Year 3 Evaluation

Wetlands Report

Dundonnell Brolga Compensation Plan

9 December 2023

ODONATA FOUNDATION

Greening Australia

Purpose of this document

To provide the Year 3 wetland monitoring report as required by the endorsed Dundonnell Wind Farm Brolga Compensation Plan (BCP), under Condition 55b of Planning Permit No. 2015/23858.

As specified by the BCP the Proponent has engaged an external delivery partner to implement the Plan on its behalf. Odonata Foundation is the delivery partner and is a not-for-profit (NFP), charitable entity, whose primary purpose is to benefit the natural environment.

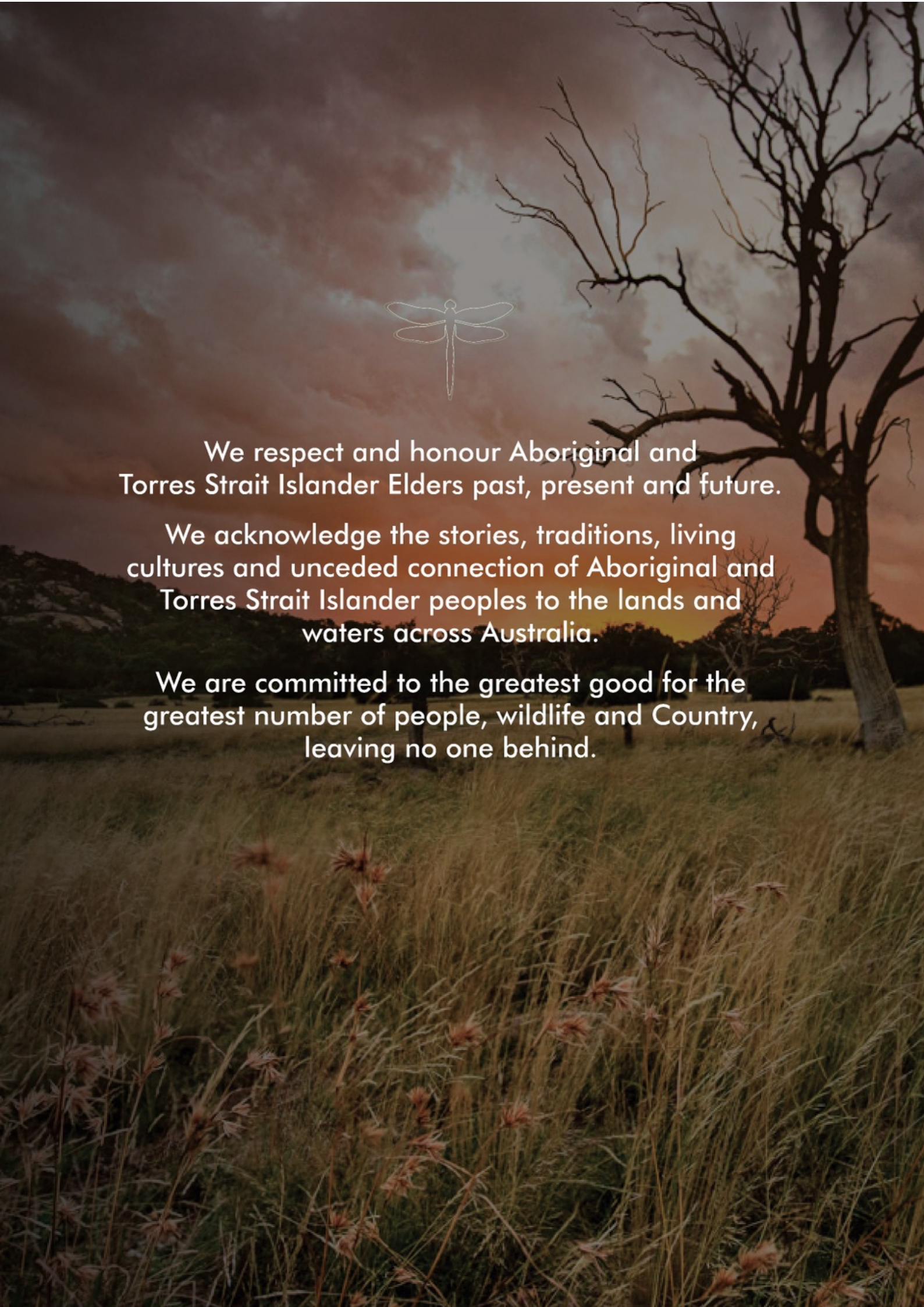
Odonata Foundation have partnered with Greening Australia (NFP) to oversee the on-ground restoration works and support with delivery.

This report has been prepared within 1 month from the conclusion of Year 3 (December 9 2023) as required by the BCP.

Reporting requirements

As outlined in the BCP, annual wetland evaluation reporting is to occur from monitoring undertaken at each wetland. The Year 3 Evaluation Wetland Report includes;

1. (Section 1) A summary of results of the wetland monitoring (across all wetlands) (BCP Table 5 and 6);
2. (Section 2) An evaluation of each wetland against the performance targets, including an evaluation of the effectiveness of the wetland management measures (BCP Table 7); and
3. (Section 3) Recommendations on the implementation of contingency measures (e.g. adaptive management).



We respect and honour Aboriginal and Torres Strait Islander Elders past, present and future.

We acknowledge the stories, traditions, living cultures and unceded connection of Aboriginal and Torres Strait Islander peoples to the lands and waters across Australia.

We are committed to the greatest good for the greatest number of people, wildlife and Country, leaving no one behind.

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Section 1: Wetland Summary Details

Section 1: Wetland Management Plan Measure Summary

This table summarises the actions completed in Year 3 as detailed in the four wetland management plans

Site ID	Management Action Description	Timing in Management Plan	Completed / Started / Delayed	Target to be achieved
Fencing				
DUN-BCP-001	Temporary electric fence established to allow grazing of *Phalaris* on outer area of wetland.	3rd May 2023 – 27th June 2023		DUN-BCP-001 wetland had high growth of *Phalaris,* a temporary electric fence has been installed around the outer perimeter of the wetland where the Phalaris was thick. Stock have been allowed to graze from May to June to reduce Phalaris growth. Stock were excluded from the middle basin area and were moved away prior to the Brolga breeding season.
DUN-BCP-002 DUN-BCP-003 DUN-BCP-004	Livestock excluded for the entire period		Completed	DUN-BCP-002 – No livestock DUN-BCP-003 – No livestock DUN-BCP-004 – No livestock
Herbaceous Weeds				
DUN-BCP-001 DUN-BCP-002 DUN-BCP-003 DUN-BCP-004	Control high threat weeds using chemical application of spot spraying	December 2023	DUN-BCP-001 - Started DUN-BCP-002 - Started DUN-BCP-003 - Started DUN-BCP-004 - Started	Control of high threat herbaceous weeds. DUN-BCP-001 – control *Phalaris* through grazing and selective herbicide spraying in 2024. DUN-BCP-002 – Control *Phalaris* and Thistles through herbicide spraying in 2024. DUN-BCP-003 – Spot spraying of *Phalaris* and Thistles in 2024. DUN-BCP-004 – Site has high biomass of native vegetation across the wetland, outcompeting exotics. No action required.
Pest Animals				
DUN-BCP-001 DUN-BCP-002 DUN-BCP-003 DUN-BCP-004	Reactive to fox sightings - 8-week integrated program in consultation with Agriculture Victoria	Only if required		Reduce fox predation on Brolga's through a targeted program implemented with landholders outside of Brolga breeding season if required. DUN-BCP-001 – 20 foxes shot

Site ID	Management Action Description	Timing in Management Plan	Completed / Started / Delayed	Target to be achieved
				DUN-BCP-002 – 0 foxes shot DUN-BCP-003 – 2 foxes shot DUN-BCP-004 – 5 foxes shot
Supplementary Planting				
DUN-BCP-001 DUN-BCP-002 DUN-BCP-003 DUN-BCP-004	Natural regeneration to occur through exclusion of stock.	Ongoing	Stock excluded from sites	Performance target (BCP Table 7 p.18) a) 80% or greater aquatic vegetation cover over 40% of the wetland basin within two fillings. Aquatic Native Vegetation (including grasses, sedges, rushes, forbs) percent wetland basin coverage Year 2: DUN-BCP-001 – 82% DUN-BCP-002 – 91% DUN-BCP-003 - 80% DUN-BCP-004 – 63% (the wetland still had coverage of water of 29% across the basin, aquatic vegetation delayed in growth due to extended time underwater).
Hydrology				
DUN-BCP-001 DUN-BCP-002 DUN-BCP-003 DUN-BCP-004	Sandbag blocks in drain checked.	Completed	Completed	DUN-BCP-001 – Year 2 Geofrabric sandbag block constructed, structure holding well. DUN-BCP-002 – Geofabric sandbags lined on the inside of the drain block March 2023 to reduce water tunnelling through rocks. DUN-BCP-003 – Geofabric sandbags added May 2023. The sandbag block is in neighbouring paddock with sheep using the structure as a crossing. Clay capping to be added March 2024. DUN-BCP-004 – Geofabric sandbags holding up well, no modifications needed.
Annual reporting				
DUN-BCP-001 DUN-BCP-002 DUN-BCP-003 DUN-BCP-004	Undertake Year 3 monitoring and reporting	December 9th 2023	Completed (completed monitoring timetable in Appendix 1)	Report completed

Photo. DUN001 – Wetland 15th December 2022 with Brolga

DUN-BCP-001(Caramut)

Wetland Area (Fenced):	33ha
Wetland Vegetation Type:	Temporary freshwater marshes and meadow
Wetland currently supports:	EVC mapped (NatureKit) and on-ground assessment EVC 125 Plains Grassy Wetland (VVP).

Report Year 2 concluded on November 3rd 2022, this report (Year 3) provides data collected from the 15th of November 2022 until February 2023, as well as the 2023 breeding season from the 7th of July 2023 to November 2023.

Wetland vegetation recovery has been assessed annually (Year 1 December 2021, Year 2 December 2022 and Year 3, scheduled for December 2023) using the Decision Support Tool V1.0 (Roberts et al. 2017) (Appendix 1) and four permanent 120m transect lines to assist with informing percentage coverage of aquatic vegetation within the wetland basin. The performance target (Table 7 BCP p. 18) at the end of the second wetland filling target is '80% or greater aquatic vegetation cover over 40% of the wetland basin.' The vegetation was surveyed on the 28th of February 2023 with native grasses, sedges, rushes and forbs covering 82%. Genera recorded include *Eleocharis*, *Asperula*, *Ranunculus*, *Juncus, Amphibromus, Rytidosperma,* and *Triglochin*. A list of all completed monitoring undertaken at the wetland is recorded in Appendix 2 with vegetation monitoring results in Appendix 3.

A list of all recorded Brolga's at the wetland is in Appendix 4. During fortnightly monitoring Greening Australia staff noticed a pair of Brolga at the wetland on the 28th of November 2022. The landholder noted seeing the pair at the wetland approximately one week prior. On December 12th one Brolga was seen at the wetland walking out of Phalaris tussocks, the landholder also confirmed the pair were still at the wetland prior to our site visit for monitoring. On the 29th of

December 2022 during monitoring the Brolga pair were absent and didn't return. No Brolgas have been recorded on the remote camera.

Water depth monitoring was unable to be undertaken from the 28th of November 2022 until the 29th of December 2022 with Brolga present and presumed nesting in a patch of *Phalaris*, although unable to confirm due to lack of visibility through the *Phalaris* tussocks. Brolgas were absent on December 29th 2022 at the next monitoring check.

The BCP wetland performance target is to re-establish the required inundation regime of a minimum of 30cm inundation of 75% or more of the wetland basin for more than a full Brolga breeding event. Water extent during November and December 2022 was at 52% at or over 30cm depth, equating to 18ha of the wetland basin. A pair of Brolgas were recorded within the wetland during November and December 2022. The 2023 breeding season (July-November) had water coverage over 63% of the basin, 7% at 30cm or above, see Appendix 5 for a full list of depth post records. The wetland extent was recorded by walking around the entire wetland and tracking marks through a handheld GPS (Appendix 6) this was then used with the Digital Terrain Model (DST-Lidar) to provide an assessment of the percent coverage of water at or above 30cm within the water depth and duration map in Appendix 7. Due to Brolgas present in November and December minimal depth marker were noted this has caused the mapping to note accurately reflect water depth coverage for these months.

No foxes were recorded on the remote camera and the landholder has undertaken fox control through a shooting program, with 20 foxes shot.

Photo. December 2022 *Phalaris* dieback from water inundation levels, S*tellaria angustifolia* (Swamp Starwort)

Photo. December 2022 *Phalaris* dieback and *Glyceria* australis (Australian Sweet-grass)

Photo. October 2023 channel area with a mix of native aquatic vegetation *Juncus*, *Eleocharis and Ranunculus species*

Photo. DUN002 Wetland 28th November 2022 with *Eleocharis acuta* (Common Spike-sedge) dominant in the foreground.

DUN-BCP-002 (Cross Roads)

Wetland Area (Fenced):	7.77ha
Wetland Vegetation Type:	Temporary freshwater marshes and meadow
Wetland currently supports:	EVC mapped (NatureKit) EVC 647 Sedgy Wetland (VVP). On-ground assessment EVC 125 Plains Grassy Wetland

Report Year 2 concluded on November 3rd 2022, this report (Year 3) provides data collected from the 15th of November 2022 until February 2023, as well as the 2023 breeding season from the 7th of July 2023 to November 2023.

Wetland vegetation recovery has been assessed annually (Year 1 December 2021, Year 2 December 2022 and Year 3, scheduled for December 2023) using the Decision Support Tool V1.0 (Roberts et al. 2017) (Appendix 1) and four permanent 120m transect lines to assist with informing percentage coverage of aquatic vegetation within the wetland basin. The performance target (Table 7 BCP p. 18) at the end of the second wetland filling target is '80% or greater aquatic vegetation cover over 40% of the wetland basin.' The vegetation assessment was carried out on the 20th of March 2023 with native aquatic grasses, sedges, rushes, forbs coverage at 91%. The dominant native aquatic Genera were *Eleocharis*, *Juncus*, *Poa and Glyceria)*.

A list of all completed monitoring undertaken at the wetland is recorded in Appendix 2 with vegetation monitoring results in Appendix 3.

All recorded Brolga's at the wetland listed in Appendix 4, with a pair of Brolga captured on remote camera flying into the wetland on the 2nd of December 2022. Greening Australia recorded three Brolga's on the 5th of September 2023 with two adult and a juvenile feeding in the wetland.

The depth marker posts in November and December 2022 recorded depths greater than 30cm with 96.49% coverage of 30cm or greater across the wetland on the 16th November 2022, dropping to 48.54% on the 15th of December 2022. Recordings finished in February 2023 with water

occurring just outside the drain area. From July to November 2023 water depths were only recorded in the drain, with very small percentage above 30cm. Water depth post records are listed in Appendix 5. The wetland extent was recorded by walking around the entire wetland and tracking marks through a handheld GPS (Appendix 6) this was then used with the Digital Terrain Model (DST-Lidar) to provide an assessment of the percent coverage of water at or above 30cm within the water depth and duration map in Appendix 7.

No foxes were recorded during site visits or on the remote camera. The landholder conducted a shooting program in June 2023, no foxes were shot or seen at the wetland.

Photo. Three Brolgas captured through the scope 5th September 2023

Photo. July 2023 with water in the drain, browning of *Eleocharis* across the site.

Photo. DUN003 Pair of Brolga on the remote camera (04/09/2023)

DUN-BCP-003 (Woorndoo)

Wetland Area (Fenced): 18ha

Wetland Vegetation Type: Temporary freshwater lakes

Wetland currently supports: EVC mapped (NatureKit) an on-ground assessment EVC 691 Aquatic Herbland / Plains Sedgy Wetland Mosaic (VVP)

Report Year 2 concluded on November 3rd 2022, this report (Year 3) provides data collected from the 15th of November 2022 until February 2023, as well as the 2023 breeding season from the 7th of July 2023 to November 2023.

