

Environment Offset Strategy Performance Report May 2021

Greenbank Training Area, QLD
EPBC 2011/5896

Department of Defence

Greenbank Training Area

Environment Offset Strategy Performance Report - May 2021

Background

This May 2021 report, is the second 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 2021. The third report will be due 10 May 2022.

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.

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Summary outcomes for the reporting period

Efforts to undertake large offset management programs during the second reporting period continued to be hindered by the ongoing effects of Covid, however since late 2020, access to the site and the ability to meet with external stakeholders has improved. This has enabled a comprehensive body of work for weed management to be developed which is currently being delivered. Weed management works and monitoring data is expected to be completed this financial year 2020/2021.

Other vertebrate monitoring programs are also due to be completed this financial year. Stalled commercial arrangements for long-term research and monitoring have been fully scoped and will be signed off by July 2021.

To mitigate the impacts of limited contact and site access for the reporting period, remote cameras were deployed throughout the offset area. The cameras collected more than half a million photographs. Analysis of that data set continues. Preliminary results are presented in this report, however new findings are expected to be delivered once all images have been examined and metrics developed to capture results against stratified survey locations.

Two hundred and fifty nest boxes were installed across the offset area and immediate surrounds. The installation of the nesting boxes brought forward a milestone scheduled for later in the project in an effort to mitigate impacts of other delays to the schedule. Nest box inspections provide an additional monitoring method with a prolonged presence on site that can track offset success for species not detectable on remote ground based cameras. This is of potentially increased benefit of the nesting boxes following the detection of threatened greater gliders in the offset area during spotlighting surveys in December 2020.

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. Note: 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. The offset area has been endorsed in formal minuted correspondence by ASEP. A Site Selection board was not required as a mechanism to achieve this activity. Equivalent endorsement was achieved through required stakeholder engagement and correspondence to address issues noted in the 2020 report.	Site Selection brief signed by ASEP Achieved through equivalent process of endorsement.	December 2018
	1.2 Update Range Standing Orders Offset plan requirements for activity restrictions in the offset area have been endorsed by the Training Area authority in updated Training Area Standing Orders (TASOs). In addition, physical signage marking boundaries and detailing restrictions have been approved and will be installed mid 2021.	Training Area Standing Orders updated to reflect offset area. Inclusion agreed, due for update mid 2021 Approved physical signage to be installed mid 2021.	on next review

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) Ongoing meetings held with relevant participants: -17 December 2020 OCCA -15 March OCCA, Logan and Brisbane City Councils Discussion included seeking collaborative grant funding for rehabilitation works, weed management programs and integration of Defence requirements into a feasibility study being conducted on erosion remediation works downstream of GBTA. No specific management thresholds have been identified. Defence management of weeds issues in the creek line has focussed on upstream areas of very high density weed infestation to prevent downstream re-infestation following control. Biological control agents have been discussed with Brisbane City council as the only feasible way to access and manage areas of infestation internal to the impact area and immediately upstream of the exit corridor.	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 Ongoing collaboration on management issues with EAC members has resumed following restrictions (noted in 2020 report due to bushfire availability and Covid).	December 2019

3. Baseline surveys	3.1 Undertake baseline BioCondition assessment Establishment of benchmarks and baseline data as part of the integrated research program is expected mid-late 2021.	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. Ongoing improvement in site knowledge will continue, with modifications to programs as appropriate to new findings (see monitoring below)	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 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.	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. The camera monitoring program reported in 2020 continued throughout 2020-2021 (below). A full research and monitoring program has been scoped with relevant suppliers, with contract arrangements yet to be finalised. Wildlife QLD (formerly WPSQ) has undertaken preliminary spotlighting work, with further monitoring work due for completion in FY 20-21. Results will be available after that time.	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. Final research and monitoring not yet in place with relevant participants parties. Wildlife QLD has commenced works on site. Known Facilities and monitoring data uploaded to GEMS	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. 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 the early adoption of these boxes will be undertaken mid 2021.	Monitoring facilities and monitoring data uploaded to GEMS	December 2022
	4.4 Conduct annual monitoring activities in accordance with finalised arrangements Camera monitoring across sites reported in the 2020 report was continued throughout 2020-2021. Due to a combination of triggered and time-lapse photographs being taken across such a prolonged period, more than half a million images were recorded. Final analysis of results is not yet completed due to the overwhelming data set. Preliminary results are summarised below. Analysis will focus on a combination of: - Total species diversity across the entire period of operation for all cameras to increase baseline data - Relative detection rates for pre-determined core periods of 18 days/nights when all cameras were operating to provide standard data for the long-term monitoring program	Monitoring data uploaded to GEMS within 28 days of completion of annual surveys 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. Analysed results will be reported against the vertebrate monitoring requirement in the compliance report due in July 2021.	(Annually until) December 2028

