

Environment Offset Strategy Performance Report May 2022

Greenbank Training Area, QLD
EPBC 2011/5896

Department of Defence

Greenbank Training Area

Environment Offset Strategy Performance Report - May 2021

Background

This May 2022 report, is the third Environment Performance Report against the Environmental Offset Strategy under EPBC Act Approval 2011/5896, for the construction of additional Defence Training Facilities at the Greenbank Training Area (GBTA), Queensland. Condition 2 of the approval required Defence to prepare and submit an Environmental Offset Strategy (the Offset Strategy) to identify measures to compensate for residual adverse impacts from the construction and operation of the Defence training facilities at Greenbank Training Area.

Condition 3 of the approval requires Defence to prepare an annual Environment Performance Report (performance report) of progress and detailed information for all requirements under condition 2 for the Greenbank Training Area Offset Strategy. The offset strategy was submitted to the Environment Department on 31 October 2018 and approved by the delegate on 10 December 2018, along with an extension to the date of effect for EPBC Act Approval 2001/5896, from 17 January 2012 to June 2029. The extension was made to accommodate the life of the offset strategy delivery period and reporting requirements under the approval.

The offset strategy is being implemented over a ten-year period from January 2019 to December 2028. The first performance report was submitted on 15 May 2020 and included progress over the initial 15 month offset delivery period. Subsequent offset performance reports are required to be submitted 12 months from the date of the previous report, by 10 May of each year.

This performance report is due to the Environment Department on 10 May 2022. The fourth report is due by 10 May 2023.

Environment Performance reports against the Greenbank Training Area Offset Strategy are published and publicly available on the Defence Environmental Compliance website at <https://www.defence.gov.au/id/environmental.asp> under the reporting tab for EPBC Act Referral 2011/5896, Construction of Defence Training Facilities, Greenbank Training Area, QLD.

Greenbank Training Area

Environmental Offset Strategy Performance Report - May 2021

Summary outcomes for the reporting period

Delivery of offset requirements was significantly impacted by Covid-19 during the reporting period, and this was compounded by significant flood events that further limited site access. Site priorities have necessarily focussed on restoring physical access and security, a process which is not yet complete. These factors have caused delays to monitoring programs, weed management and the ability to stand up a research program.

Weed management programs will be intensified during 2022 to compensate for the delays in 2021 period, and to ensure gains made during intensive works undertaken during 2020-21 are not lost.

Autumn is the focal period chosen for routine vertebrate monitoring programs. Sound recorders and cameras are currently deployed across the offset area. In normal circumstances these would be collected with preliminary results available prior to May, but late deployment to avoid flood conditions means that results will not be analysed until mid-2022. However, some additional species have been recorded for the first time on the site and surrounds during non-routine surveys.

A critical action to commence a research partnership has not been possible during the uncertainty of Covid. At its core, this partnership will facilitate postgraduate student research. Lack of certainty around site access and capacity to access university research facilities and services during 2021 has meant that engagement of a University partner had to be postponed until 2022. The revised scope of this engagement was agreed in February 2022, and details of the contractual arrangements are currently being finalised.

Flood events caused major upstream progression of erosion along Oxley Creek and deposition of significant sediment. Defence continues to collaborate in regional programs to address this catchment-level issue. Major weed infestations along the creek continued to be targeted by weed programs to assist in improvement of overall system health.

A cool ecological burn was conducted in TA1b in mid-2021. Longer-term bushfire management planning was also undertaken through integration of the offset area into the update process for the training area Bushfire Management Plan.

Summary of progress against Offset Strategy completion criteria and performance targets

Legend	
■	Identifies unfulfilled requirement
■	Identifies partially fulfilled or alternative outcome that meets intent
■	Completed, or on or ahead of schedule based on proposed timeframes
■	Not required in this reporting period
■	Brief rationale for the coding. More detailed summary results against actions are provided in Table 1 below. <u>Note:</u> Some ongoing actions cannot be assessed adequately within the reporting period due to the requirement to simultaneously, establish and treat and measure against a baseline. These will be reported against in all future periods.