Wetland vegetation recovery has been assessed annually (Year 1 December 2021, Year 2 December 2022 and Year 3, scheduled for December 2023) using the Decision Support Tool V1.0 (Roberts et al. 2017) (Appendix 1) and four permanent 120m transect lines to assist with informing percentage coverage of aquatic vegetation within the wetland basin. The performance target (Table 7 BCP p. 18) at the end of the second wetland filling target is '80% or greater aquatic vegetation cover over 40% of the wetland basin.' The vegetation was surveyed on the 7th of March 2023 with aquatic native grasses, sedges, rushes and forbs covering 80%. Genera recorded include *Eleocharis*, *Ranunculus*, *Juncus, Myriophyllum*, *Potamogeton and Glyceria.*

A list of all completed monitoring undertaken at the wetland is recorded in Appendix 2 with vegetation monitoring results in Appendix 3.

The BCP wetland performance target is to re-establish the required inundation regime of a minimum of 30cm inundation of 75% or more of the wetland basin for more than a full Brolga breeding event. Water coverage on the15th of November 2022 was 77.76% and for the 28th of November 2022 was 81.22% at or above 30cm, approximately 15ha of the wetland. From the 12th of December 2022 depth points and extent were not monitored due to nesting Brolga. The 2023

breeding season (July – November 2023) had water at or above 30cm around 35% of the basin in July and August. All water depth post monitoring is listed in Appendix 5.

The Brolga's were monitored fortnightly as per the BCP until the 24th of January 2023 when the Brolga's appeared absent but flew in when starting to monitor the site. The following fortnight on the 7th of February the Brolga's were not recorded at the wetland. All records of Brolga's onsite through field visits and remote camera capture are recorded in Appendix 4.

The wetland extent was recorded by walking around the entire wetland and tracking marks through a handheld GPS (Appendix 6) this was then used with the Digital Terrain Model (DST-Lidar) to provide an assessment of the percent coverage of water at or above 30cm within the water depth and duration map in Appendix 7.

There were multiple photos of a fox recorded on the remote camera during the night and day (nine days in August, eight days in September and eleven days in October). The landholder has undertaken fox control through a shooting program, with two foxes shot during June 2023 prior to the breeding season.

Photo. Pair of Brolgas captured on remote camera 31st of August 2023

Photo. Brolgas captured on remote camera capture 4th of September 2023

Photo. *Vulpes vulpes* (Fox) captured on the remote cameras throughout the 2023 monitoring period.

Photo. DUN004 Wetland 13th November 2022 with emergent aquatic native vegetation (*Glyceria australis* Australian Sweet-grass)

DUN-BCP-004 (Westmere)

Wetland Area (Fenced):	29ha
Wetland Vegetation Type:	Temporary freshwater marshes and meadow
Wetland currently supports:	EVC mapped (NatureKit) EVC 647 Plains Sedgy Wetland (VVP). On-ground assessment: EVC 291 Cane Grass Wetland.

Report Year 2 concluded on November 3rd 2022, this report (Year 3) provides data collected from the 15th of November 2022 until February 2023, as well as the 2023 breeding season from the 7th of July 2023 to November 2023.

Wetland vegetation recovery has been assessed annually (Year 1 December 2021, Year 2 December 2022 and Year 3, scheduled for December 2023) using the Decision Support Tool V1.0 (Roberts et al. 2017) (Appendix 1) and four permanent 120m transect lines to assist with informing percentage coverage of aquatic vegetation within the wetland basin. The performance target (Table 7 BCP p. 18) at the end of the second wetland filling target is '80% or greater aquatic vegetation cover over 40% of the wetland basin.' The vegetation was surveyed on the 7th of March 2023 with aquatic native grasses, sedges, rushes and forbs covering 63% with water still covering 29% of the vegetation transects. Species recorded include *Eragrostis infecunda* and Genera of *Eleocharis, Potamogeton*, *Juncus and Glyceria.*

A list of all completed monitoring undertaken at the wetland is recorded in Appendix 2 with vegetation monitoring results in Appendix 3.

There were a pair of Brolga's observed by the landholder on the 7th of March 2023, no other observation were made for the 2023 breeding season although pairs of Brolga's were recorded within neighbouring paddocks. All records of Brolga's onsite through field visits and remote camera capture are recorded in Appendix 4.

The BCP wetland performance target is to re-establish the required inundation regime of a minimum of 30cm inundation of 75% or more of the wetland basin for more than a full Brolga breeding event. Water coverage for the 28th of November 2022 was at 83.72% (25.45ha) of 30cm or more across the wetland. By the end of December 2022 the 30cm or greater coverage occurred across 20% of the wetland, dropping to 11% (3.3ha) in February 2023. In the 2023 breeding season (July-November) water coverage remained low at 5.86% (1.78ha) coverage of 30cm depth. Water depth posts are recorded in Appendix 5.

The wetland extent was recorded by walking around the entire wetland and tracking marks through a handheld GPS (Appendix 6) this was then used with the Digital Terrain Model (DST-Lidar) to provide an assessment of the percent coverage of water at or above 30cm within the water depth and duration map in Appendix 7.

The landholder has undertaken fox control through a shooting program, with one fox shot during May and four foxes shot in June 2023 prior to the Brolga breeding season.

Photo. Native aquatic vegetation across the wetland including a mix of *Glyceria* and *Juncus* (28th November 2022)

Photo. Wetland in July 2023 with *Eragrostis infecunda* (Southern Cane-grass) dominant in the middle section of the wetland.

Table 2. BCP Brolga Utilization and Breeding Monitoring Program Summary

Measure	Method	Timing	Summary
		Year 1 and 2	
Brolga use of the wetland	Observations of the number and age of birds. Observations of evidence of breeding activity, including: - Stage of breeding (i.e. nest building, laying, incubation, parental care, fledging); - The outcomes of breeding attempts; and - Observations on factors that affect breeding activities and outcome (e.g. water level fluctuations, predation, disturbance). If breeding activity is observed, then Breeding Activity Monitoring (as outlines below) will commence). Any Brolga breeding activity will be reported to DELWP to be added annually to the Victorian Biodiversity Atlas (VBA) database administered by DELWP.	Every two months, during breeding season.	Observations were recorded from on-ground monitoring, remote camera footage and landholder observations. All Greening Australia visual sightings and remote camera observations to be recorded in the VBA. Full recorded list is provided in Appendix 5. Brolga nesting was reported in Year 2 September to October in DUN002 and DUN004, both nests were flooded out. Nest monitoring triggered to fortnightly visits from the 28th November 2022 at DUN001 and on the 15th December 2022 at DUN003. Both attempts unsuccessful. Summary of Brolga sightings are: DUN-BCP-001 – Pair of Brolga recorded by landholder 21st November. Greening Australia staff observed pair of Brolga still at the wetland on the 28th of November. Unable to confirm nest. Brolga were sighted until the 29th of December 2022. No Brolgas have been sighted July – November 2023 by Greening Australia staff when out onsite. DUN-BCP-002 - Greening Australia staff spotted three Brolga's, an adult pair and juvenile. One image captured on remote camera of a pair of Brolga's flying into wetland. DUN-BCP-003 – Nest and egg spotted on the 15th December 2022 until the 24th January 2023. A total of seven visual observations by Greening Australia staff of Brolgas within the wetland. Nine images captured on remote camera of Brolgas at the wetland. DUN-BCP-004 – A pair of Brolga seen by the landholder on the 7th of March. No remote camera photos or visual observations by Greening Australia staff.
Breeding Activities	Method	Timing	Summary
Breeding behaviour	Field-based observations of evidence of breeding activity (as per the Utilisation method above).	Fortnightly from first observation of breeding behaviour	DUN-BCP-001 – Nest believed to be within wetland, unable to confirm due to *Phalaris* tussocks. Pair of Brolga recorded from 21st November – 29th December 2022. Fortnightly monitoring occurred during this time. DUN-BCP-003 – Greening Australia staff observed Brolga nest and one egg on the 15th of December. The wetland was monitored fortnightly with the pair of Brolga recorded near or on the nest until the 24th of January 2023. The Brolga were not seen in the wetland but flew in when conducting monitoring on the 24th of January 2023. The biomass was high and unable to see the nest. Attempt unsuccessful no chicks hatched.
Hatched chicks	Field-based observations of breeding success and survival of chicks.	Weekly until chick is fledged (approximately after 12 weeks).	

Section 2: Evaluation of each Wetland against Wetland Performance Targets

Section 2: Evaluation of each Wetland against Wetland Performance Targets

The BCP outlines Wetland Performance Target for Year 3, these are provided below in Table 3 as well as a summary of findings, progress and recommendations.

Table 3: Wetland Performance Targets Summary

Monitoring Measure	Key Indicator	Performance Target	Key Milestone		Summary	Recommendations
			Year 1 and Year 2	Year 3 to Year 25		
Wetland Restoration and Management						
Water extent, depth and duration	Ecologically effective inundation of each wetland during average and above average years.	A minimum 30-centimers inundation in 75% or more of the wetland basin for more than a full Brolga breeding event. (Jul-Nov)	Re-establishment of required inundation regime.	Required inundation occurs on average at least every second year.	DUN-BCP-001 – Highest percentage cover at or above 30cm was at 52% (Brolgas were nesting at the time, 29ha coverage at this depth) DUN-BCP-002 – November the 16th was the highest at 96.49% (6.52ha), with the 28th of November at 74.31%. A dry 2023 season resulted in water only recorded in the drain. DUN-BCP-003 – Highest percent coverage at or above 30cm depth was during November with 81.22% (15.59ha) on the 28th. DUN-BCP-004 – The highest percentage was on November 28th at 83.72% across 25.45ha of the wetland. The 2023 season has resulted in low depth coverage of 5.86% (1.78ha).	DUN-BCP-001 - Percent inundation not achieved, noting a pair of Brolgas were at the wetland in November and December 2022 believed to be nesting. The wetland had 29ha of water at or above 30cm. Continue to monitor after a dry 2023 season. DUN-BCP-002 – Dry 2023 season, continue to monitor. DUN-BCP-003 – Wetland had high percent coverage during November and December when Brolgas were nesting. The 2023 season was dry with 35% of the wetland filling for two months (July and August). Continue to monitor. DUN-BCP-004 – Wetland filled late last year in November and December 2022, drying out in March 2023. A dry season for 2023 breeding season. Continue to monitor.
Vegetation	Extent and percentage cover of suitable aquatic vegetation (i.e. rushes and sedges).	a) 80% or greater aquatic vegetation cover over 40% of the wetland basin within two fillings. b) 80% of greater aquatic vegetation cover over 60% of the wetland within four fillings. c) No decline in the extent and cover od aquatic vegetation after the fourth filling.	a) At the end of the second wetland filling b) At the end of the fourth wetland filling c) Ongoing	Targets b) and c) achieved.	DUN-BCP-001 – Aquatic native vegetation cover (grasses, sedges, rushes, herbs) is at 82% over 40 % of the wetland basin. DUN-BCP-002 – Aquatic native vegetation cover (grasses, sedges, rushes and herbs) is at 91% over 40% of the wetland basin. DUN-BCP-003 - Aquatic native vegetation cover (grasses, sedges, rushes and herbs) is at 80% over 40% of the wetland basin. DUN-BCP-004 - Aquatic native vegetation cover (grasses, sedges, rushes and herbs) is at 63% over 40% of the wetland basin with 29% water.	DUN-BCP-001 Continue to monitor and control *Phalaris* through strategic grazing and weed control being the main competition to native vegetation. DUN-BCP-004 is under the 80% target due to water still at the wetland within the vegetation transects. No weeds were surveyed through the vegetation. Water was the main factor for the lower percentage of vegetation cover with native aquatic vegetation still to emerge. Continue to monitor annually.

	Results from the DST method	DST assessment shows improvement in meeting habitat objectives	Annual and ongoing	Annual and ongoing	Completed with a summary of results provided in this report. All wetlands met the requirements set out in the Vegetation DST assessment conducted in December 2020 to meet habitat and EVC objectives particular to each individual wetland.	Review DST assessment and adjust relevant wetland management parameters to ensure effective habitat rehabilitation. DST has been reviewed and all wetlands have responded to management actions carried out and continue to show improvement in native vegetation cover across the sites.
Brolga Utilisation and Breeding Activities						
Brolga use of the wetland	Brolga present and engaging in courting/pairing behaviour	Brolga present	Brolga present by Year 3	Brolga present most years during suitable conditions.	Brolgas have been visually observed by Greening Australia staff and landowners at all four wetlands, including on remote camera footage for the 2023 season. DUN-BCP-001 and DUN-BCP-003 had Brolga's nesting during November - December 2022 and January 2023. Brolga's have been present at all wetlands, although no courting or pairing behaviour observed for 2023 season.	Continue to observe Brolga's and record behaviour. Investigate possible disturbance / predator behaviour that may be deterring birds. Remote camera's and landholder observations have recorded foxes in wetlands DUN-BCP-001, DUN-BCP-003 and DUN-BCP-004. Fox shooting program undertaken prior to Brolga nesting season 2023 across all wetlands.
Nesting behaviour	Brolga pair building nest and laying eggs	Nest present, eggs laid	See above	Nest present from Year 4 to 6, then on average at least every second year.	DUN-BCP-001 – didn't see Brolgas building the nest. Report of pair in wetland and possible nest built within *Phalaris* tussocks. The pair of Brolga were recorded from the 21st November – 29th December 2022. DUN-BCP-003 – Greening Australia staff observed Brolga nest and one egg on the 15th of December. The pair were monitored until the 24th of January when Brolga were not present on nest. Brolga flew in when monitoring commenced on the 24th of January 2023. The biomass was high and unable to see the nest after the initial sighting, no chicks hatched. Visual limitations restricted observations and possible predation from fox or rat, both have been seen in wetland.	Provision of supplementary nest material if required (e.g. hay). Not applicable at this stage. Investigate possible disturbance / predator behaviour deterring birds (recommendations are the same as above for predator control).
Wetland Restoration and Management						
Fledged young	Number of young successfully fledged.	Young successfully fledged at the average rate of about one every second year across each wetlands in the plan from year four.	N/A	One fledged chick every second year from Year 4 to 25.	N/A	Investigate and control any predators of eggs and young birds. Refine water regime management to ensure appropriate conditions long enough to produce fledglings.

Section 3: Recommendations on the implementation of contingency measures

Section 3: Recommendations on the implementation of contingency measures

Contingency measures have been assessed and determined below based on on-ground assessments and monitoring data. This season has been dry with all wetlands not filling to the same extent as previous years. The BCP states in Table 2. Wetland Selection Principles (p. 10-11) under suitable inundation to occur at least three out of four years.

DUN-BCP-001

- Continue to undertake *Phalaris* management through selective grazing on the outer edges of the wetland (temporary electric fence set up to exclude stock from the middle section). Selectively spray *Phalaris* tussocks when wetland is dry in the middle section to reduce spread and increase native vegetation cover.

DUN-BCP-002

- Continue to monitor outlet drain block and adjust as required.

DUN-BCP-003

- Visual limitations to observations of nest and egg were recorded due to biomass and discussed at annual general meeting.
- Potential predation of egg discussed at annual meeting.
- Capping of sandbags in neighbouring paddock to reduce sandbag erosion from stock.

DUN-BCP-004

- There is high biomass at site of native grasses (mainly *Glyceria australis*) from last seasons growth. Continue to monitor.

Odonata Statement

As the CEO of Odonata Foundation who is the responsible entity for ensuring satisfactory completion of activities defined in the BCP, I confirm that what is outlined in this report is true and correct.

Your sincerely

Sam Marwood

Appendix 1 - Vegetation Decision Support Tool results

The decision support tool (DST) is to be used within the first 1-5 years of wetland vegetation recovery. The tool uses the Ecological Vegetation Classes (EVCs) to set vegetation targets and evaluate a recovery plan. The tool evaluates three key constraints to vegetation recovery; (i) Habitat Suitability, (ii) Regeneration Potential and (iii) Establishment potential. More information on the DST can be found on Arthur Rylah website[1].

The Wetland tool (DST) requires the use of information detailed in the technical report to inform decisions about the wetland. Due to the length and nature of information a summary has been provided on the three components which make up the worksheets: Plan Worksheet, Field Worksheet and Evaluation Worksheet. These all form a conclusion to inform the wetland plan is suitable to restore based on the intended long-term goal.

