintenance actions for the following reasons:

- A total of 26 were nest boxes identified as damaged and in poor condition for use by fauna. Damages included missing bottoms and lids and lack of drainage for pooling water. Of the 26 nest boxes, four were found to have fallen from the tree.
- Nest box installed at a height above 10 metres: 14 nest boxes were installed too high and were unable to be internally inspected due to the camera being unable to reach the box.
- Seven nest boxes were unable to be accessed due to dense *Lantana camara* blocking access.
- Nest box unstable on the tree due to incorrect mounting: A total of two nest boxes were loose on the tree.
- Nest box installed in an inappropriate location (i.e., no shade): One nest box was found to have little shade cover and had potentially resulted in a fauna fatality.
- Two nest box was installed too low to the ground (below three metres).

Many of the nest boxes inspected during the 2025 surveys were found to have several maintenance issues, full descriptions of the maintenance actions required for each nest box are described in Appendix A. Examples of nest boxes identified as requiring management action are shown in Plate 4.

As noted in the sections above and in line with recommendations made in the AHMS, corrective actions were not undertaken for the 50 nest boxes flagged for maintenance, including 27 nest boxes flagged for urgent maintenance, during the spring 2024 survey period. It can therefore be assumed that 50 of the 52 nest boxes flagged above for maintenance during the spring 2025 surveys are the same nest boxes described in the Nest Box Monitoring Report – Spring 2024 (Arcadis, 2024).

A total of 11 nest boxes (#56, #85, #99, #106, #146, #165, #168, #169, #170, #235 and one unnumbered box in Georges River corridor) were unable to be reached using a pole-mounted camera. Three damaged nestboxes were also unable to be reached (#163, #164 and one unnumbered box in Georges River Corridor).

Issues with nest boxes that may put fauna at risk cannot be identified if boxes are unable to be inspected.

Nest box annual monitoring report



Plate 4: Examples of nest boxes with management issues – fallen nest box (left), nest box with full sun exposure (right)