Table 1. Actions against Offset Strategy activities and targets between May 2020 and April 2021

Activity	Description of proposed works	Key Performance Indicator	Timeframe for completion
1. Formally identify offset area and update administrative arrangements to protect the offset area	1.1 Confirm offset location on and seek endorsement from Assistant Secretary Estate Plans (ASEP) in Defence. Completed- May 2021 Environment Offset Performance Report.	Site Selection brief signed by ASEP. Achieved through equivalent process of endorsement.	December 2018
	1.2 Update Range Standing Orders.	Training Area Standing Orders updated to reflect offset area. Training Area Standing Orders were updated to include the text provided in details sections below.	Included in current Standing Orders (signed Feb 2022)

Activity	Description of proposed works	Key Performance Indicator	Timeframe for completion
	1.3 Offset area and management requirements uploaded to Garrison and Estate Management System (GEMS). Completed – May 2020 Environment Offset Performance Report.	Environmental Offset Environmental Factors (EFRs) created in GEMS for Training Areas TA1b, TA2 and Oxley Creek northern exit corridor.	March 2019
2. Establish Oxley Creek management framework	2.1 Identification of immediate high value revegetation and weed management works with Oxley Creek Catchment Management Association.	Minuted outcomes from on-site meeting provided advice to Defence on practical measures that could be put in place to ensure integration of Oxley Creek northern exit corridor works to contribute to downstream master planning and whole-of-catchment strategies for weed and waterway improvements.	December 2018

Activity	Description of proposed works	Key Performance Indicator	Timeframe for completion
	2.2 Collaboratively determine GBTA Oxley Creek management thresholds with Oxley Creek Catchment Authority (OCCA) and GBTA Environmental Advisory Committee (EAC). As per 2021 Environment Offset Performance Report.	Minuted acceptance by EAC of core actions and thresholds with respect to environmental improvements of Oxley Creek northern exit corridor (e.g. weed density, established native replacement vegetation). Monitoring facilities and baseline data uploaded to GEMS. Target thresholds for key taxa (if appropriate) identified and recorded against monitoring facilities in GEMS. Oxley Creek was heavily impacted by flooding during 2021-2022, with the northern causeway across the site rendered unusable by Feb 2022 floods and not yet re-opened. Sand was deposited up to depth of ~ 2m on and near the crossing location. Defence facilitated drone surveys of the Defence-owned portion of the creek line in January and April 2022 as part of a broader catchment-management feasibility study commissioned by Logan City Council in collaboration with surrounding councils.	December 2019

3. Baseline surveys	3.1 Undertake baseline BioCondition assessment. The May 2021 Environment Offset Performance Report stated: “Establishment of benchmarks and baseline data as part of the integrated research program is expected mid-late 2021.” Due to site access restrictions and issue with Covid, this activity is now expected mid-late 2022.	Monitoring facilities and monitoring data uploaded to GEMS.	June 2019
	3.2 Undertake baseline survey of fauna using live trapping, cameras, sound recorders, secondary evidence, direct observation. Baseline work reported as complete in 2020 report.	Environmental factor records entered or updated in GEMS.	June 2019
	3.3 Undertake baseline fauna crossing assessments in TA2, Sandy Creek, and Oxley Creek northern exit corridor. The May 2021 report stated “Baseline monitoring was undertaken and reported in 2020 report. However, specific research-driven pre- and post- modification studies have not yet occurred. No specific monitoring of the exit corridor has occurred, as there are no crossing structures in place yet, and this aspect is particularly tied to the research design.” This is still the case. However, engagement of a research partner is now more certain to occur by mid 2022 given the easing of Covid restrictions.	Monitoring facilities and baseline data uploaded to GEMS.	June 2020

4. Establish monitoring program	4.1 Establish long-term remote camera and sound monitoring program, ideally in collaboration with Wildlife Preservation Society of QLD at a subset of baseline survey locations. Camera and sound monitoring has occurred across the offset area in each year of the offset program. Wildlife Preservation Society of Queensland was engaged to undertake other monitoring works during 2021. The refined camera and sound monitoring program has been scoped, but is not yet in place. It will include analysis and review of previous camera and sound monitoring data sets.	Agreement in place with WPSQ to integrated community-based monitoring. Monitoring facilities and data uploaded to GEMS. Target thresholds for key taxa (if appropriate) identified and recorded against monitoring facilities in GEMS. This forms part of the overall research and monitoring program in final stages of scoping.	June 2019
4. Contd. Establish monitoring program	4.2 Establish long-term BioCondition monitoring plots at a sub-set of baseline assessment locations that exhibit current deficiencies against target benchmark conditions. As per 3.1. Not yet completed. Contingent on the requirement for the QLD Herbarium to develop benchmarks for some communities. This is included in the integrated research program. Although the baseline condition of vegetation has not yet been finalised, changes in vegetation since commencement of the offset period have been collected through operation of time-lapse cameras across the offset area. This will allow retrospective analysis of changes for key metrics including fallen timber, changes in litter, species growth, weeds etc.	Agreement in place with WPSQ to integrated community-based monitoring. Monitoring facilities and data uploaded to GEMS. Target thresholds for key taxa (if appropriate) identified and recorded against monitoring facilities in GEMS.	June 2019