All four wetlands meet the requirements set out in the Vegetation DST assessment conducted in December 2020 to meet habitat and EVC objectives particular to each individual wetland.

BCP-DUN001 (Caramut)

Plan Worksheet

The long-term goal for the wetland plan is to reinstate the natural flooding regime to create Brolga breeding habitat as defined in the Brolga Compensation Plan (BCP). The target and current EVC for the wetland is consistent with the DEECA NatureKit mapping and vegetation survey conducted in December 2020 by Greening Australia of EVC 125 Plains Grassy Wetland. Works include restoring the natural sill level by blocking the artificial outlet drain to increase the wetland holding capacity. Other completed activities include fencing off the wetland to manage stock access and weed control. The future plan for the wetland is to be seasonal, with a water logging and duration 1-6 months (ideally within Brolga breeding season (July-November) with a maximum sustained depth of 30-100cm.

Field Worksheet

A vegetation survey was conducted in December 2020 and found 9 species consistent with EVC 125 out of 19 species, these included but not limited to *Amphibromus nervosus* (Common Swamp Wallaby-grass), *Cycnogeton procerum* (Water Ribbons), *Eleocharis acuta* (Common Spike-sedge) and *Juncus flavidus* (Gold Rush). The follow up survey in December 2021 found 1 additional indicator species *Potamogeton tricarinatus* (Floating Pondweed).

On monitoring, the ground cover vegetation was vigorous and abundant, with variable heights of plant cover across the wetland with a mix of vegetation types (graminoid habit and low-lying herbs). There are no trees within the wetland or on the wetland verge. There was no evidence of

[1] Roberts, J., Casanova, M.T, Morris, K. and Papas, P. (2017) The feasibility of wetland vegetation recovery: Decision Support Tool, version 1.0. Arthur Rylah Institute for Environment Research https://www.ari.vic.gov.au/__data/assets/pdf_file/0026/90269/ARI-Technical-Report-283-Feasibility-of-wetland-vegetation-recovery-decision-support-tool-V1.0.pdf

animal droppings within the wetland. The wetland has secure fencing and gates around its entirety. Monitoring has shown the presence of waterfowl and swans to be present, no feral pigs, goats or deer are known in the area.

The wetland is within an area that has numerous other neighbouring wetlands (although appear highly modified) in the same catchment and region.

Evaluation Worksheet

The target EVC 125 based on the future hydrological characteristic of seasonal, duration (1-6 months) and depth (30-100cm) water regime provide a good match for this vegetation community. The target EVC also matches and is associated with the described wetland landscape, being number 6 Lowland Grassy Plains (Western Volcanic), with wetland component 6.8 swampy basins, swamps and lakes. Based on the information collected onsite during the vegetation 2020, 2021 and 2022 survey reveal indicator species for EVC 125 are establishing through the seed bank once the grazing pressure has been restricted, there are also species outside of the EVC indicator list occurring at the site including *Stellaria angustifolia, Rumex brownii*, *Ranunculus species*, *Hydrocotyle species*, *Dichelachne crinita*. The Year 2 review of the DST indicates that the wetland recovery plan is still feasible to successfully regenerate and provide habitat for Brolga.

BCP-DUN002 (Cross Roads)

Plan Worksheet

The long-term goal for the wetland plan is to reinstate the natural flooding regime to create Brolga breeding habitat as defined in the Brolga Compensation Plan (BCP). The current EVC for the wetland is mapped within DEECA NatureKit as EVC 647 Plains Sedgy Wetland. A vegetation survey conducted in December 2020 by Greening Australia identified species associated with EVC 125 Plains Grassy Wetland. Some wetlands can support multiple EVCs at a time and the DST requires that either both EVCs be evaluated separately with the tool or the dominant target EVC be evaluated. As ground-truthed there were three species listed as occurring within EVC 647, and 9 species within EVC 125, the latter was used for evaluation in the Year 2 review.

The natural sill level height has been obtained by blocking the artificial outlet drain to increase the wetland holding capacity, along with fencing to manage stock access and controlling high threat weeds. The future plan for the wetland is to be seasonal, with a water logging and duration of 1-6 months (ideally within Brolga breeding season (July-November) with a maximum sustained depth of 30-100cm.

Field Worksheet

The Year 2 vegetation survey was conducted on the 20th of March 2023 and found 9 species consistent with EVC 125 out of 19, these included *Amphibromus nervosus* (Common Swamp Wallaby-grass), *Poa labillardierei* (Common Tussock-grass), Rytidosperma duttonianum (Brown-back Wallaby-grass), *Eryngium vesiculosum* (Prickfoot) and *Juncus flavidus* (Gold Rush) and *Eleocharis acuta* (Common Spike-sedge).

The vegetation within the wetland has become abundant with Eleocharis acuta covering up to 70% of the wetland basin. The wetland does support waterfowl and swans are seen occasionally in small numbers. There are no feral pigs, goats or deer known in the area.

The wetland connects to a series of highly modified wetlands, with multiple other wetlands scattered nearby and within the catchment.

Evaluation Worksheet

The target EVC 125 based on the future hydrological characteristic of seasonal, duration (1-6 months) and depth (30-100cm) water regime provide a good match for this vegetation community. The target EVC also matches and is associated with the described wetland landscape, being number 6 Lowland Grassy Plains (Western Volcanic), with wetland component 6.8 swampy basins, swamps and lakes. Also note that EVC 647 occurs within this wetland landscape. Based on the information collected onsite during the vegetation survey it is likely that indicator species will be present from both EVC's. The DST indicates that the wetland recovery plan is establishing well towards its target outcome.

BCP-DUN003 (Woorndoo)

Plan Worksheet

The long-term goal for this wetland plan is to reinstate the natural flooding regime to create Brolga breeding habitat as defined in the Brolga Compensation Plan (BCP). The target and current EVC for the wetland is mapped within DEECA NatureKit as EVC 691 Aquatic Herbland / Plains Sedgy Wetland Mosaic. Hydrology works have blocked two artificial outlet drains to increase the extent and holding capacity of the wetland. Other management activities included fencing to manage stock access and weed control. The plan for the wetland is to be seasonal, with a water logging and duration of 1-6 months (ideally within Brolga breeding season (July-November) with a maximum sustained depth of 30-100cm.

Field Worksheet

Year 2 vegetation survey was conducted on the 7th of March 2023 with over 70% coverage of aquatic native grasses including *Amphibromus species* (Swamp Wallaby-grass), Rytidosperma duttonianum (Brown-back Wallaby-grass), Glyceria australis (Australian Sweet-grass) and Poa labillardieri (Common Tussock-grass). Other flora species within the EVC include Potamogeton tricarinathus s.l. (Floating Pondweed) *Eleocharis acuta* (Common Spike-sedge) and *Lobelia pratioides* (Poison Lobelia).

The groundcover is vigorous and abundant in the wetland with a mix of grasses and herbs all at variable heights. There are sparse plantings of trees around the perimeter of the wetland. The wetland is fenced, and grazing has been excluded since 2020. The wetland supports the presence of waterfowl, migratory birds including *Gallinago hardwickii* (Latham snipe) and swans, there are no feral pigs, goats or deer known in the area.

The wetland sits within a landscape of many scattered wetlands within the catchment and region, although drainage and some wetlands have been highly modified.

Evaluation Worksheet

The target EVC 691 based on the future hydrological characteristic of seasonal, duration (1-6 months) and depth (30-100cm) water regime provide a good match for this vegetation community. The target EVC also matches and is associated with the described wetland landscape, being number 6 Lowland Grassy Plains (Western Volcanic), with wetland component 6.8 swampy basins, swamps, and lakes. The wetlands also contain a large area of Poa labillardierei which extends outside the wetland fenced boundary in the neighbouring paddock, this may suggest some Plains Grassy Wetland (EVC 125) on the outer edges of the wetland. Based on the information collected through desktop and onsite during the vegetation surveys, indicator species for EVC 691 have continued to establish once grazing pressure has been controlled. The DST indicates that the wetland recovery plan continues to improve and work towards the desired outcome.

BCP-DUN004 (Westmere)

Plan Worksheet

The long-term goal for this wetland plan is to reinstate the natural flooding regime to create Brolga breeding habitat as defined in the Brolga Compensation Plan (BCP). The EVC for this wetland is mapped within DEECA NatureKit as EVC 647 Plains Sedgy Wetland. On-ground vegetation assessment of the wetland classifies the inner area as EVC 291 Cane Grass Wetland with EVC 125 Plains Grassy Wetland on the outer areas. An artificial outlet was blocked to return the wetland to its natural holding capacity, along with fencing to manage stock. The plan for the wetland is to be seasonal, with a water logging and duration of 1-6 months (ideally within Brolga breeding season (July-November) with a maximum sustained depth of 30-100cm.

Field Worksheet

Year 2 evaluation and vegetation survey was conducted on 7th of March 2023 with 3 out of 5 indicator species for EVC 291 recorded (*Eragrostis infecunda* (Southern Cane-grass), *Eleocharis acuta* (Common Spike-sedge) and *Azolla filiculoides* (Pacific Azolla). *Eragrostis infecunda* grows well on heavy grey soils which occur within part of the wetland basin. Identifiable species in 2022 and 2023 consistent with EVC 125 Plains Grassy Wetland include *Rytidosperma* species, *Glyceria australis* (Australian Sweet-grass), Utricularia dichotoma (Fairies Aprons only surveyed in 2021) with sparse patched of *Juncus flavidus* (Gold Rush).

There are a few sporadic plantings of native trees around the perimeter of the wetland with some remnant *Eucalyptus camaldulensis* on the outer western verge of the wetland. The wetland has been fenced from stock. The wetland supports the presence of waterfowl and swans, there are no feral pigs, goats or deer known in the area.

The wetland connects to a series of wetlands in reasonable condition and forms one of many in the landscape, catchment and region which aids the wetland for re-establishment of indicator species as listed in the target EVC.

Evaluation Worksheet

The target EVC 291 based on the future hydrological characteristic of seasonal, duration (1-6 months) and depth (30-100cm) water regime provide a good match for this vegetation community. The target EVC also matches and is associated with the described wetland landscape, being number 6 Lowland Grassy Plains (Western Volcanic), with wetland component 6.8 swampy basins, swamps and lakes. Based on the information collected through desktop and onsite during the vegetation survey it is likely that the indicator species for EVC 291 will establish through the seed bank once grazing pressure has been controlled. The DST indicates that the wetland recovery plan is still working towards achieving the desired outcomes and will continue to regenerate naturally.

Appendix 2. Completed Monitoring Timetable

The following tables provides a list of dates and completed activities conducted as stated in the BCP for Year 1 for each wetland.

DUN-BCP-001 Caramut Monitoring Timetable

Wetland ID	Date	Completed ✓				
		Map Water Extent (Fortnightly Nov 2022 - Feb 2023)	Measure Depth Marker Posts (Fortnightly Nov 2022 - Feb 2023)	Measure Depth Marker Posts and Map Water Extent (Monthly July 2023-Dec 2023)	Brolga Observations (2 monthly July-November or fortnightly if nesting occurs)	Vegetation DST Survey (Annually)
DUN-BCP-001	15/11/2022	✓	✓			
	28/11/2022	✓	✓		✓Brolgas onsite	
	15/12/2022	✓	✓		✓Brolgas onsite	
	29/12/2022	✓	✓			
	09/01/2023	✓	✓			
	23/01/2023	✓	✓		✓	
	07/02/2023	✓	✓			
	28/02/2023					✓
	04/07/2023			✓	✓	
	02/08/2023			✓		
	05/09/2023			✓	✓	
	06/10/2023			✓		
	01/11/2023			✓	✓	

DUN-BCP-002 Cross Roads Monitoring Timetable

Wetland ID	Date	Completed ✓				
		Map Water Extent (Fortnightly Nov 2022 – Feb 2023)	Measure Depth Marker Posts (Fortnightly Nov 2022-Feb 2023)	Measure Depth Marker Posts and Map Water Extent (Monthly July 2023-Dec 2023)	Brolga Observations (2 monthly July-November or fortnightly if nesting occurs)	Vegetation DST Survey (Annually)
DUN-BCP-002	15/11/2022	✓	✓			
	28/11/2022	✓	✓		✓	
	15/12/2022	✓	✓			
	29/12/2022	✓	✓			
	09/01/2023	✓	✓			
	23/01/2023	✓	✓		✓	
	07/02/2023	✓	✓			
	20/03/2023				✓	✓
	04/07/2023			✓	✓	
	02/08/2023			✓		
	05/09/2023			✓	✓	
	06/10/2023			✓		
	01/11/2023			✓	✓	

DUN-BCP-003 Woorndoo Monitoring Timetable

Wetland ID	Date	Completed ✓				
		Map Water Extent (Fortnightly Nov 2022 – Feb 2023)	Measure Depth Marker Posts (Fortnightly Nov 2022-Feb 2023)	Measure Depth Marker Posts and Map Water Extent (Monthly July 2023-Dec 2023)	Brolga Observations (2 monthly July-November or fortnightly if nesting occurs)	Vegetation DST Survey (Annually)
DUN-BCP-003	15/11/2022	✓	✓			
	28/11/2022	✓	✓		✓	
	15/12/2022	✓	✓		✓ Brolgas onsite	
	29/12/2022	✓	✓		✓ Brolgas onsite	
	09/01/2023	✓	✓		✓ Brolgas onsite	
	24/01/2023	✓	✓		✓ Brolgas not on nest flew into wetland	
	07/02/2023	✓	✓			
	07/03/2023				✓	✓
	04/07/2023			✓	✓	
	02/08/2023			✓		
	05/09/2023			✓	✓	
	06/10/2023			✓		
	01/11/2023			✓	✓	

DUN-BCP-004 Westmere Monitoring Timetable

Wetland ID	Date	Completed ✓				
		Map Water Extent (Fortnightly Nov 2022 – Feb 2023)	Measure Depth Marker Posts (Fortnightly Nov 2022-Feb 2023)	Measure Depth Marker Posts and Map Water Extent (Monthly July 2023-Dec 2023)	Brolga Observations (2 monthly July-November or fortnightly if nesting occurs)	Vegetation DST Survey (Annually)
DUN-BCP-004	15/11/2022	✓	✓			
	28/11/2022	✓	✓		✓	
	15/12/2022	✓	✓			
	29/12/2022	✓	✓		✓	
	09/01/2023	✓	✓			
	23/01/2023	✓	✓		✓	
	07/02/2023	✓	✓			
	07/03/2023				✓	✓
	04/07/2023			✓	✓	
	02/08/2023			✓		
	05/09/2023			✓	✓	
	06/10/2023			✓		
	01/11/2023			✓	✓	

Appendix 3. Brolga Sighting Records

Records of Brolga sightings at each individual wetland during required monitoring.

DUN-BCP-001 Caramut Brolga Sighting Records

Wetland ID	Date	Brolga Sightings			
		Number	Age	Breeding	Comments
DUN-BCP-001	28/11/2022	2	Adult	Unsure	Greening Australia staff visual observation – potentially have a nest in the *Phalaris*, landholder reported them appearing a week prior and haven't left. Unable to see any nest due to biomass of *Phalaris*.
	15/12/2022	1	Adult	Unsure	Greening Australia staff visual observation – potentially a nest located in the *Phalaris*, seen in similar location to last time. 1 Brolga came out of the *Phalaris* when staff begun monitoring water extent. Staff moved out of the wetland but couldn't see a second one.

DUN-BCP-002 Cross Roads Brolga Sighting Records

Wetland ID	Date	Brolga Sightings			
		Number	Age	Breeding	Comments
DUN-BCP-002	02/12/2022	2	Adult	No	Captured on remote camera flying
	05/09/2023	3	2 x Adult; 1 Juvenile	No	Greening Australia staff visual observation of Brolgas feeding in wetland also captured on remote camera.