Nest box annual monitoring report

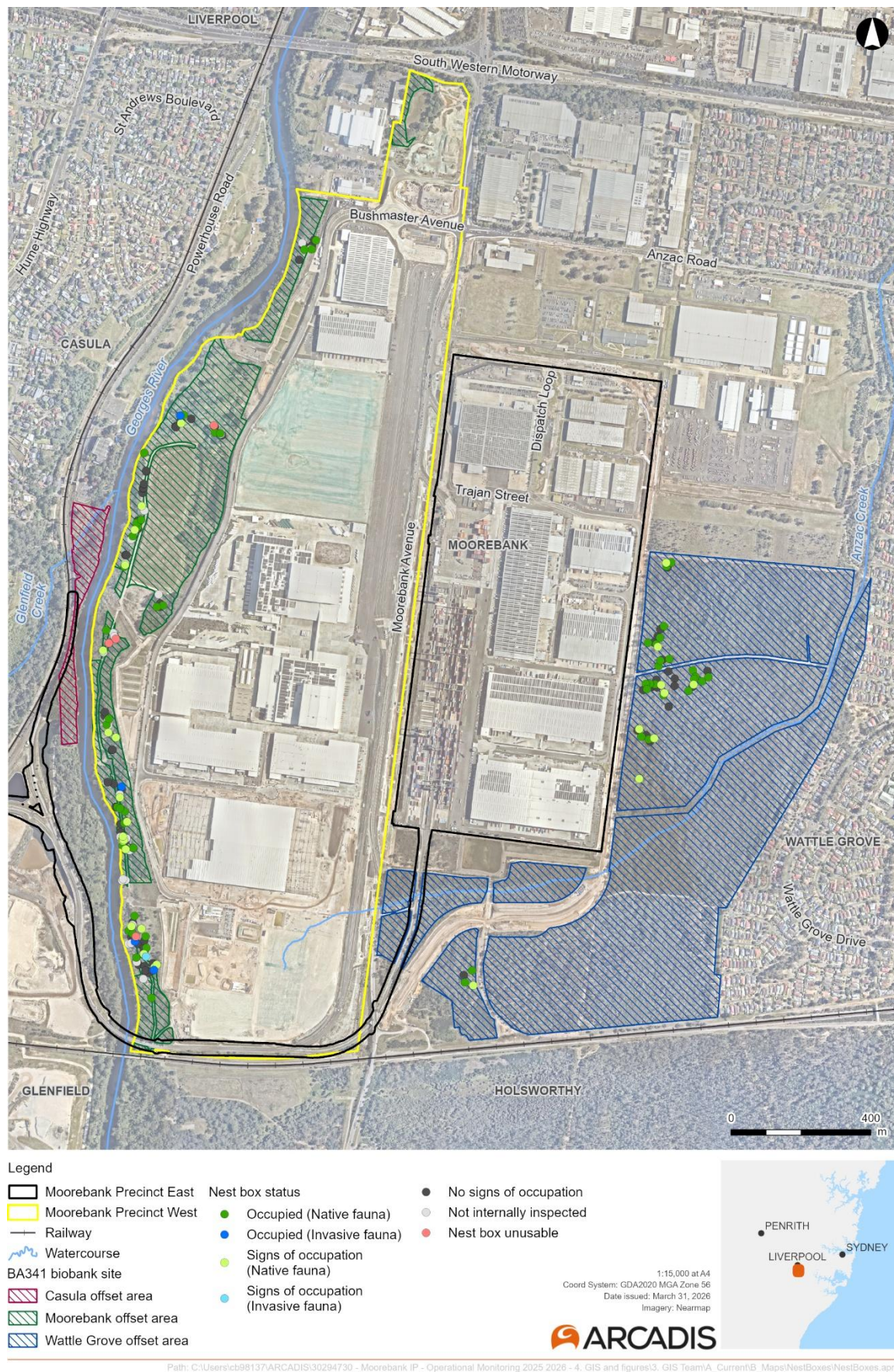


Figure 1: Results of the 2025 nest boxes monitoring survey

Discussion and recommendations

Native fauna

Comparison of nest box occupancy by native fauna can be made between different monitoring periods, given the occurrence of live animals is independent during each monitoring period. A summary of nest box occupation rates for all spring monitoring events conducted to date is included in Table 6.

Table 6: Occupation of nest boxes by fauna for annual survey periods

Survey year	Survey area	Number of nest boxes	Occupied by native fauna
2018	Bootland	52	(4) 7%
	Georges River corridor	195	(23) 12%
	Total	247	(27) 11%
2019	Bootland	54	(5) 9%
	Georges River corridor	199	(31) 16%
	Total	253	(36) 14%
2020	Bootland	52	(16) 31%
	Georges River corridor	161	(31) 19%
	Total	213	(47) 22%
2021	Bootland	51	(14) 27%
	Georges River corridor	178	(54) 30%
	Total	229	(68) 30%
2022	Bootland	51	(17) 33%
	Georges River	174	(51) 35%
	Total	225	(68) 35%
2023	Bootland	49	(29) 59%
	Georges River	161	(32) 20%
	Total	214	(61) 29%
2024	Bootland	53	(11) 21%
	Georges River	160	(41) 26%
	Total	213	(52) 24%
2025	Bootland	52	(24) 46%
	Georges River	156	(32) 21%
	Total	208	(56) 27%

A comparison between annual spring monitoring periods from 2018-2022 indicates a steady increase in the occupation of nest boxes by native fauna but a decline from 2022-2024 (Figure 2). In the 2018 monitoring event, 11 per cent of nest boxes were occupied, which had increased to a 35 per cent rate of occupation in 2022 but decreased to 24 per cent in the 2024 survey period. The 2025 monitoring event saw an increase in native occupation across both the Bootland and the Georges River Corridor.

Nest box annual monitoring report

Overall, there has been a three per cent increase in the occupation of nest boxes by native fauna across both offset sites during the 2025 monitoring period. The Bootland showed a large increase from 21 per cent to 46 per cent occupation of nest boxes by native fauna between the 2024 and 2025 monitoring periods, while Georges River had a small decrease from 26 per cent to 21 per cent occupation by native fauna between the same monitoring periods.