4. Contd. Establish monitoring program	In addition to the species reported in 2020 based on camera detections the following species have now been recorded on remote cameras within the offset area: - Spotted turtle dove (introduced) - Wonga pigeon - Rabbit (introduced) - Yellow-footed? antechinus - Sugar glider - Common ringtail possum - Sand goanna - Bearded dragon 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 23 vertebrate species detected on cameras is considered threatened under the EPBC Act or QLD legislation. Spotlighting in December 2020 recorded an EPBC (vulnerable) greater glider on the edge of the offset area TA2. This species cannot be successfully monitored using ground-based cameras or sound recording, and future monitoring efforts will take this in to account by incorporating greater spotlighting effort. The species is reliant on tree hollows, and the nest box monitoring program may also provide future monitoring results for this species.		
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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 Weed management requirements were scoped as per offset plan requirements for delivery by site management (EMOS) contractor in FY 20-21. Outcomes for the reporting period will not be available until end of financial year and will be included in next reporting period.	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 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.	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 program	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
	6.2 Reactively treat detections of dogs, cats, foxes into offset area noted by monitoring or research programs Site-wide program scope is being modified to reflect higher targeting requirements for foxes and cats based on camera monitoring results.	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

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 No burning conducted in reporting period. Planning and approval completed for a 2021 ecological burn in TA1b consistent with QLD guidelines.	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 in both offset areas and surrounds during late 2020 and early 2021. Monitoring will commence mid 2021 for early uptake and usage of boxes.	December 2023
	7.5 Potential localised erosion issues documented 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.	Notable erosion recorded in GEMS as EFRs	December 2019

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 further comments against monitoring program.	Annual monitoring data uploaded to GEMS	(Annually until) December 2028

Detailed summary results and outcomes against relevant criteria

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

The offset area has been agreed by all relevant parties and registered in GEMS. Final wording for updated Training Area Standing orders and boundary signage has been agreed, with both expected to be in place by July 2021. The area has been identified and protected from harmful activities since commencement of the offset period, however these final steps will ensure all site users are pre-notified of the status and use of the area.

Activity 2 - Establish Oxley Creek management framework

This requirement is ongoing and adaptive based on the capacity of external parties to attend and integrate programs of works with Defence. With increasing freedom of movement in late 2020 and 2021 two meetings have been held to re-invigorate this process.

Activity 3 - Baseline surveys

Due to the practical impediments of the last eighteen months the comprehensive camera baseline survey was extended throughout the reporting period. This resulted in detections of reptile species as well as new mammal and bird records. However, a much more detailed scope has been developed to deliver active baseline surveys for other taxa in the coming reporting period. Sufficient data has been collected through the baseline data set to monitor changes in occupancy and potentially relative abundance of some species over the offset period. However, there were no detections of koalas or quolls. Monitoring programs will be adjusted to include more spotlighting in response to detection of a greater glider, and the early completion of nestbox installation has provided an additional monitoring tool.