DUN-BCP-003 Woorndoo Brolga Sighting Records

Wetland ID	Date	Brolga Sightings			
		Number	Age	Breeding	Comments
DUN-BCP-003	15/12/2022	2	Adult	Yes	Greening Australia staff visual observation of Brolga sitting on nest, the other Brolga feeding nearby. They have then changed spots, the Brolga got up off the nest where you could see one egg.
	29/12/2022	2	Adult	Yes	Greening Australia staff visual observation of Brolga pair, unable to see nest this time with growth of grass.
	09/01/2023	2	Adult	Yes	Greening Australia staff visual observation of Brolga pair, unable to see nest. Brolgas in same location as last time.
	24/01/2023	2	Adult	No	Greening Australia visual observation, a pair of Brolga's flew into the wetland when taking monitoring points. Unable to locate the nesting pair.
	17/07/2023	4	3 x Adult; 1 Juvenile	No	Greening Australia staff visual observation of 3 Brolga's together (2 adults and a juvenile), another Brolga flew into the wetland making a lot of noise. They moved around the wetland feeding.
	17/07/2023	1	Adult	No	Captured on remote camera
	12/08/2023	1	Adult	No	Captured on remote camera
	13/08/2023	2	Adult	No	Captured on remote camera
	31/08/2023	2	Adult	No	Captured on remote camera
	17/8/2023	2	Adult	No	Captured on remote camera
	04/09/2023	2	Adult	No	Captured on remote camera
	09/09/2023	1	Adult	No	Captured on remote camera
	15/09/2023	1	Adult	No	Captured on remote camera
	25/09/2023	1	Adult	No	Captured on remote camera
	01/10/2023	2	Adult	No	Captured on remote camera
	19/10/2023	2	Adult	No	Greening Australia staff visual observation, pair feeding around in wetland.

DUN-BCP-004 Westmere Brolga Sighting Records

Wetland ID	Date	Brolga Sightings			
		Number	Age	Breeding	Comments
DUN-BCP-004	07/03/2023	2	Adult	No	Landholder visual observation of Brolga in wetland.

Appendix 4. Vegetation Survey Results

Wetland ID	Plan Year	Date	Vegetation Type % Coverage							
			Bare Ground	Native Grasses	Sedges & Rushes	Native Forbs	Water	Exotic	Animal Droppings	Dead Vegetative Matter
DUN-BCP-001	0	10/12/2020	24	1	2	0	0	41	1	28
	1	07/12/2021	4	2	12	24	1	58	0	0
	2	28/02/2023	6	2	62	18	0	7	0	4
DUN-BCP-002	0	30/11/2020	36	19	0	0	0	42	3	0
	1	15/02/2021	12	56	30	0	0	3	1	0
	2	20/03/2023	5	18	73	0	0	0	0	3
DUN-BCP-003	0	18/11/2020	4	65	8	10	0	0	0	0
	1	22/12/2021	0	42	37	14	7	0	0	0
	2	07/03/2023	20	73	6	1	0	0	0	0
DUN-BCP-004	0	08/12/2020	15	65	1	0	8	6	0	5
	1	14/01/2022	4	65	3	1	25	2	0	0
	2	07/03/2023	2	63	0	0	29	0	0	6

Appendix 5. Depth Marker Post Records

Fortnightly monitoring was undertaken at each wetland from November 2022 to February 2023, with monthly records from July 2023 to December 2023 to record measurements on the 4 depth marker posts and results are presented in the tables below.

DUN-BCP-001 Caramut Water Depth Post Fortnightly Measurements (cm)

Wetland ID	Date	Marker Post Depth (cm)			
		1 (shore)	2	3	4 (deepest)
DUN-BCP-001	15/11/2022	23	Unable to record	Unable to record	Unable to record
	28/11/2022	23	Brolgas in wetland unable to check		
	15/12/2022		Brolgas in wetland unable to check		30
	29/12/2022	12	42	29	22
	09/01/2023	0	35	21	15
	23/01/2023	0	25	0	0
	07/02/2023	0	18	0	0
	04/07/2023	5	38	23	17
	02/08/2023	12	45	30	24
	05/09/2023	5	40	27	20
	06/10/2023	0	35	20	15
	01/11/2023	0	38	0	0

DUN-BCP-002 Cross Roads Water Depth Post Fortnightly Measurements (cm)

Wetland ID	Date	Marker Post Depth (cm)			
		1 (shore)	2	3	4 (deepest)
DUN-BCP-002	15/11/2022	44	70	66	90
	28/11/2022	23	48	46	70
	15/12/2022	18	39	39	59
	29/12/2022	4	30	30	56
	09/01/2023	0	22.5	20	42
	26/01/2023	0	10	10	30
	07/02/2023	0	8	8	28
	04/07/2023	0	0	0	10
	02/08/2023	0	0	0	12
	05/09/2023	0	0	0	10
	06/10/2023	0	0	0	0
	01/11/2023	0	0	0	0

DUN-BCP-003 Woorndoo Water Depth Post Fortnightly Measurements (cm)

Wetland ID	Date	Marker Post Depth (cm)			
		1 (shore)	2	3	4 (deepest)
DUN-BCP-003	15/11/2022	26	To deep	To deep	To deep
	28/11/2022	30	To deep	To deep	To deep
	15/12/2022	Nesting pair of Brolga in wetland no points recorded.			
	29/12/2022	Nesting pair of Brolga in wetland no points recorded.			
	09/01/2023	29	42.5	42	52.5
	24/01/2023	0	0	Unable to get last 2 depth points as Brolgas flew in	
	07/02/2023	0	0	0	40
	04/07/2023	10	26	32	70
	02/08/2023	8	24	30	68
	05/09/2023	4	22	25	67
	06/10/2023	0	16	22	59
	01/11/2023	0	9	13	51

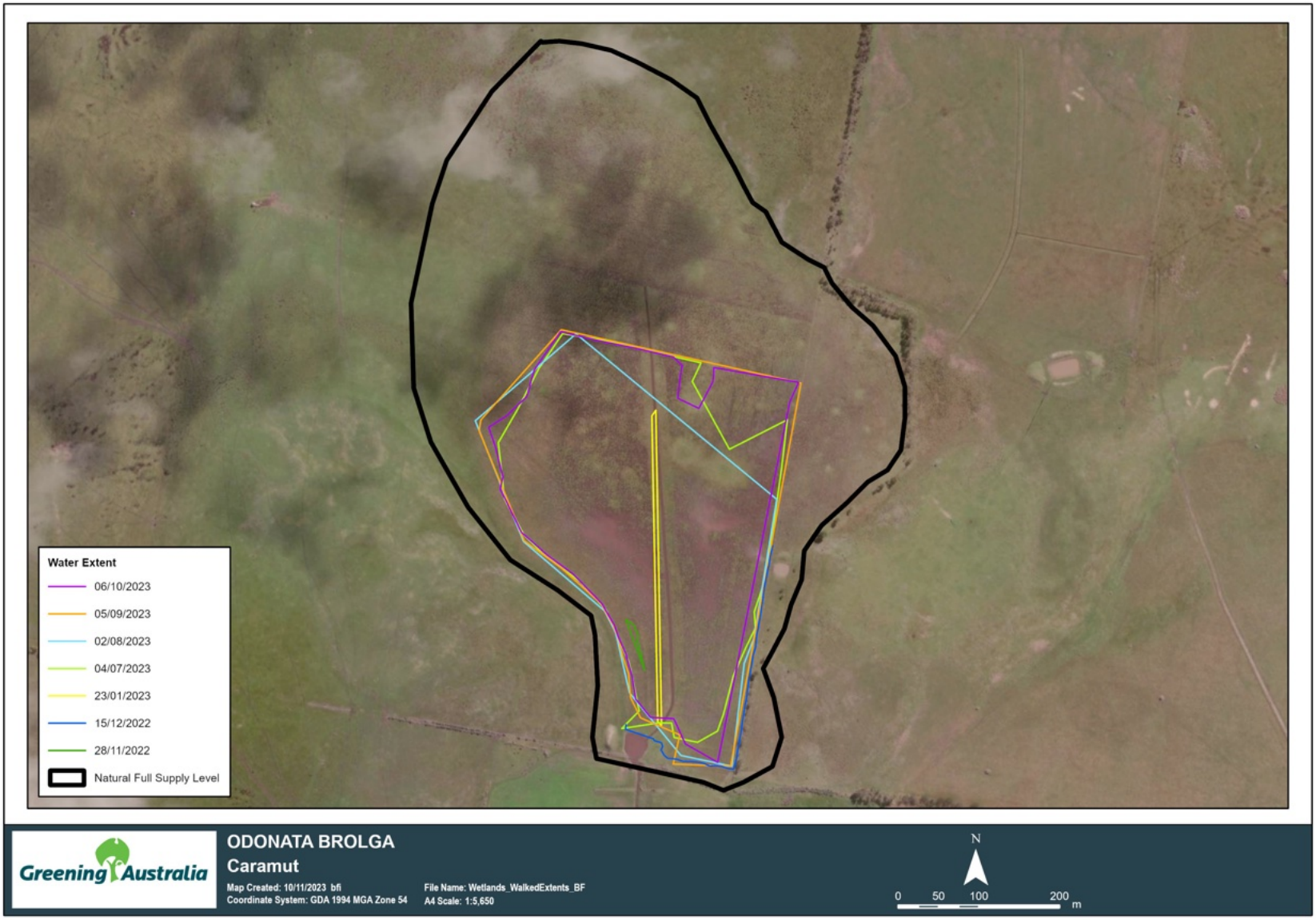
DUN-BCP-004 Westmere Water Depth Post Fortnightly Measurements (cm)

Wetland ID	Date	Marker Post Depth (cm)			
		1 (shore)	2	3	4 (deepest)
DUN-BCP-004	16/11/2022	50	64	64	74
	28/11/2022	58	70	70	80
	15/12/2022	49	60	60	70
	29/12/2022	38	50	50	60
	09/01/2023	29	42.5	42	52.5
	26/01/2023	20	32	32	42
	07/02/2023	18	30	30	40
	04/07/2023	4	19	19	30
	02/08/2023	4	19	19	30
	05/09/2023	0	15	15	27
	06/10/2023	0	9	9	19
	01/11/2023	0	0	0	12

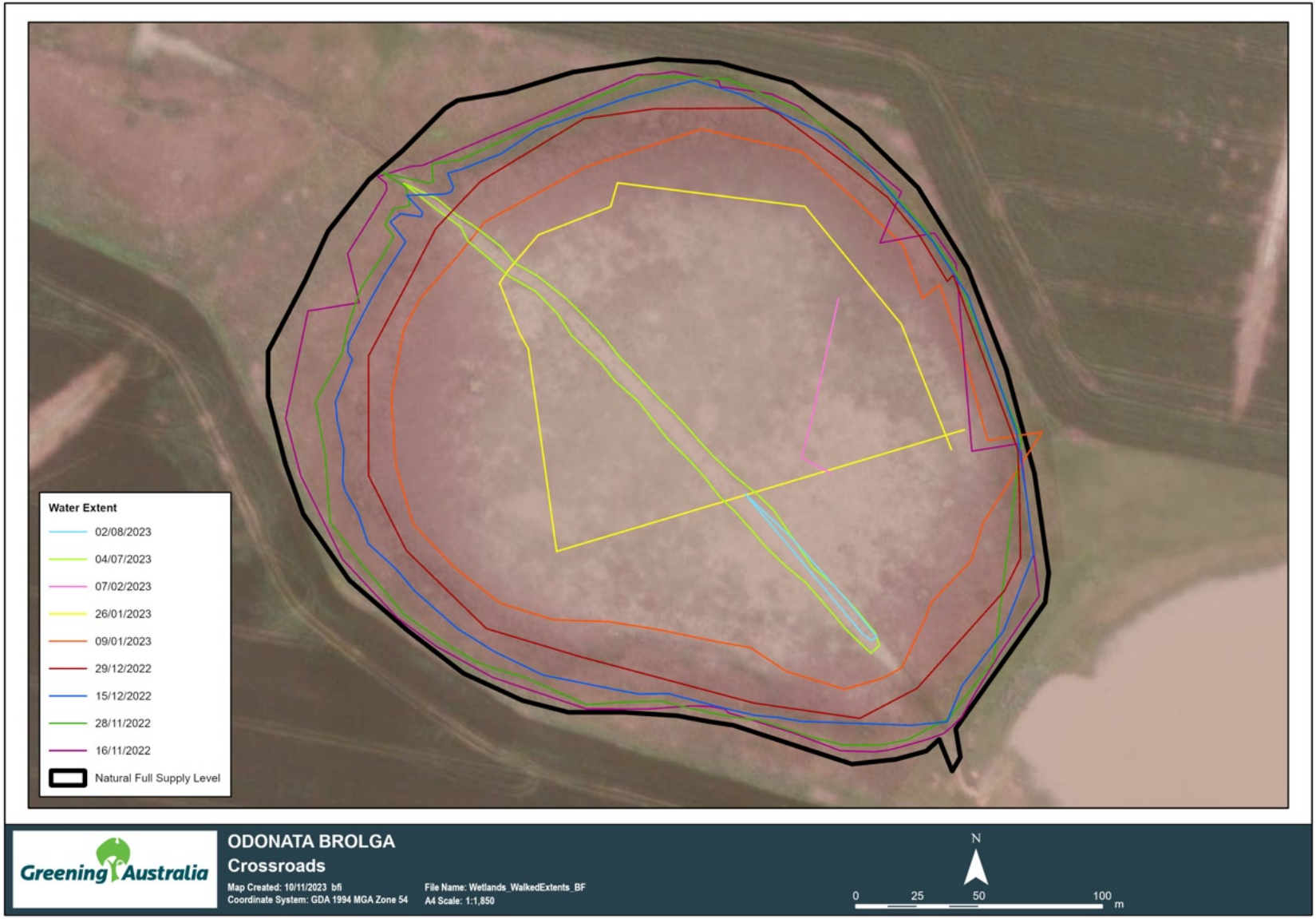
Appendix 6. Wetland Extent Mapping

Wetland extent maps were created each fortnight by walking around each individual wetland and tracking using a handheld GPS. Each date listed on the map reflects the water extent on that day. The bold green line (natural full supply level) was used from the hydrology reports conducted by Nature Glenelg Trust.