Activity	Description of proposed works	Key Performance Indicator	Timeframe for completion
4. Contd. Establish monitoring program	4.3 Establish nest box monitoring program. 250 nest boxes were installed in the offset area and immediate surrounds during early 2021. Monitoring of these boxes was undertaken in June 2021 with 28 in use at the time of monitoring by possums and gliders, and a further seven containing nesting material.	Monitoring facilities and monitoring data uploaded to GEMS.	December 2022
	4.4 Conduct annual monitoring activities in accordance with finalised arrangements. See above regarding delays. Camera monitoring for the current reporting period commenced in April 2022. Result are not yet available. To date there have been no camera records of quolls or koalas, despite use of attractant lures for quolls during targeted periods and the suitability of unbaited cameras for detecting the species. None of the 24 vertebrate species detected on cameras is considered threatened under the EPBC Act or QLD legislation (Note: <i>Phascogale tapotafa</i> was detected during 2021 in addition to the 23 spp. reported in 2021 report).	Monitoring data uploaded to GEMS within 28 days of completion of annual surveys. As noted in 2021 Environment Offset Performance Report - Data will be upload on Completion of <i>analysis</i>, as the specific data recorded against each monitoring location is contingent on the outcome of a significant process of data interpretation. However, the GEMS module that is currently intended to hold monitoring data has proven to be problematic and is being updated. An interim GIS-based solution is being instituted to at least temporarily relace the GEMS module and provide a warehouse for future upload in to GEMS.	(Annually until) December 2028

4. Contd. Establish monitoring program	The Wildlife Preservation Society of Queensland sighted the EPBC and QLD NCA threatened yellow-bellied glider (<i>Petaurus australis</i>) in Ipswich Council land that forms part of the Flinders-Karrawatha corridor immediately adjoining the offset area in March 2022. Further individuals were heard within the offset area. Sound recorders and spotlighting are suitable methods for detecting this species, which will specifically benefit from offset actions in post-forestry parts of the offset area. Monitoring may now be tailored to ensure this species and the greater glider, detected during 2021, are sufficiently reflected in design and monitoring of movements with adjoining areas.		
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Activity	Description of proposed works	Key Performance Indicator	Timeframe for completion
5. Weed eradication and suppression program	5.1 All weeds within offset area identified and treated to the minimum standard required by Queensland weed and pest animal strategy (2016-2020), and all occurrences of class 2 weeds identified and removed. The long-term outcome of weed management action reported in May 2021 Environment Offset Performance Report have not been formally assessed through re-measurement of the monitoring transects created during that treatment program. However, preliminary assessment indicates that the outcomes of ecological burns and sustained wet weather since that time is an increase in overall weed burden around the edge of TA1b, but a significant decrease in class 2 weeds.	Any “Eradication” or “Containment: Area A” weeds identified within offset area treated. Individual monitoring facilities created for each occurrence and target thresholds of “0” individuals recorded against each facility in GEMS May 2021 Environment Offset Performance Report stated “Monitoring facilities and threshold breaches not assessable in this period as they rely on multiple periods of treatment lodged against defined monitoring locations. Data will be available and reportable from next period onwards.” Unfortunately this is still the case, but a significant campaign of weed management is planned to compensate for lost opportunities during this reporting period.	December 2019
	5.2 Eradication or continuous suppression to less than 5% of baseline levels of all class 2 weeds and WONS in the offset area.	Monitoring program yields no records of class 2 weed species	December 2023
	5.3 Continuously suppress class 3 weeds to less than 10% of their baseline levels. As above, including provision of monitoring results and transect surveys for weeds around margins of offset areas to determine depth of weed penetration into natural vegetation.	No threshold breaches recorded by monitoring program. Not assessable in this period. Will be reportable from next period onwards.	Ongoing
6. Vertebrate pest management	6.1 Continue current site-wide pest management arrangements	Camera monitoring program and fauna movement structures research have reduction in detection rate of introduced predators, or no increase from a zero-detection baseline.	Ongoing