The variability in the data likely reflects a variety of processes including changes in species composition, seasonal patterns of behaviour and temporal variation of nest box use.

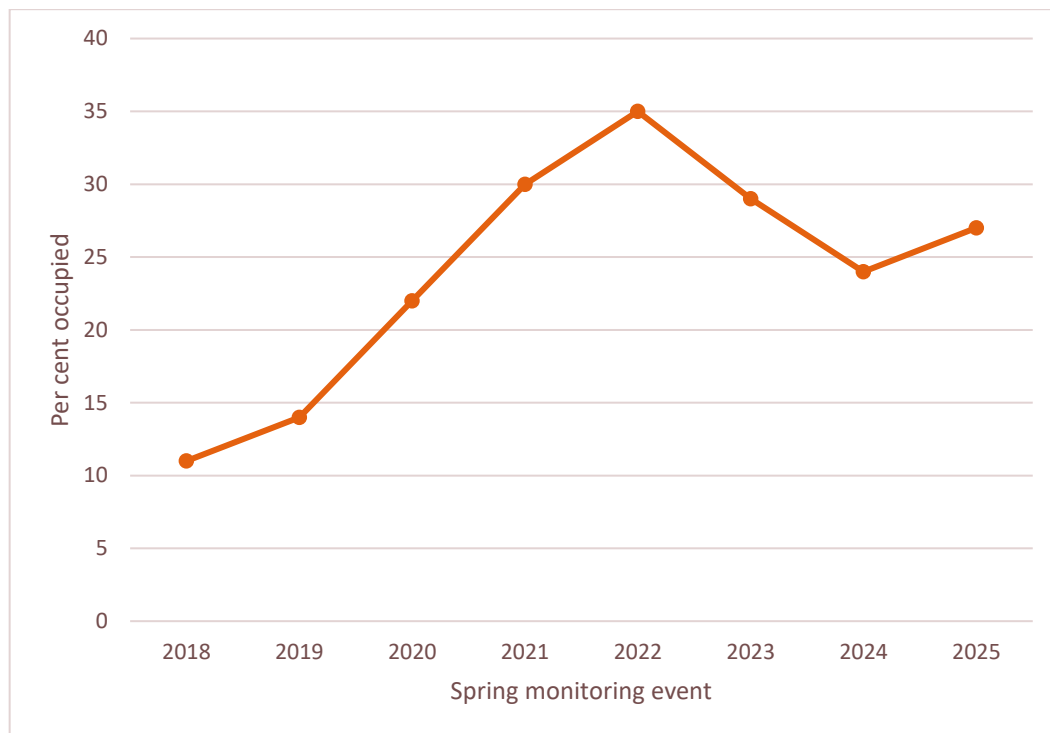


Figure 2: Occupancy rate of nest boxes by native fauna for spring monitoring events between 2018 and 2025

Comparisons of utilisation between monitoring periods are not reliable, given some evidence of occupation may still be present from previous survey years. Combining occupancy status with evidence of use does provide a cumulative measure of nest box utilisation over time. The rate of utilisation by native fauna for all nest boxes has increased from 33 per cent in 2018 to 52 per cent in 2022 but decreased to 42 per cent in 2025 (Table 7).

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Table 7: Utilisation of nest boxes within the survey area across each survey year.

Survey year	Survey area	Number of nest boxes	Utilisation by native fauna	Utilisation by invasive fauna
2018	Bootland	52	(5) 9.6%	(3) 6%
	Georges River corridor	195	(65) 33%	(5) 2.5%
	Total	247	(70) 28%	(8) 3.2%
2019	Bootland	54	(21) 39%	(2) 3.7%
	Georges River corridor	199	(60) 30%	(6) 3%
	Total	253	(81) 32%	(8) 3%
2020	Bootland	52	(28) 53.8%	(1) 2%
	Georges River corridor	161	(71) 44%	(7) 4%
	Total	213	(99) 46%	(8) 4%
2021	Bootland	51	(28) 55%	(0) 0%
	Georges River corridor	178	(109) 61%	(10) 5.6%
	Total	229	(131) 57%	(10) 4.4%
2022	Bootland	51	(31) 61%	(1) 2%
	Georges River corridor	174	(86) 49.4%	(7) 4%
	Total	225	(117) 52%	(8) 3.5%
2023	Bootland	49	(31) 63%	(0) 0%
	Georges River corridor	161	(72) 45%	(10) 6%
	Total	214	(102) 48%	(10) 5%
2024	Bootland	53	(31) 59%	(2) 6%
	Georges River corridor	160	(68) 43%	(11) 7%
	Total	213	(99) 47%	(13) 6%
2025	Bootland	52	(33) 63%	(0) 0%
	Georges River corridor	156	(54) 35%	(5) 3%
	Total	208	(87) 42%	(5) 2%