DUN-BCP-001 Caramut

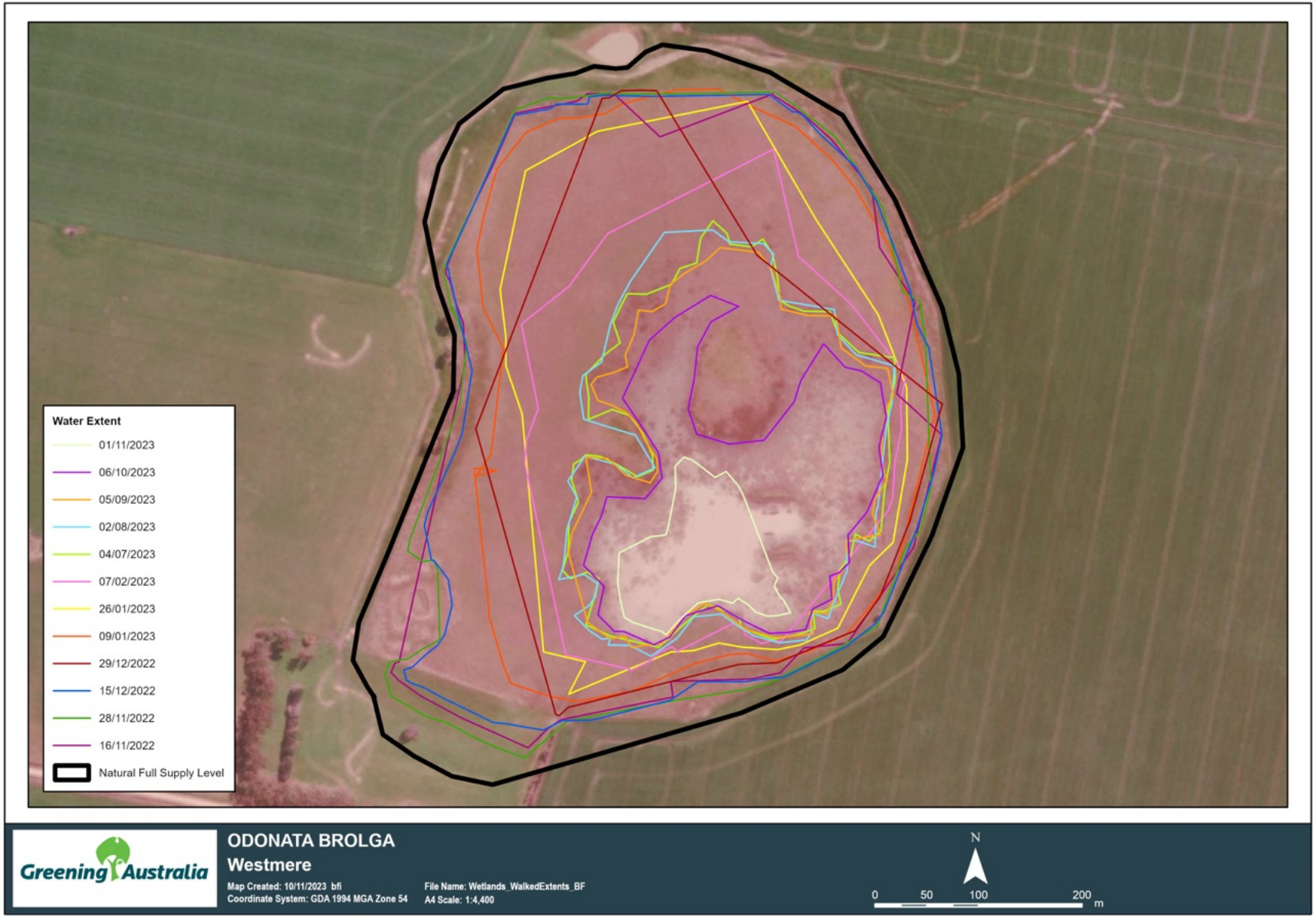


DUN-BCP-002 – Cross Roads



DUN-BCP-003 - Woorndoo

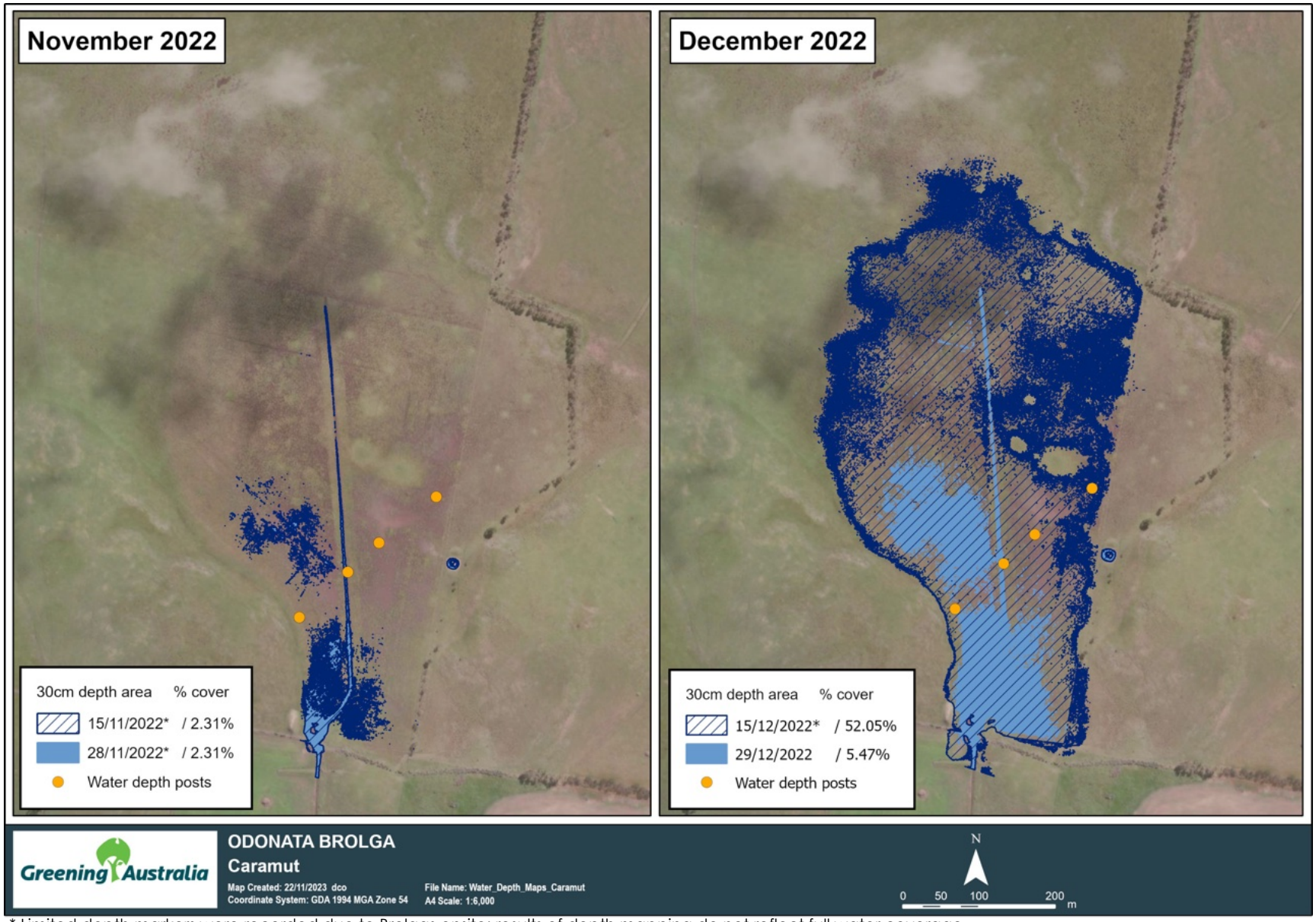
DUN-BCP-004 – Westmere



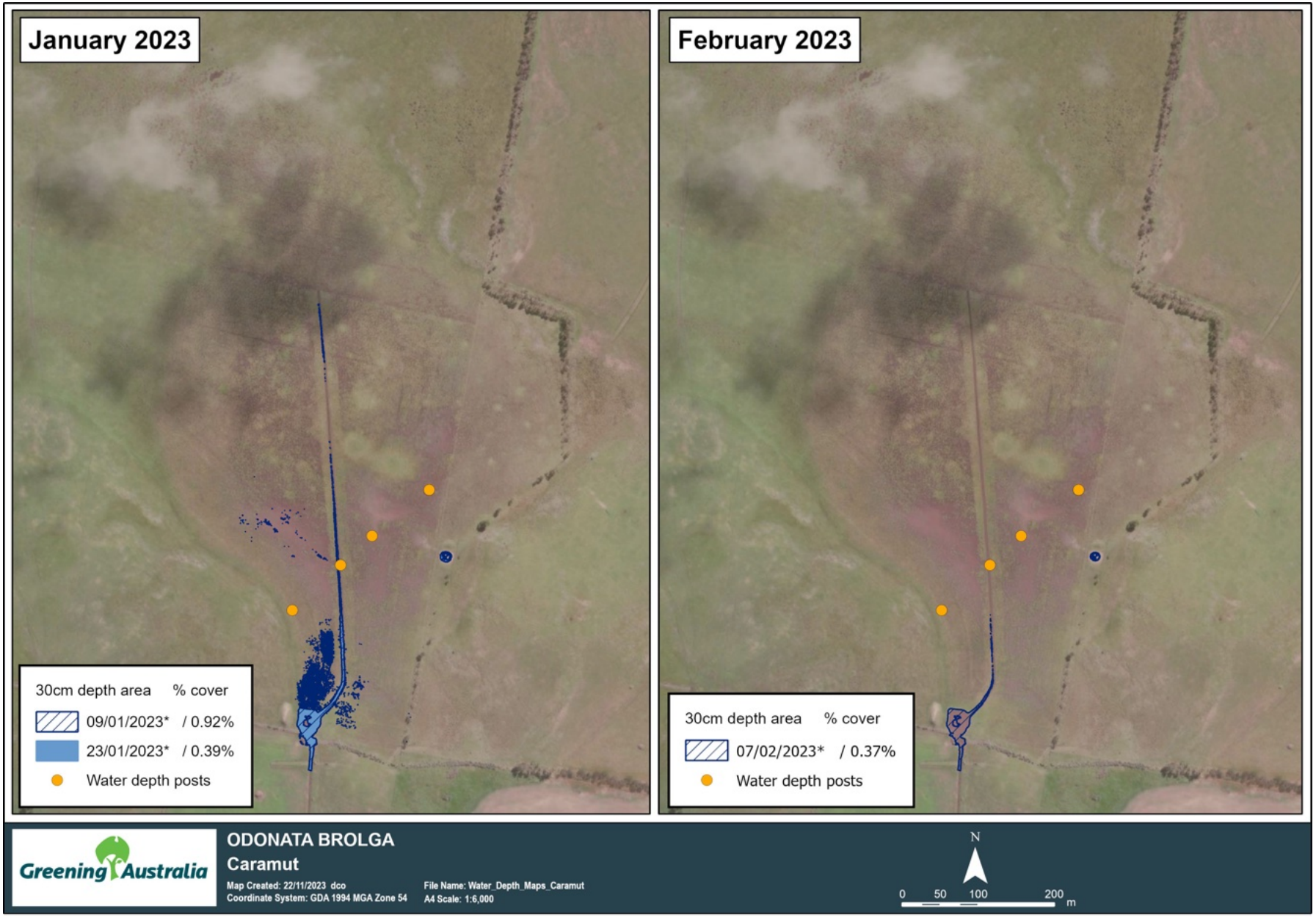
Appendix 7. Water Depth and Duration Maps

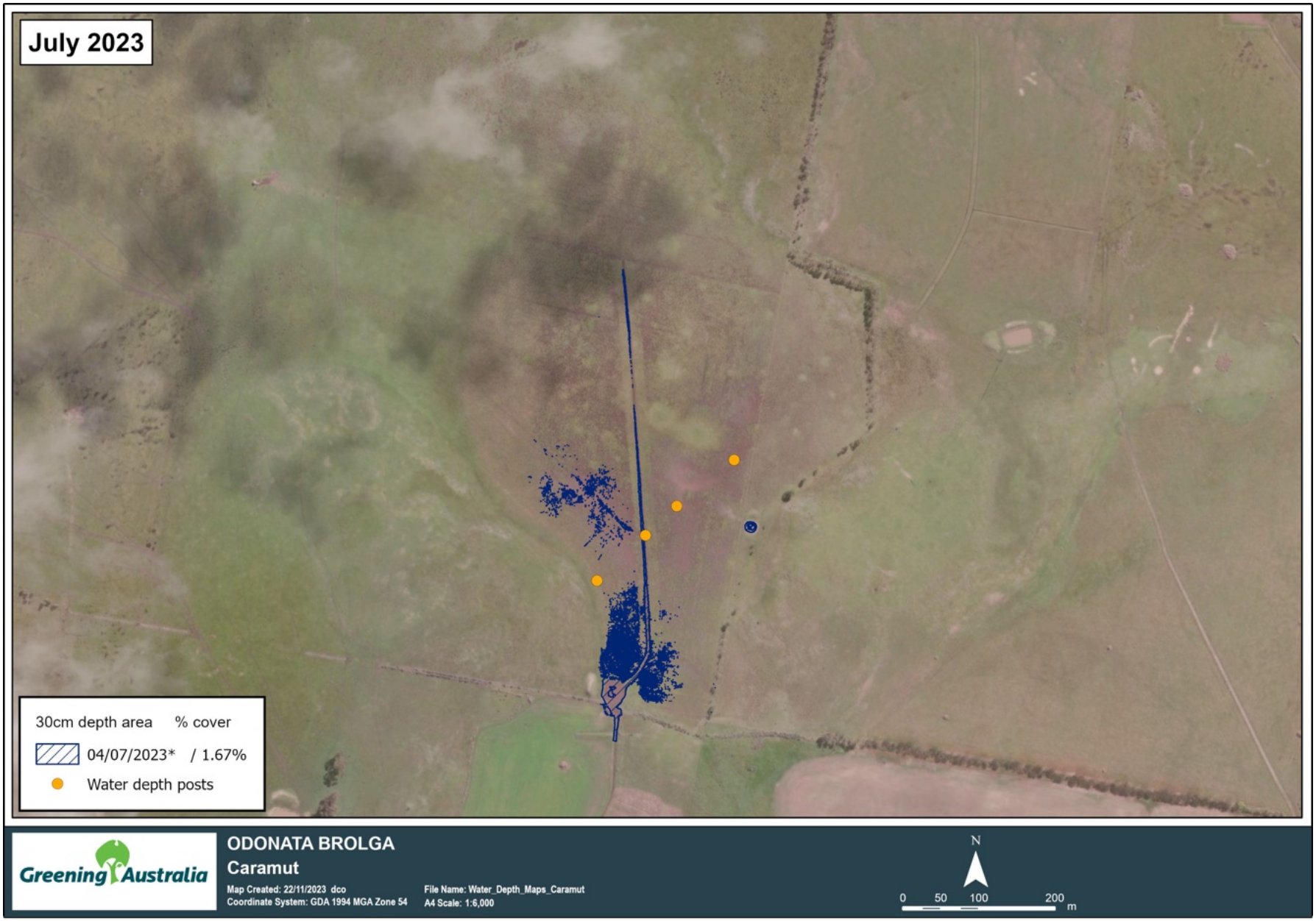
Water depth and duration maps were modelled from the data collected from the fortnightly wetland extent marks and extracting values from the Digital Terrain Model (DTM – Lidar) to create a mean estimate of water heights to assist in determining if the wetland met the BCP performance target of 30cm coverage over 75% of the basin for a full Brolga breeding event (Jul-Nov).