program	6.2 Reactively treat detections of dogs, cats, foxes into offset area noted by monitoring or research programs Routine pest management continues in accordance with Offset Strategy. In order to address presence of foxes and cats detected by cameras in the offset area the program is being re-focussed to target these species. Additionally, Canid Pest Ejectors are being trialled near TA2 in order to better target pest species and minimise risk of 1080 poisoning to quolls if present.	Camera monitoring program and fauna movement structures research have reduction in detection rate of introduced predators, or no increase from a zero-detection baseline.	Ongoing
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Activity	Description of proposed works	Key Performance Indicator	Timeframe for completion
	6.3 Reactively treat any incursions of pigs and deer into GBTA Nil detected.	BioCondition monitoring detects no presence or damage to habitat quality caused by pigs or deer	Ongoing
7. Other habitat improvement measures	7.1 Increase coarse woody debris in TA2 through opportunistic distribution of material sourced from tree management and other works on site.	BioCondition monitoring records 10% increase in coarse woody debris length over baseline.	December 2024
	7.2 Opportunistically increase ground shelter in TA2 and TA1b by ensuring coarse woody debris includes, or is supplemented with, hollow timber or other shelter, or is arranged to provide areas of cover.	Annual reporting documents activity has been undertaken. Photographs uploaded against BioCondition monitoring facilities in GEMS.	December 2024
	7.3 Fine-scale ecological burning with spot ignitions to achieve mosaic targets set down in RE fire management guidelines and to support achievement of BioCondition sub-canopy layer targets. Ecological burn noted in May 2021 Environment Offset Performance Report that was planned for TA1b consistent with QLD herbarium guidelines was completed in 2021.	Fire history reflects burn prescriptions in QLD Government Regional Ecosystem Fire Management Guidelines	Ongoing
	7.4 Supplementation of nesting hollows	Monitoring of nest box use indicates uptake by native species. 250 nest boxes were installed the offset areas and surrounds during late 2020 and early 2021. Monitoring in June 2021 indicated that 28 were already occupied by possums and gliders and that a further seven contained nesting materials.	December 2023

	7.5 Potential localised erosion issues documented The May 2021 Environment Offset Performance Report stated “No erosion worth registering in GEMS has been recorded. One road rehabilitation issue on the boundary of the offset area will potentially be dealt with through future works.” Significant flooding and rainfall have occurred since that time, causing widespread erosion of tracks and trails. However, no natural areas within the offset area seem to have been affected. Infrastructure repair works will be ongoing through 2022 and should prevent any expansion of erosion issues into natural surrounds.	Notable erosion recorded in GEMS as EFRs	December 2019
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Activity	Description of proposed works	Key Performance Indicator	Timeframe for completion
7. Other habitat improvement measures contd.	7.6 Monitoring of localised erosion	Monitoring facilities recorded in GEMS for all erosion EFRs. Vegetation cover and feature size thresholds defined for all erosion features in GEMS based on no increase in size, and maintaining or increasing current vegetation cover.	June 2024
	7.7 Remediation of localised erosion features that are not stabilised	Monitoring data indicates vegetation and size thresholds have not been exceeded	December 2024
8. Fauna movement measures	8.1 Increase fence permeability for ground-dwelling fauna and koalas in TA2 and Oxley Creek northern exit corridor	Fauna gates and other measures in place. Monitoring data indicates increased fauna movement.	June 2022
	8.2 Selective adjustments to fauna movement structures based on research program	(if possible) Monitoring indicates increased movement by koalas and quolls.	December 2024
	8.3 Establish a Research partnership to: ○ Increase fence permeability for ground-dwelling fauna and koalas in TA2 and Oxley Creek northern exit corridor ○ Establish effectiveness of fauna movement structures under Centenary Highway in maintaining connectivity of TA1a and TA1b ○ If relevant suggest collaborative enhancements to QLD Transport and Main Roads and improve supporting habitat features around fauna crossings	Research paper or report available.	December 2023
	8.4 Conduct annual monitoring Contingent on above actions that are not yet due being completed. See other comments against monitoring program.	Annual monitoring data uploaded to GEMS	(Annually until) December 2028

Detailed summary results and outcomes against relevant criteria

Note: there is limited additional detail of note to expand on the content of previous reports and the table above. With the freeing up of site access and the ability of partners and service providers to undertake those parts of the offset plan most impacted by Covid (research and monitoring components) and impacted by environmental conditions and physical site access (weed management) there should be significant additional data, mapping and activity content in the May 2023 report.