While there is still a 14 per cent increase in the total number of nest boxes with signs of use by native fauna since 2018, noting that nest boxes may show signs of occupation from previous years, utilisation by native fauna has been slowly decreasing since 2021, from 57 per cent to 42 per cent in 2025. The steady decrease may be linked to ongoing maintenance works (including repair, reinstallation and relocation of nest boxes), which commenced in 2022. During maintenance works, signs of native fauna occupation accumulated over previous years may be lost resulting in lower occupancy rates than those recorded prior to 2022.

Monitoring utilisation over time may provide useful insights into nest box preferences of local hollow-dependent fauna. As annual monitoring continues, nest boxes showing no signs of use can be assessed to determine if design modifications or reinstallation into a more appropriate area may be needed to increase the likelihood of utilisation. During the 2023 spring survey, Nest boxes #8, #87, #150 and #253 recorded no utilisation and therefore, were recommended be relocated to more desirable habitat during the next maintenance works. These maintenance actions were not carried out, however, in the 2024 surveys, nest box #150 and #253 were recorded as having evidence of use. The remaining two nest boxes #8 and #87 are still

recommended for relocation. Additionally, nest box #153 has recorded no occupation between 2020 and 2025 and as such is recommended for relocation.

Overall, nest box occupancy and utilisation by native fauna are considered adequate if occupancy rates are greater than 10 per cent (Goldingay et al. 2018, Lindenmayer et al. 2017). As the occupancy rates for native fauna in both the Bootland and the Georges River corridor are 46 per cent and 21 per cent respectively, the levels of occupancy and utilisation are considered adequate.

Invasive fauna

A comparison of the nest boxes utilised by invasive fauna across all monitoring events identified that:

- The 2024 monitoring event had the highest rate of utilisation by invasive fauna at six per cent.
- The 2025 monitoring event had the lowest invasive nest box utilisation rate of two per cent.

The overall nest box occupancy by invasive species between installation in 2018 and monitoring in 2025 is considered low and similar across annual monitoring periods. Nest box utilisation by invasive fauna should continue to be recorded and compared across monitoring periods to assess competition pressure from invasive fauna on native hollow-dependent species. The current rates of utilisation by invasive fauna are unlikely to negatively impact native species in the area. No new invasive species were identified in the 2025 survey period, with all invasive species observed in previous monitoring years.

Nest box management and maintenance

Currently, there are 208 recorded nest boxes across the Bootland and Georges River corridor. Of these, 26 nest boxes are broken or have fallen from the tree and are unable to be used by local fauna, meaning the number of functional boxes providing suitable habitat for native hollow-dependant fauna species is 182. One additional nest box may be considered to be not functional due to low sun protection resulting in fauna mortality.

A total of 52 nest boxes were identified as requiring maintenance actions during the spring 2025 survey period, including the 26 nest boxes (and the one additional sun exposed nestbox) that are no longer considered functional. In assessing the condition of nest boxes during monitoring, some nest boxes identified as requiring maintenance are still considered to be functional to fauna. Nest boxes with management issues that were still considered functional to fauna were those that have been:

- Identified as being unstable on the tree, but not at immediate risk of falling.
- Unable to be internally inspected during the 2025 surveys due to overgrown vegetation restricting access.
- Installed on a dead tree, but in otherwise good condition (restricts from access).
- Installed at a height below 3 metres.
- Nest box has no evidence of use since 2018 monitoring period.