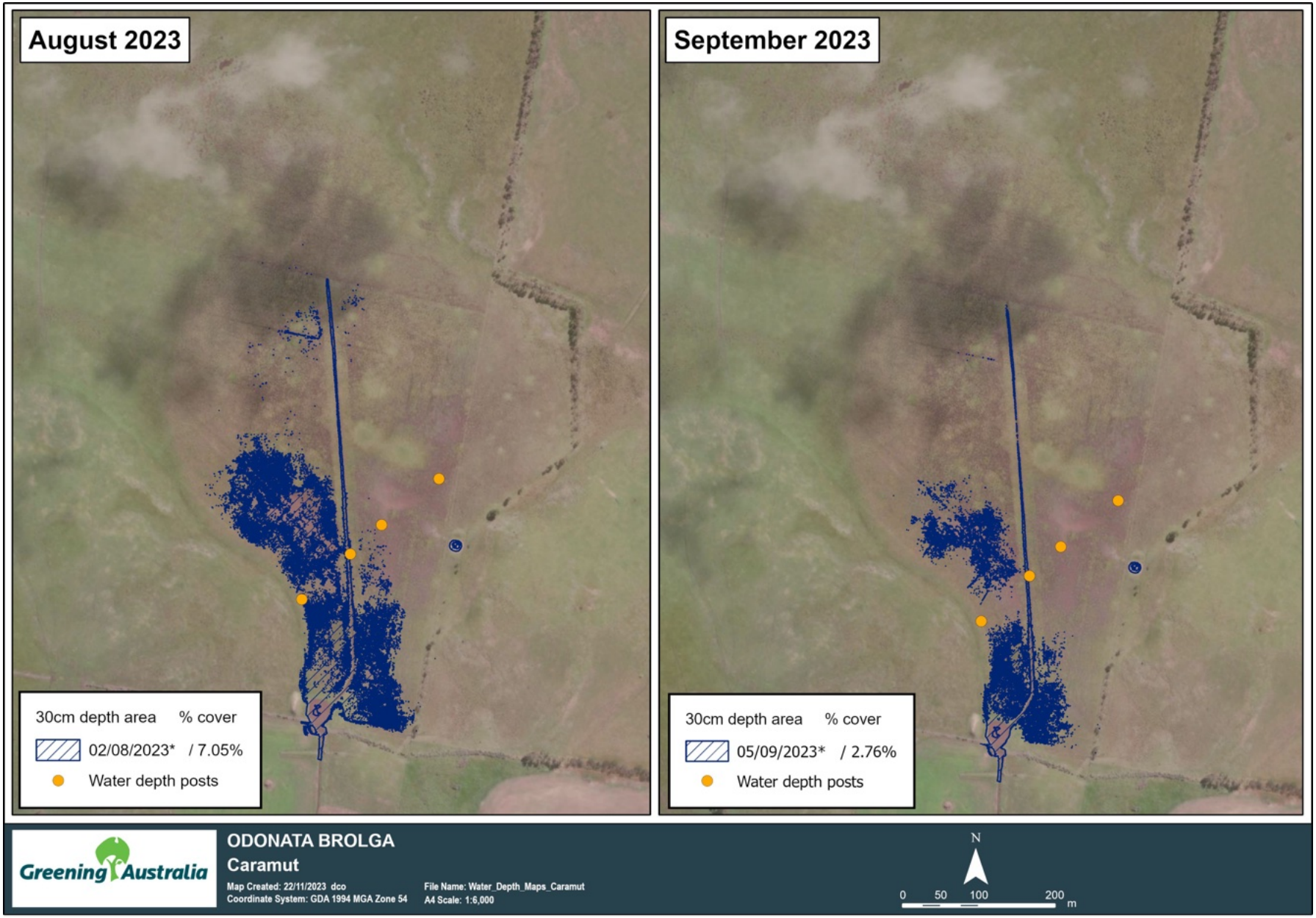
DUN-BCP-001 Caramut

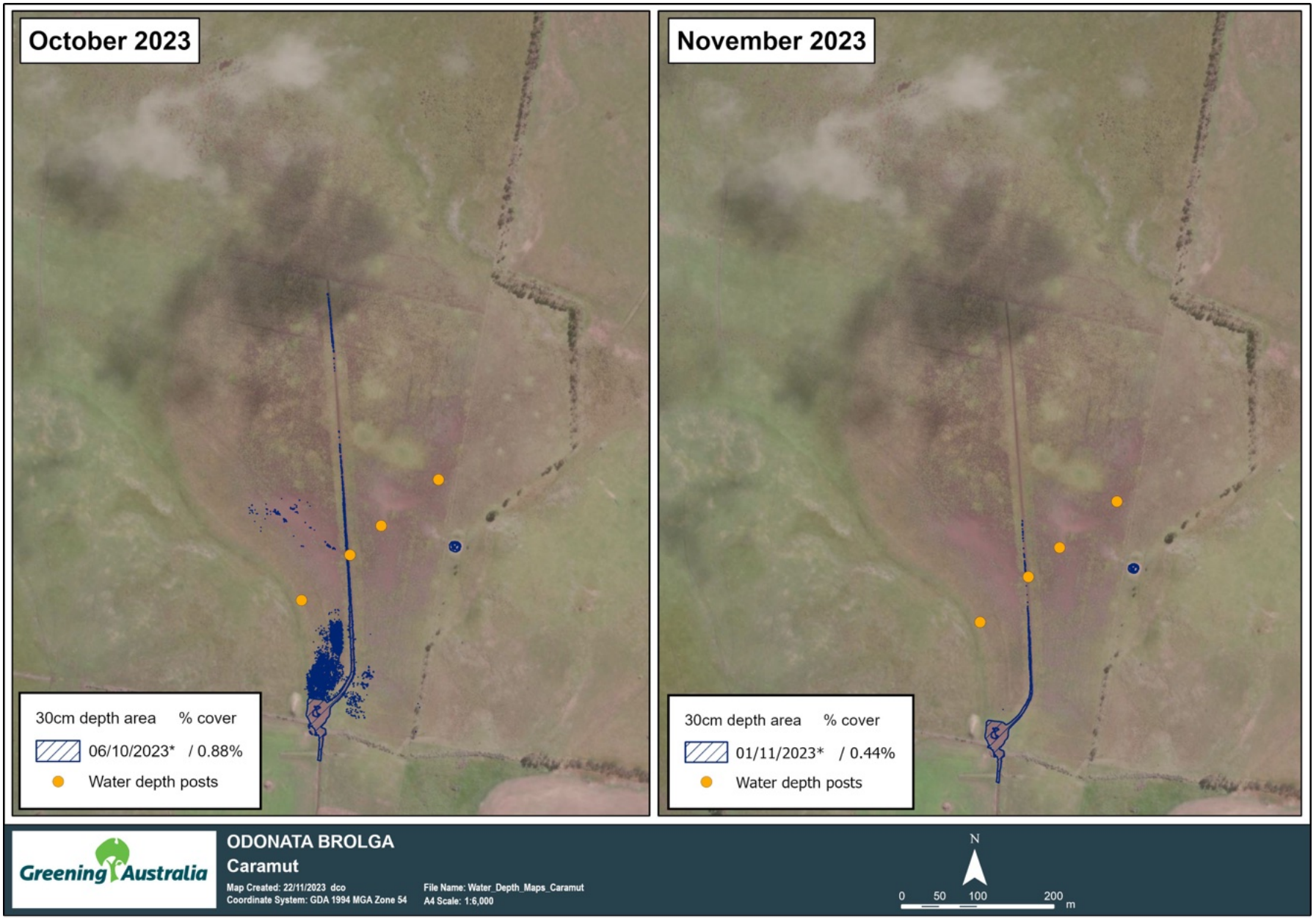


* Limited depth markers were recorded due to Brolgas onsite; results of depth mapping do not reflect full water coverage.

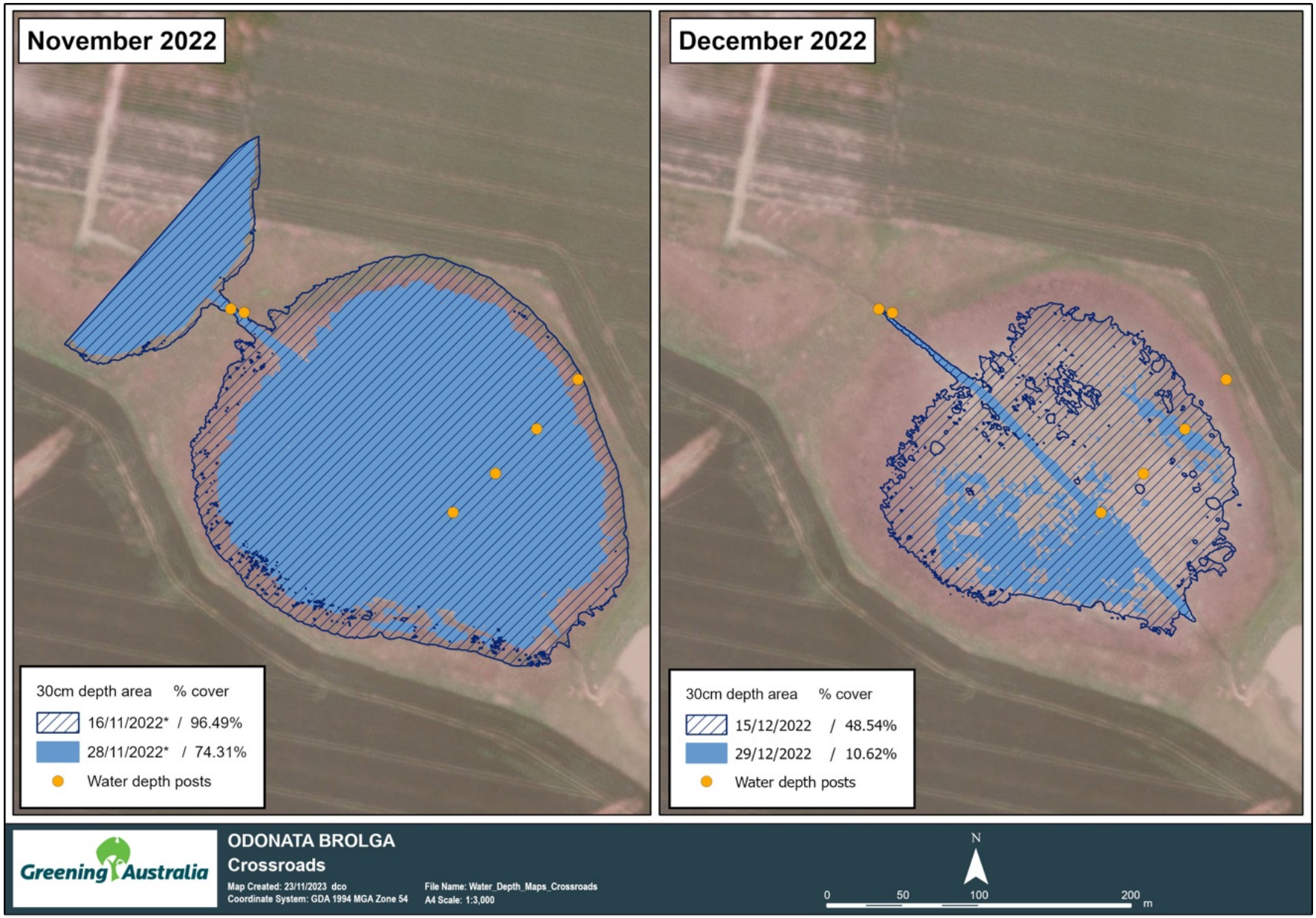

January 2023
February 2023
30cm depth area % cover
09/01/2023* / 0.92%
23/01/2023* / 0.39%
Water depth posts
30cm depth area % cover
07/02/2023* / 0.37%
Water depth posts
ODONATA BROLGA
Caramut
Map Created: 22/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Caramut
A4 Scale: 1:6,000
N
0 50 100 200 m

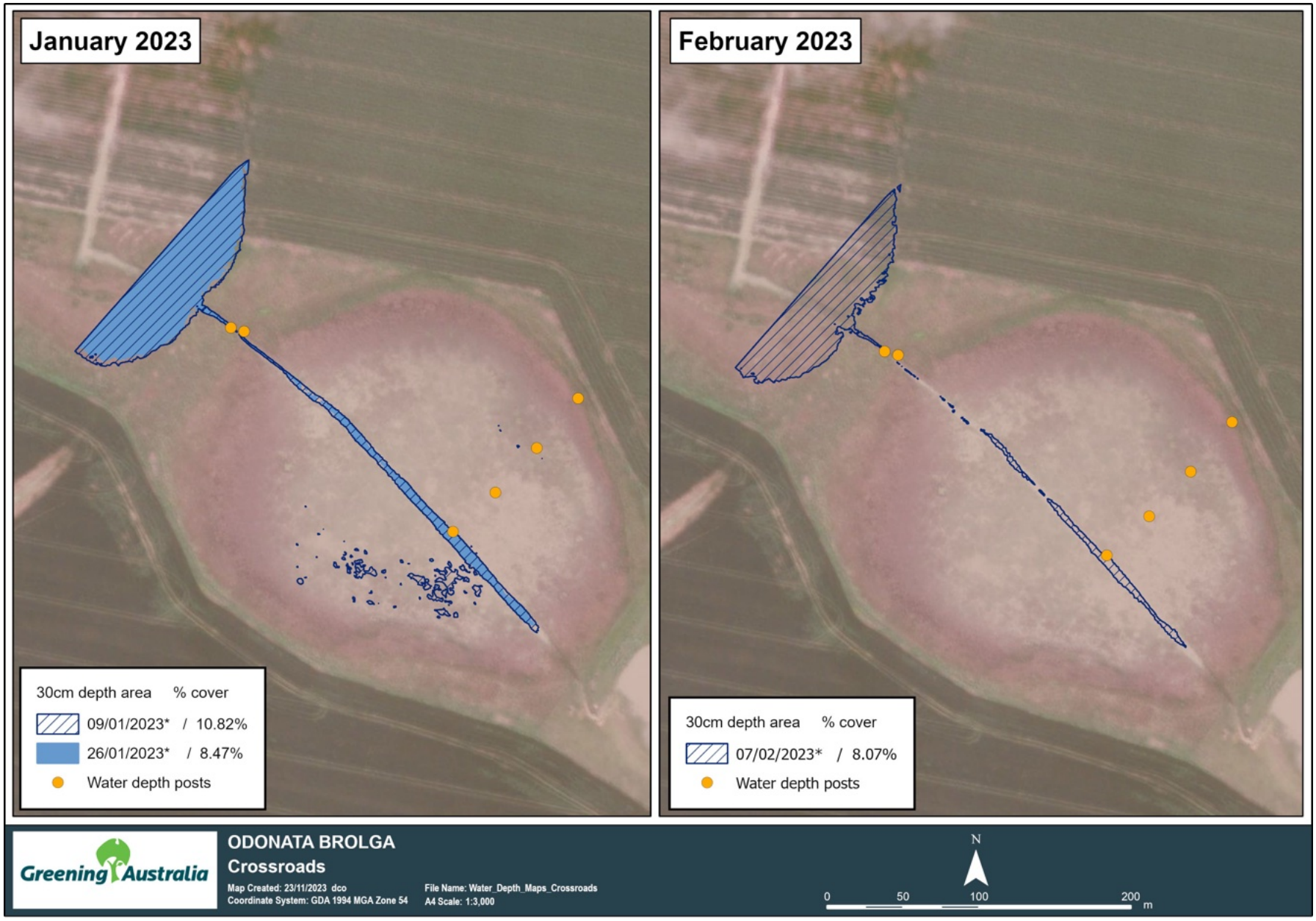

July 2023
30cm depth area
% cover
04/07/2023*
/ 1.67%
Water depth posts
Greening Australia
ODONATA BROLGA
Caramut
Map Created: 22/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Caramut
A4 Scale: 1:6,000
N
0
50
100
200
m


August 2023
30cm depth area % cover
02/08/2023* / 7.05%
Water depth posts
September 2023
30cm depth area % cover
05/09/2023* / 2.76%
Water depth posts
Greening Australia
ODONATA BROLGA
Caramut
Map Created: 22/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Caramut
A4 Scale: 1:6,000
N
0 50 100 200 m

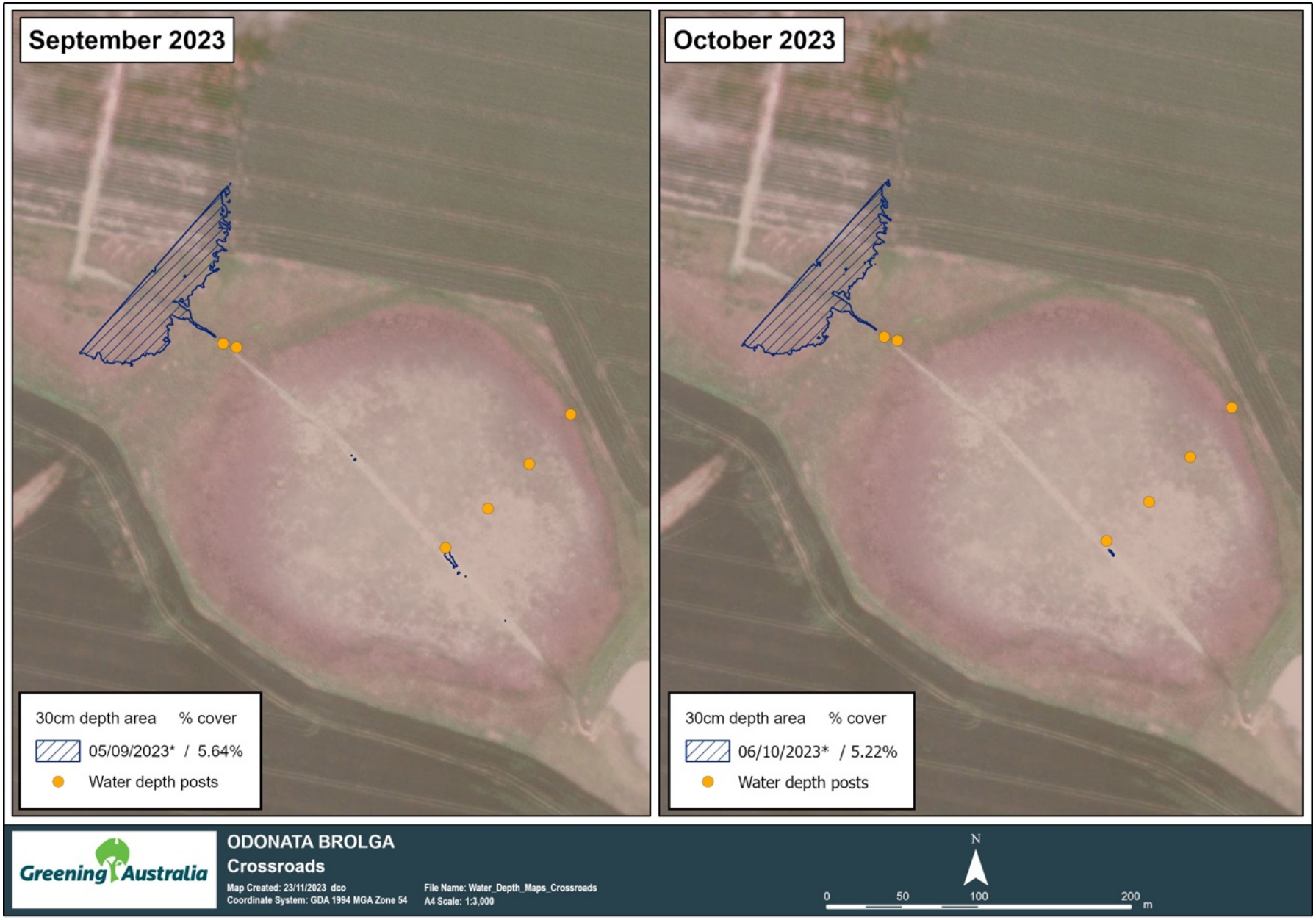

October 2023
November 2023
30cm depth area % cover
06/10/2023* / 0.88%
Water depth posts
30cm depth area % cover
01/11/2023* / 0.44%
Water depth posts
Greening Australia
ODONATA BROLGA
Caramut
Map Created: 22/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Caramut
A4 Scale: 1:6,000
N
0 50 100 200 m