Activity 1 - Formally identify offset area and update administrative arrangements to protect the offset area

This activity is complete and further details will not be reported in future periods. Training Area Standing Orders (Planning Information) states:

Environmental Offsets Areas

4.20 Areas of Greenbank Training Area have been dedicated as environmental offsets.

4.21 The improvement in environmental condition of these areas is to compensate for development of training facilities.

a. The entire TA1b

b. TA2, excluding the area between the ring road and the track running from the northwest corner of the TA in vicinity of 933 395 to the track junction in vicinity of 945 383

4.22 Training activities can be conducted in offset areas, provided the following activity restrictions are observed:

a. No vegetation removal other than for a management activity required to implement the Offset Strategy

b. No off-road driving or parking

c. No excavation

d. No construction

e. No importation of vegetation except for a management purpose

f. No fires other than for a management activity required to implement the Offset Strategy

g. No live-fire activities or use of pyrotechnics likely to start fires

Activity 2 - Establish Oxley Creek management framework

In keeping with the Offset Strategy description of issues along Oxley Creek, upward progression of erosion due to major flooding has been very significant during this reporting period. In keeping with the collaborative strategy required to deal with issues along the creek, Defence provided access for a drone study commissioned by Logan City Council as part of a management feasibility study in collaboration with adjoining councils.



Sand deposits from February 2022 flooding of Oxley Creek. The grey surface visible in central foreground is the road surface, which continues under the deep sand accumulations in background.

Activity 3 - Baseline surveys

As per compliance table. Updates to species list from previous reports below.

Table 2. Remote camera species detections

NB. This is a cumulative list and not all species may have been detected in each year.

Species	Additional to 2020-2021?
Pests	
<i>Bufo marinus</i> (Cane toad)	No
<i>Canis lupus</i> (wild dog/dingo)	No
<i>Felis cattus</i> (cat)	No
<i>Vulpes vulpes</i> (fox)	No
<i>Oryctolagus cuniculus</i> (rabbit)	No
<i>Streptopelia chinensis</i> (spotted turtle dove)	No
Native mammals	
<i>Macropus giganteus</i> (eastern grey kangaroo)	No
<i>Macropus rufogriseus</i> (red-necked wallaby)	No
<i>Tachyglossus aculeatus</i> (echidna)	No
<i>Trichosurus vulpechula</i> (brush tail possum)	No
<i>Wallabia bicolor</i> (swamp wallaby)	No
<i>Antechinus flavipes?</i> (yellow-footed antechinus)	No
<i>Petaurus breviceps</i> (sugar glider)	No
<i>Phascogale tapoatafa</i> (Brush-tailed Phascogale)	Yes
<i>Pseudocheirus peregrinus</i> (common ringtail possum)	No
Native Birds	
<i>Alectura lathamii</i> (brush turkey)	No
<i>Corvus orru</i> (Torresian crow)	No
<i>Dacelo novaeguineae</i> (Kookaburra)	No
<i>Gymnorhina tibicen</i> (Australian magpie)	No
<i>Podargus strigoides</i> (tawny frogmouth)	No
<i>Threskiornis molucca</i> (white ibis)	No
<i>Leucosarcia melanoleuca</i> (wonga pigeon)	No
Native reptiles	
<i>Pogona barbata</i> (bearded dragon)	No
<i>Varanus gouldii</i> (sand goanna)	No
<i>Varanus varius</i> (lace monitor)	Yes

Activity 4 - Establish monitoring program

As per compliance table.

Activity 5 – Weed eradication and suppression program

Weed management activities will be intensified in the coming reporting period. Monitoring at the below permanent transects last monitored in June 2021 will be repeated in June 2022 to gauge the impacts of prescribed burning, previous control programs and heavy rainfall events, coupled with no treatment during flood-affected 2022. Transects are located at 200 m intervals around the edges of the offset area and run 100m inward to reflect the marked edge effects of weed infestation and monitoring any inward invasion of marginal weed infestations. Those on the northern side of TA2 follow the high risk main road boundary rather than the offset area, where the internal boundary has limited weed infestation. Quantitative weed cover and photographic recordings are made along transects. Fifty weed species are currently recorded from TA1b and 52 from TA2. These are being treated across their occurrence, and outcomes monitored at 73 individual transects. Preliminary observation of transects in TA16 suggests that weed burden has increased over 2021-2, possibly due to prescribe burning and high rainfall, but that high threat weeds have declined, in keeping with the Offset Strategy targets. Monitoring results will properly inform management decisions about how to respond to the current weed situation through 2022-23.



Activity 7 – Other habitat Improvement measures



Vegetation recovery following prescribed cool burn in TA1B offset area.

Activity 8 - Fauna movement measures

As per compliance table. This component is research-dependent and will commence in 2022.



Flood damage to fence line containing fauna crossings connecting the offset area to the Flinders-Karrawatha corridor.