Table 8 summarises nest boxes identified as requiring maintenance action. Maintenance works have been undertaken in March 2022, May 2023 and June 2024 to repair and reinstall nest boxes across the site, however, the number of failing nest boxes continues to increase annually as the boxes approach the end of their expected lifespan.

As per the AHMS, the replacement and/or decommissioning of nest boxes would occur over the next five to 10 years, only as existing boxes requires replacement or decommissioning. Nest boxes considered no longer functional (refer to Table 8) should be decommissioned and not replaced until the number of nest boxes reduces to 108. Nest boxes requiring maintenance but considered functional to fauna would remain in place and continue to be monitored.

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Due to the increasing number of failing nest boxes, it is recommended that the installation of alternative artificial hollows be considered for future maintenance works, such as chainsaw hollows or mechanically bored hollows inside large eucalypts. Carved hollows built into trees generally require less maintenance than nest boxes and may be preferable to fauna due to better temperature regulation (Terry et al. 2023). Rather than continually repairing already degraded nest boxes within the offset site, Arcadis recommends the installation of new hollows to meet the 1:1 hollow replacement ratio as required under the AHMS. The Moorebank offset sites has an abundance large Eucalypts and stags which would be suitable for the installation of carved hollows.

For the nest boxes identified as requiring non-urgent maintenance action, it is recommended that the condition of these nest boxes be reassessed in spring 2026 for risk to fauna and changes to functionality. The following nest boxes pose a risk to fauna and have been flagged for urgent maintenance this year:

- Nest boxes #58 and #136 showed evidence of waterlogging and present a drowning risk to fauna.
- Nest box #3 located on tree with no shade cover.

Table 8: Summary of issues of nest boxes found within the survey area and maintenance actions

Issue	Box ID Number	Action Recommended	Urgency
Damaged box (potential hazard to fauna)	58, 136	Decommission nest box	Urgent
Box on tree with no shade cover	3	Decommission nest box	Urgent
Damaged box	59, 62, 67, 79, 83, 91, 103, 115, 117, 148, 159, 162, 163, 164, 175, 194, 195, 212, 220, No ID	Decommission nest box	Non-urgent
Installed above 10 metres in height and unable to be internally inspected	56, 85, 99, 106, 146, 163*, 164*, 165, 168, 169, 170, 235, No ID, No ID*	Reinstall box at appropriate height	Non-urgent
Box fallen from tree	72, 86, 207, No ID	Remove fallen box	Non-urgent
Unstable on tree	105, 146	Reinstall box securely on tree at appropriate height	Non-urgent
Box inaccessible due to overgrown vegetation	192, 197, 198, 243, 244, 249, No ID	Remove exotic species blocking tree access	Non-urgent
Installed below 3 metres in height	52, 92	Reinstall box at appropriate height	Non-urgent
Nest box shows no evidence of use in 5-year period	8, 87, 153	Relocate nest box to higher quality habitat and/or more appropriate position on tree	Non-urgent