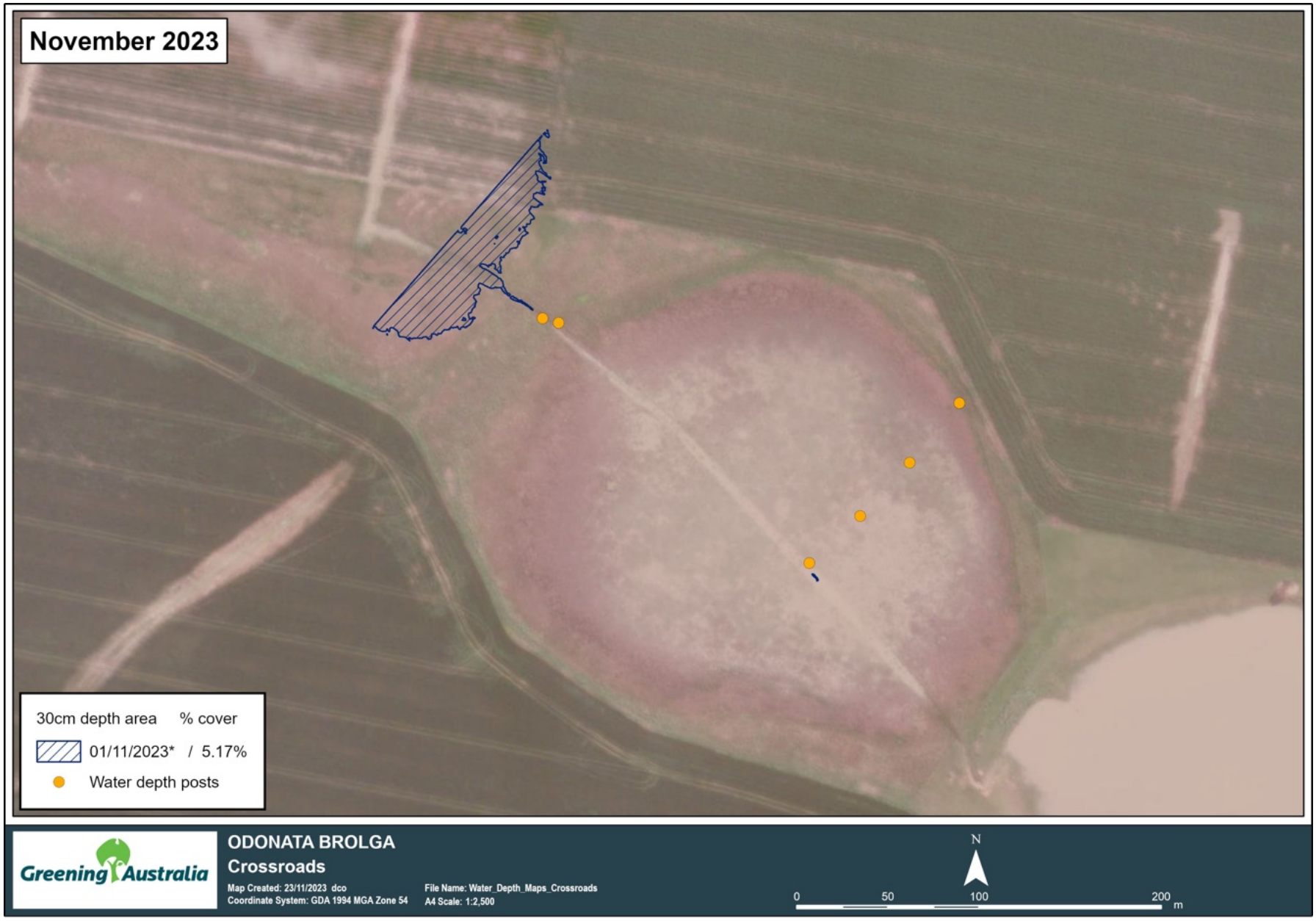
DUN-BCP-002 Cross Roads



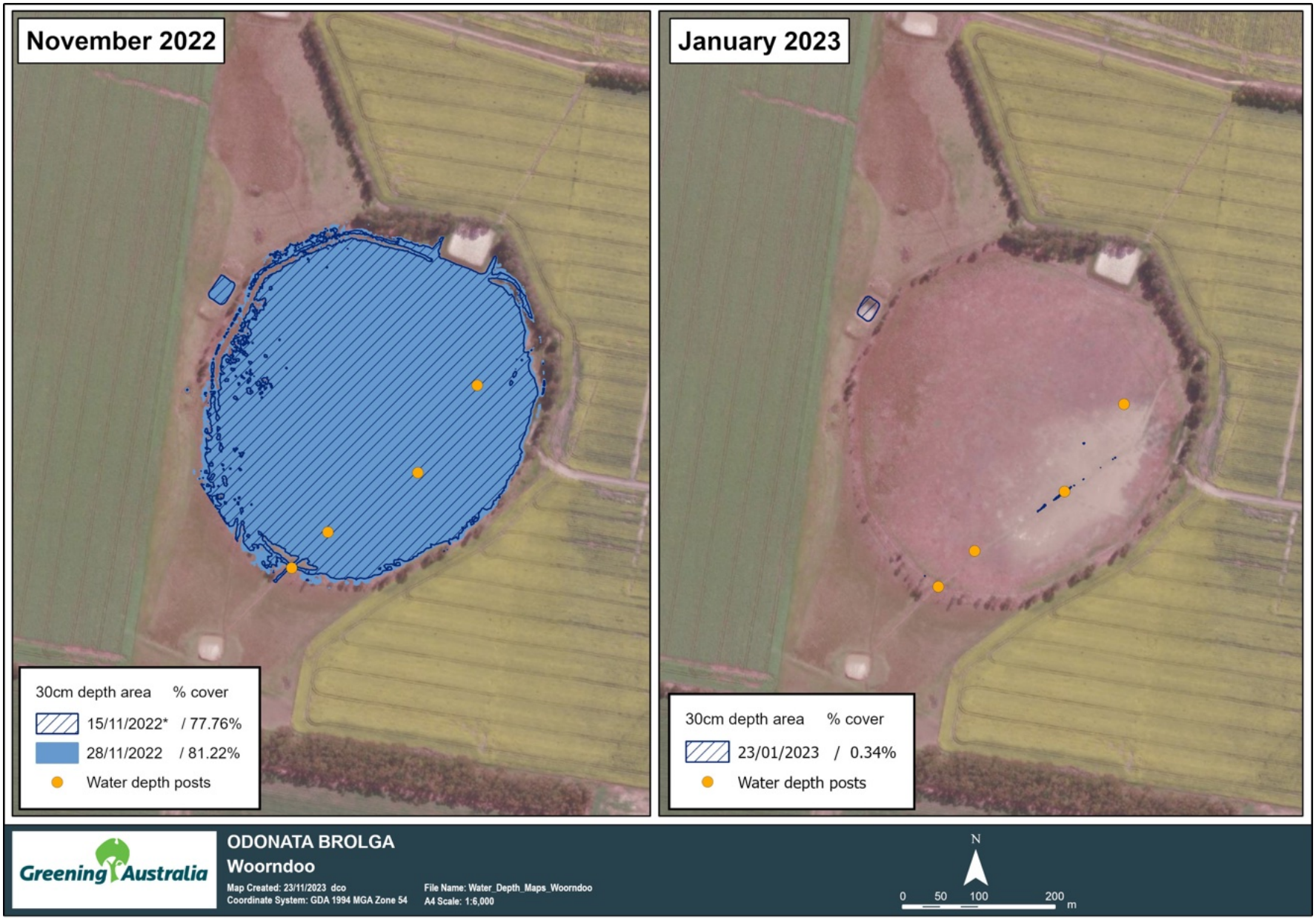

January 2023
February 2023
30cm depth area % cover
09/01/2023* / 10.82%
26/01/2023* / 8.47%
Water depth posts
30cm depth area % cover
07/02/2023* / 8.07%
Water depth posts
Greening Australia
ODONATA BROLGA
Crossroads
Map Created: 23/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Crossroads
A4 Scale: 1:3,000
N
0
50
100
200
m

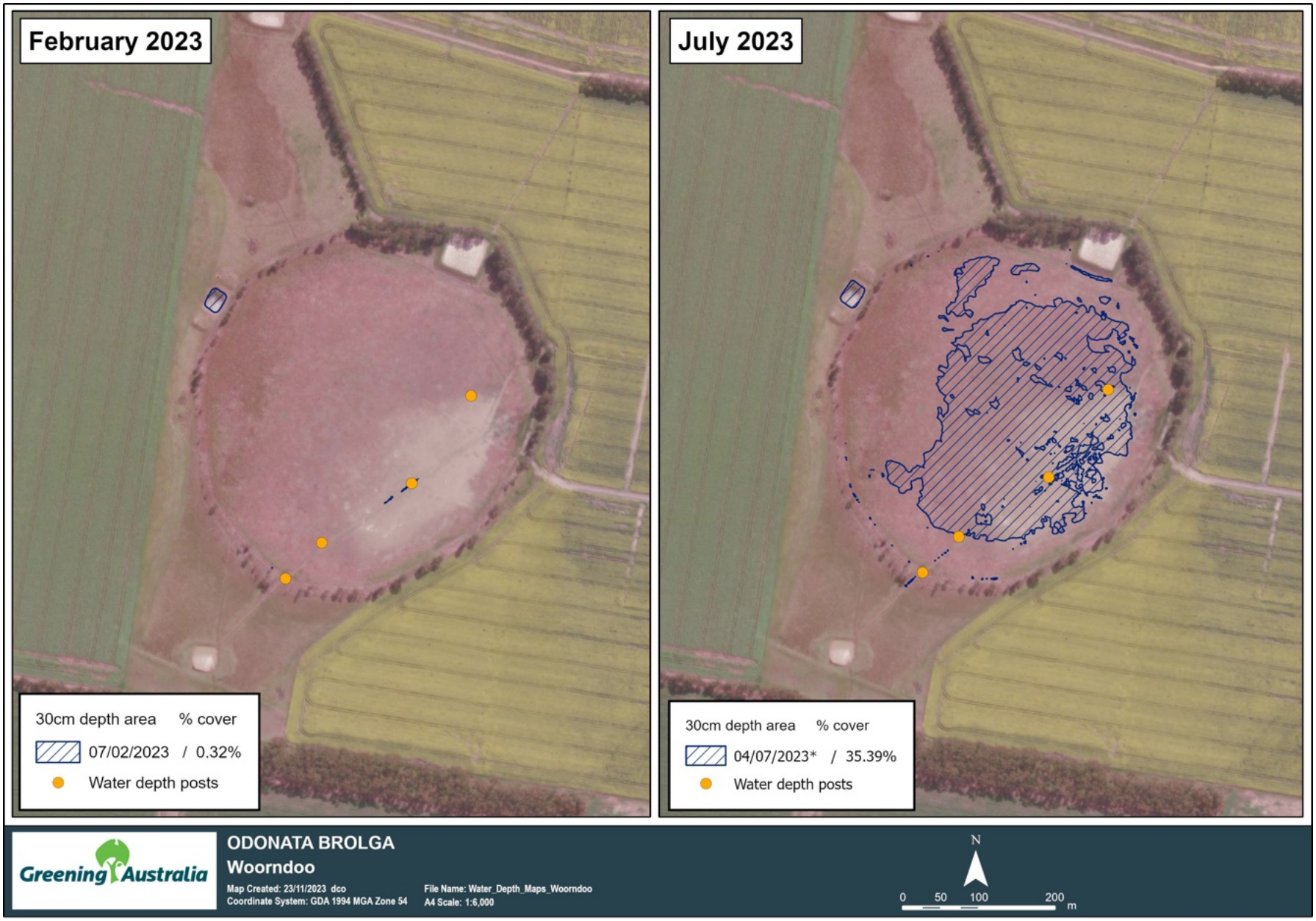

July 2023
August 2023
30cm depth area % cover
04/07/2023 / 0.01%
Water depth posts
30cm depth area % cover
02/08/2023 / 0.00%
Water depth posts
ODONATA BROLGA
Crossroads
Map Created: 23/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Crossroads
A4 Scale: 1:3,000
N
0
50
100
200
m


September 2023
October 2023
30cm depth area % cover
05/09/2023* / 5.64%
Water depth posts
30cm depth area % cover
06/10/2023* / 5.22%
Water depth posts
Greening Australia
ODONATA BROLGA
Crossroads
Map Created: 23/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Crossroads
A4 Scale: 1:3,000
N
0
50
100
200
m


November 2023
30cm depth area % cover
01/11/2023* / 5.17%
Water depth posts
Greening Australia
ODONATA BROLGA
Crossroads
Map Created: 23/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Crossroads
A4 Scale: 1:2,500
N
0
50
100
200
m