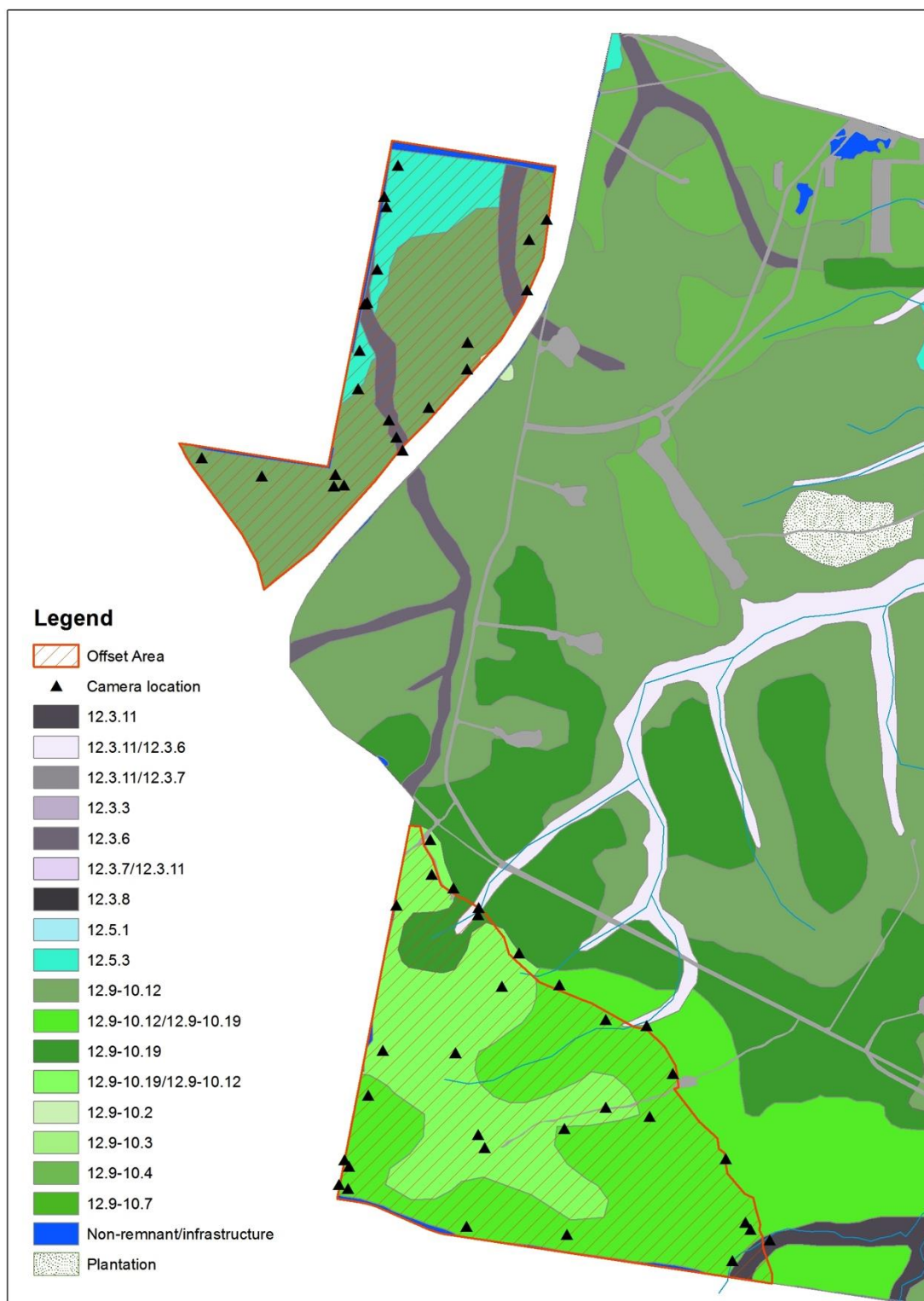


Figure 1. Remote camera locations within the offset area.

Table 2. Remote camera species detections

Species	Additional to 2020?
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)	Yes
<i>Streptopelia chinensis</i> (spotted turtle dove)	Yes
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)	Yes
<i>Petaurus breviceps</i> (sugar glider)	Yes
<i>Pseudocheirus peregrinus</i> (common ringtail possum)	Yes
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)	Yes
Native reptiles	
<i>Varanus gouldii</i> (sand goanna)	Yes
<i>Pogona barbata</i> (bearded dragon)	Yes

Activity 4 - Establish monitoring program

The prolonged second deployment of cameras across a stratified design did increase our understanding of fauna across the site as suggested by the 2020 report. However, that knowledge, in combination with results from early spotlighting surveys has upheld the following from 2020 period: Key aspects of this that influence ongoing monitoring design are that:

- Due to their rarity (or absence in the case of quolls), it is unlikely quolls and koalas will be detected with any regularity, if at all, using passive methods such as cameras. Specialist active methods such as detector dogs will need to be strategically used to understand where, and if, these species are utilising the offset area and surrounds.
- Patterns of site use by different vertebrate species are tied to vegetation communities, water, and boundary crossings.
- Spotlighting and other methods (e.g. nest box census) must be integrated into a monitoring program to successfully monitor smaller arboreal species.
- Current fauna crossings provide convenient monitoring locations due to the funnelling of fauna through those locations.

Activity 8 - Fauna movement measures

Early results reported in 2020 period showed that some fence crossings are frequently used by native and pest fauna. Defence is now finalising the scope and procurement arrangements to establish this integrated research partnership, which will examine the offset site and surrounds, and include the delivery of at least one PhD project that should benefit land management for koala management across SE QLD.