* Nestbox also identified as damaged box

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APPENDIX A. NEST BOXES REQUIRING MAINTENANCE

Box Location	Box ID	Box Condition	Action Required
Bootland	3	Sun exposure	Decommission box
Bootland	8	No evidence of use	Consider relocation to a different area of habitat
Georges River Corridor	52	Box height	Reinstall higher on tree
Georges River Corridor	56	Box height	Reinstall lower on tree
Georges River Corridor	58	Damaged box	Decommission box
Georges River Corridor	59	Damaged box	Decommission box
Georges River Corridor	62	Damaged box	Decommission box
Georges River Corridor	67	Damaged box	Decommission box
Georges River Corridor	72	Fallen box	Decommission box
Georges River Corridor	79	Damaged box	Decommission box
Georges River Corridor	83	Damaged box	Decommission box
Georges River Corridor	85	Box height	Reinstall lower on tree
Georges River Corridor	86	Fallen box	Decommission box
Georges River Corridor	87	No evidence of use	Consider relocation to a different area of habitat
Georges River Corridor	91	Damaged box	Decommission box
Georges River Corridor	92	Box height	Reinstall higher on tree
Georges River Corridor	99	Box height	Reinstall lower on tree
Georges River Corridor	103	Damaged box	Decommission box
Georges River Corridor	105	Unstable on tree	Reinstall box to be securely attached to tree
Georges River Corridor	106	Box height	Reinstall lower on tree
Georges River Corridor	115	Damaged box	Decommission box
Georges River Corridor	117	Damaged box	Decommission box
Georges River Corridor	136	Damaged box	Decommission box
Georges River Corridor	146	Box height, unstable on tree	Reinstall lower on tree and securely attach to tree
Georges River Corridor	148	Damaged box	Decommission box
Georges River Corridor	153	No evidence of use	Consider relocation to a different area of habitat
Georges River Corridor	159	Damaged box	Decommission box
Georges River Corridor	162	Damaged box	Decommission box
Georges River Corridor	163	Damaged box, Box height	Decommission box
Georges River Corridor	164	Damaged box, Box height	Decommission box
Georges River Corridor	165	Box height	Reinstall lower on tree

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Box Location	Box ID	Box Condition	Action Required
Georges River Corridor	168	Box height	Reinstall lower on tree
Georges River Corridor	169	Box height	Reinstall lower on tree
Georges River Corridor	170	Box height	Reinstall lower on tree
Georges River Corridor	175	Damaged box	Decommission box
Georges River Corridor	192	Box inaccessible	Weed control - remove Lantana blocking tree access
Georges River Corridor	194	Damaged box	Decommission box
Georges River Corridor	195	Damaged box	Decommission box
Georges River Corridor	197	Box inaccessible	Weed control - remove Lantana blocking tree access
Georges River Corridor	198	Box inaccessible	Weed control - remove Lantana blocking tree access
Georges River Corridor	207	Fallen box	Decommission box
Georges River Corridor	212	Damaged box	Decommission box
Georges River Corridor	220	Damaged box	Decommission box
Georges River Corridor	235	Box height	Reinstall lower on tree
Georges River Corridor	243	Box inaccessible	Weed control - remove Lantana blocking tree access
Georges River Corridor	244	Box inaccessible	Weed control - remove Lantana blocking tree access
Georges River Corridor	249	Box inaccessible	Weed control - remove Lantana blocking tree access
Georges River Corridor	No ID	Damaged box	Decommission box
Georges River Corridor	No ID	Box height	Reinstall lower on tree
Georges River Corridor	No ID	Box height	Reinstall lower on tree
Georges River Corridor	No ID	Fallen box	Decommission box
Georges River Corridor	No ID	Box inaccessible	Weed control - remove Lantana blocking tree access

APPENDIX B. FAUNA RECORDED IN NEST BOXES

Location	Box ID	Box Type	Species	Notes
Bootland	3	Medium mammal/small parrot		Ring Tail possum
Bootland	4	Medium mammal/small parrot	Owlet Nightjar	Nesting
Bootland	10	Medium mammal/small parrot	Wood duck	Nesting
Bootland	12		Green tree frog	
Bootland	13	Glider	Sugar gliders	Family of sugar gliders
Bootland	15	Medium mammal/small parrot	RTP	
Bootland	17	Medium mammal/small parrot	Wood duck	Nesting
Bootland	23	Glider	Sugar Glider	
Bootland	24	Large bird	Rainbow Lorikeet	Eggs likely lorikeet
Bootland	25	Glider	Sugar Glider, Green Tree Frog	Sugar glider nesting material only, gtf present
Bootland	28	Large bird	Owlet nightjar	
Bootland	30	Glider	Sugar glider	
Bootland	32	Medium mammal/small parrot	RTP	
Bootland	33	Medium mammal/small parrot	Lorikeet	1 baby lorikeet. Coloured feathers
Bootland	35	Glider	Sugar glider	
Bootland	38	Medium mammal/small parrot	Ring tail Possum	Two RTP
Bootland	39	Glider	Green tree frog	Two GTF
Bootland	42	Glider	Sugar glider	Family if sugar gliders
Bootland	44	Medium mammal/small parrot	Night owlet	Stick nest
Bootland	45	Medium mammal/small parrot	RTP	
Bootland	48	Medium mammal/small parrot	Lorikeet	Two baby lorikeets
Georges River Corridor	55	Medium mammal/small parrot	Common Ringtail Possum x1	
Georges River Corridor	66	Medium mammal/small parrot	Common Ringtail Possum	X2
Georges River Corridor	69	Microbat	Sugar Glider	X1 seen in thick nest
Georges River Corridor	70	Medium mammal/small parrot	Common Ringtail Possum	
Georges River Corridor	74	Medium mammal/small parrot	Ringtail possum x1	
Georges River Corridor	84	Glider	Bees	
Georges River Corridor	88	Medium mammal/small parrot	Rainbow Lorikeet	X2 Seen inside box