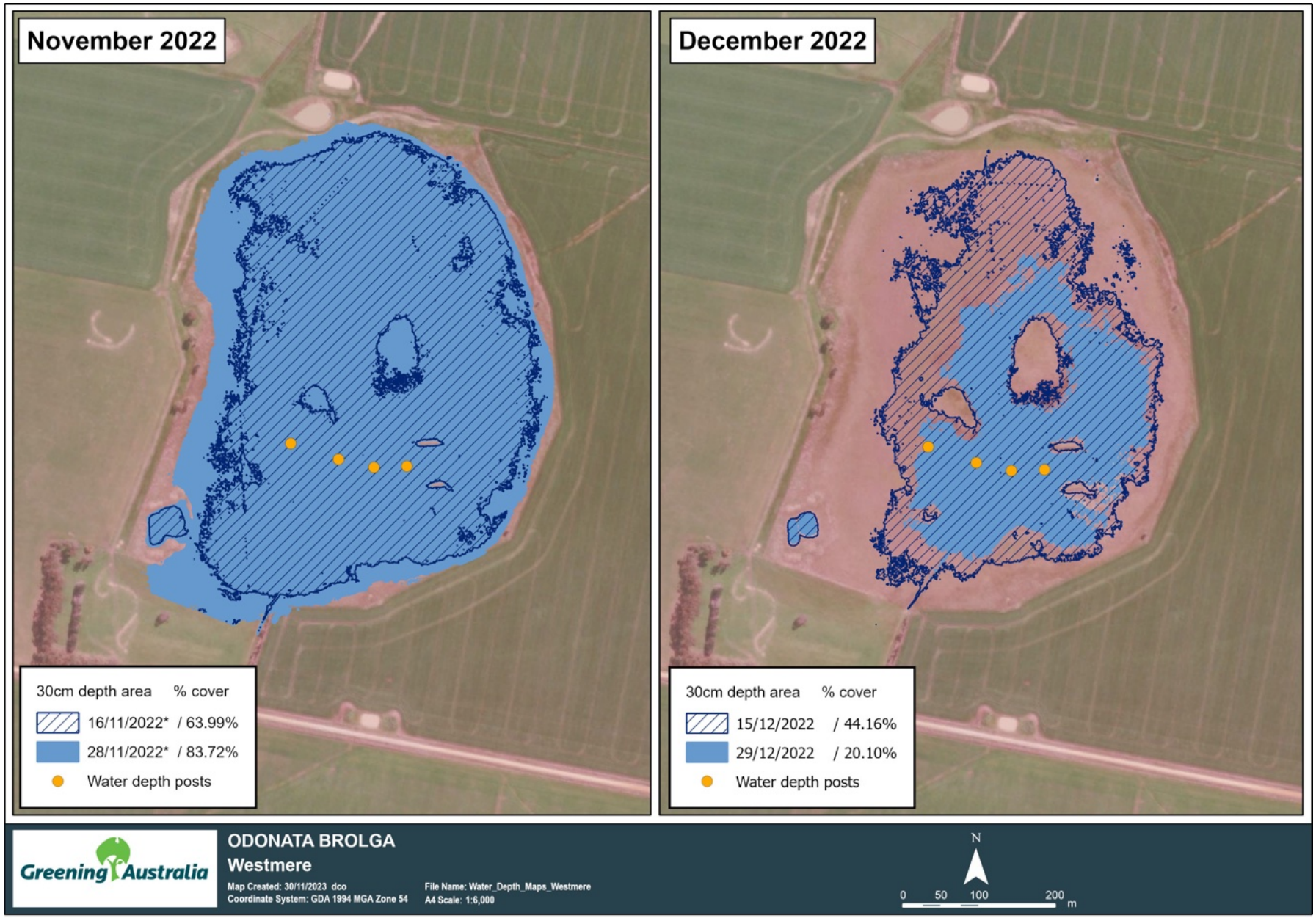
DUN-BCP-003 Woorndoo

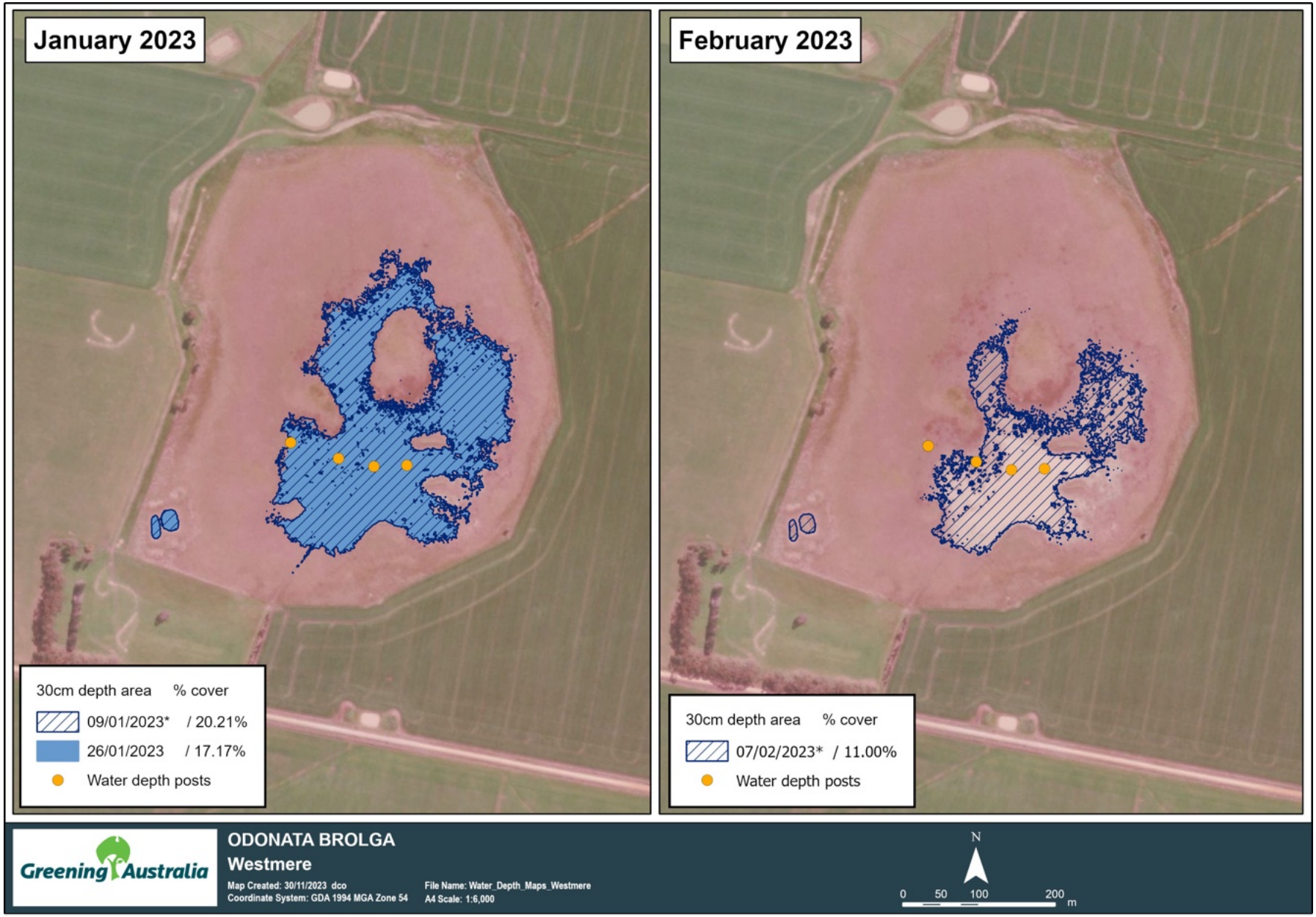


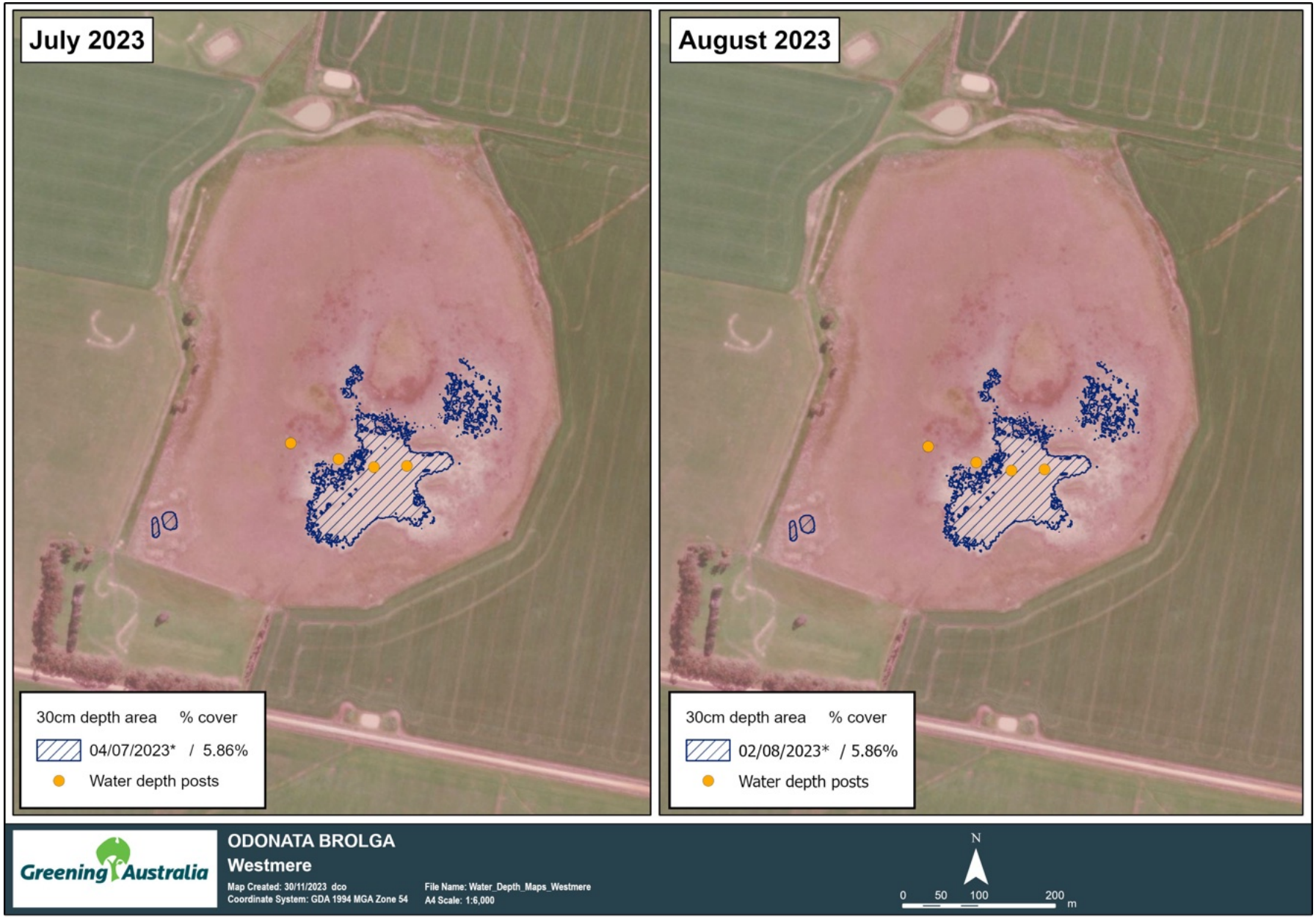

February 2023
July 2023
30cm depth area % cover
07/02/2023 / 0.32%
Water depth posts
30cm depth area % cover
04/07/2023* / 35.39%
Water depth posts
ODONATA BROLGA
Woorndoo
Map Created: 23/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Woorndoo
A4 Scale: 1:6,000
N
0 50 100 200 m

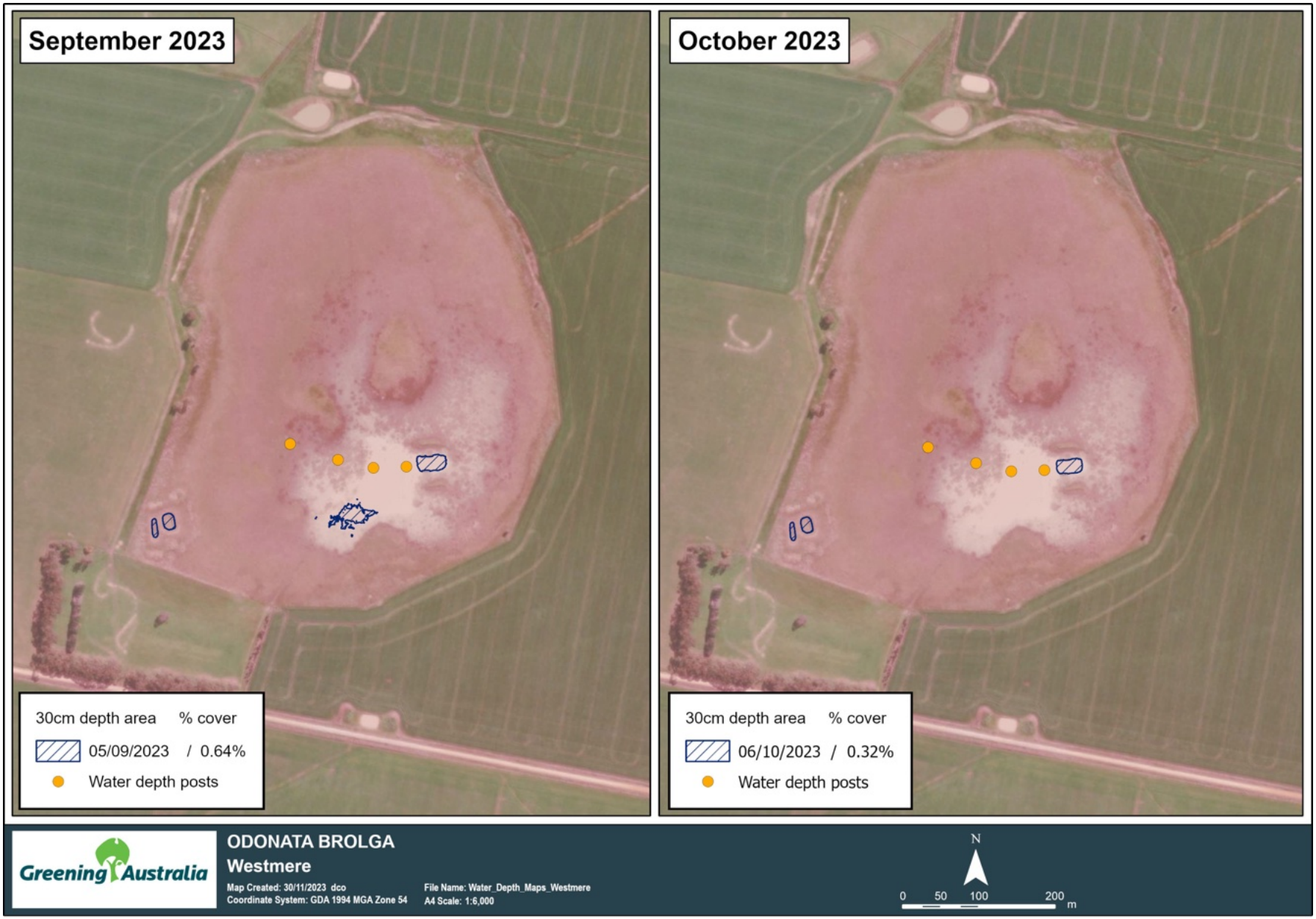

August 2023
September 2023
30cm depth area % cover
02/08/2023* / 37.46%
Water depth posts
30cm depth area % cover
05/09/2023* / 12.09%
Water depth posts
Greening Australia
ODONATA BROLGA
Woorndoo
Map Created: 23/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Woorndoo
A4 Scale: 1:6,000
N
0 50 100 200 m

DUN-BCP-004 Westmere


November 2022
30cm depth area % cover
16/11/2022* / 63.99%
28/11/2022* / 83.72%
Water depth posts
December 2022
30cm depth area % cover
15/12/2022 / 44.16%
29/12/2022 / 20.10%
Water depth posts
Greening Australia
ODONATA BROLGA
Westmere
Map Created: 30/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Westmere
A4 Scale: 1:6,000
N
0 50 100 200 m


January 2023
February 2023
30cm depth area % cover
09/01/2023* / 20.21%
26/01/2023 / 17.17%
Water depth posts
30cm depth area % cover
07/02/2023* / 11.00%
Water depth posts
Greening Australia
ODONATA BROLGA
Westmere
Map Created: 30/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Westmere
A4 Scale: 1:6,000
N
0 50 100 200 m


July 2023
August 2023
30cm depth area % cover
04/07/2023* / 5.86%
Water depth posts
30cm depth area % cover
02/08/2023* / 5.86%
Water depth posts
Greening Australia
ODONATA BROLGA
Westmere
Map Created: 30/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Westmere
A4 Scale: 1:6,000
N
0 50 100 200 m


September 2023
October 2023
30cm depth area % cover
05/09/2023 / 0.64%
Water depth posts
30cm depth area % cover
06/10/2023 / 0.32%
Water depth posts
Greening Australia
ODONATA BROLGA
Westmere
Map Created: 30/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Westmere
A4 Scale: 1:6,000
N
0 50 100 200 m


November 2023
30cm depth area % cover
01/11/2023* / 0.29%
Water depth posts
Greening Australia
ODONATA BROLGA
Westmere
Map Created: 30/11/2023 dco
Coordinate System: GDA 1994 MGA Zone 54
File Name: Water_Depth_Maps_Westmere
A4 Scale: 1:6,000
N
0 50 100 200 m