Nest box annual monitoring report

Location	Box ID	Box Type	Species	Notes
Georges River Corridor	89	Medium mammal/small parrot	Rainbow Lorikeet	X2 Seen in the nest box
Georges River Corridor	93	Medium mammal/small parrot	Common Ringtail Possum	2
Georges River Corridor	98	Glider	Sign of movement	Lots of fresh leaf litter rat?
Georges River Corridor	99	Medium mammal/small parrot	Rainbow Lorikeet	X2 chicks
Georges River Corridor	107	Medium mammal/small parrot	Rainbow Lorikeet	2 x chicks
Georges River Corridor	109	Medium mammal/small parrot	Rainbow Lorikeet	2 x rainbow lorikeet chicks
Georges River Corridor	111	Glider	Sugar Glider	Fresh nest
Georges River Corridor	112	Glider	European Honeybee	Fixed lid
Georges River Corridor	122	Glider	Black Rat	X1
Georges River Corridor	133	Medium mammal/small parrot	Common Ringtail Possum	
Georges River Corridor	139	Medium mammal/small parrot	Lorikeet	Fledgling
Georges River Corridor	144	Medium mammal/small parrot	Rainbow Lorikeet	
Georges River Corridor	148	Medium mammal/small parrot	Unidentified bird	Eggs in pile of feathers
Georges River Corridor	154	Glider	Rainbow Lorikeet	X2 eggs
Georges River Corridor	166	Medium mammal/small parrot	Common Ringtail Possum	X1
Bootland	173	Medium mammal/small parrot	Possum spcs	
Georges River Corridor	174	Medium mammal/small parrot	Common Ringtail Possum	X1
Georges River Corridor	193	Large bird	Sulphur-crested Cockatoo	Occupied nesting
Georges River Corridor	199	Medium mammal/small parrot	Common Ringtail Possum	
Georges River Corridor	202	Medium mammal/small parrot	Wood duck nest?	2x eggs
Georges River Corridor	208	Medium mammal/small parrot	Rat?	Leaf litter and rubbish
Georges River Corridor	213	Glider	Sugar Glider	X4
Georges River Corridor	216	Medium mammal/small parrot	Bird	Two eggs
Georges River Corridor	219	Medium mammal/small parrot	3x eggs	
Georges River Corridor	227	Glider	Bee hive	
Georges River Corridor	234	Medium mammal/small parrot	Ring Tail Possum	
Georges River Corridor	236	Glider	Sugar glider	Family of SG
Georges River Corridor	237	Medium mammal/small parrot	Ring tail Possum	
Bootland	247	Medium mammal/small parrot	Owlet nightjar	Nesting
Georges River Corridor	No ID	Medium mammal/small parrot	Ringtail possum	
Georges River Corridor	No ID		Beehive	

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Location	Box ID	Box Type	Species	Notes
Bootland	No ID	Medium mammal/small parrot	Owlet nightjar and eggs	Owlet nightjar observed. Two types of eggs present (potential wood duck and lorikeet)
Georges River Corridor	No ID	Glider	Sugar glider	Sugar glider x5
Georges River Corridor	No ID	Medium mammal/small parrot	Common Ringtail Possum	
Georges River Corridor	No ID	Medium mammal/small parrot	Rainbow Lorikeet	Eggs in box