Ecological Monitoring Program Annual Report 2025: Year 5 Operation Phase

Scenic Rim Trail, Main Range National Park

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Prepared for Spicers Retreats Hotels & Lodges Pty Ltd (Spicers)

www.baamecology.com
(07) 3286 7788
info@baamecology.com

BAAM
ECOLOGICAL CONSULTANTS

Project Title: Ecological Monitoring Program Annual Report 2025: Year 5 Operation Phase, Scenic Rim Trail, Main Range National Park

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Client: Spicers Retreats Hotels and Lodges Pty Ltd (Spicers)

Project Manager/s: Dr Penn Lloyd

Project Author/s: Dr Penn Lloyd, Dr Colin Trainor and Emma Green

Project Summary: This report provides the results of monitoring of Hastings River Mouse, Fleay's Frog, Mountain Frog and riparian habitat quality at the Scenic Rim Trail, Main Range National Park, in accordance with the requirements of the Scenic Rim Trail Management Plan.

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Executive Summary

Background

Spicers Retreats Hotels and Lodges Pty Ltd (Spicers) has developed a multi-day bushwalking experience called the Scenic Rim Trail - Thornton Trailhead to Spicers Canopy Nature Reserve (SRT), which extends from Mt Mistake to Spicers Peak Nature Refuge, traversing the Main Range National Park (MRNP) in southern Queensland and the Gondwana Rainforests of Australia World Heritage Area. In addition to the walking tracks, the SRT Project constructed and now operates two new accommodation camps in Main Range National Park; the Amphitheatre Ecocamp and Woodcutters Ecocamp, with the latter now known as Timber Getters Eco Cabins. The Commonwealth Government's conditions of approval for the project (EPBC 2016/7847) require annual monitoring to be undertaken in accordance with the commitments of the Scenic Rim Trail Management Plan (SRTMP).

Study Objectives

This report addresses the annual monitoring requirements for the terrestrial ecology matters through the 2024/25 reporting period, summarised in the table below. They include requirements for on-ground field surveys, as well as comparison of the monitoring survey results with baseline data, to assess whether corrective action trigger thresholds are exceeded.

Matter	Monitoring requirements
Hastings River Mouse	***Monitoring method***: Trapping survey including 400 trap-nights within 100 m of Woodcutters EcoCamp boundaries and 400 trap-nights at a control site approximately 600 m north-west of Woodcutters EcoCamp. ***Correction trigger values***: The trigger for a management response will be the absence of or significant reduction in the presence of Hastings River Mouse during any annual trapping period and/or the capture of feral rodents during the live trapping.
Fleay's Frog	***Monitoring method***: At least two separate nocturnal surveys (two nights each) for adult frogs during ideal conditions, on transects upstream (control site) and downstream (impact site) of the crossings of Blackfellow Creek and Dalrymple Creek, as well as along the Cascades Trail. Tadpoles sampled by dip-netting in pools along the same transects three times. ***Correction trigger values***: The trigger for a management response will be if the population at an Impact site (downstream transect) is significantly less ($p < 0.05$, using Analysis of Variance) than the Control site (upstream transect).
Mountain Frog	***Monitoring method***: Two daytime surveys for calling male frogs along transects upstream and downstream of the crossings of Blackfellow Creek and Dalrymple Creek, as well as habitat adjacent to the SRT near Sylvester's Lookout. Supplementary sampling on an unnamed creek on Lookout Road. ***Correction trigger values***: The trigger for a management response will be if the population at an Impact site (downstream transect) is significantly less ($p < 0.05$, using Analysis of Variance) than the Control site (upstream transect).
Riparian habitat quality	***Monitoring method***: Monitoring key indicators of riparian habitat condition along transects 100 m upstream and 100 m downstream of the crossings of Blackfellow Creek and Dalrymple Creek: ***Correction trigger values***: The trigger for a management response will be any damage to riparian vegetation caused by walkers using the crossings, or by feral animals.

Study Approach

Field surveys were conducted by a suitably qualified person between 28th October 2024 and 20th March 2025. These surveys met the monitoring method requirements summarised above.

Key Results and Discussion

Hastings River Mouse

The trapping survey did not capture any Hastings River Mice at either the impact or control sites, and no feral rodents were captured. The assessment of whether corrective action is triggered based on the results of the fifth year of operation phase monitoring for Hastings River Mouse is summarised in the table below.

Corrective action trigger	Assessment	Corrective action required
Absence of or significant reduction in the presence of Hastings River Mouse during any annual trapping period.	The 2024 survey is the third consecutive year that Hastings River Mouse has not been captured in the environs of the Woodcutters Ecocamp; however, the zero captures from 400 trap nights in 2024 is little different from the single capture from 400 trap nights during the baseline survey and the absence of captures at Woodcutters Ecocamp in 2024 was matched by an absence of captures at the control site; due to the naturally low and variable trapping rates for this species, there is no evidence of a significant impact of the Project on Hastings River Mouse relative abundance in the vicinity of the ecocamp based on the monitoring data to date.	No corrective action required.
Capture of feral rodents during Hastings River Mouse trapping surveys.	No feral rodents were captured during the 2024 survey.	No corrective action required.

Fleay's Frog

Four nights of Fleay's Frog surveys were conducted between late January and March 2025. There was high variability in the number of frogs recorded between surveys due to variable survey conditions. Fleay's Frog calling activity was high during the two nights survey in January, with frog numbers similar to numbers observed during high frog activity periods on previous surveys of the Cascades Trail. Although rainfall conditions preceding the January and March 2025 surveys appeared to be suitable for Fleay's Frog activity based on prior survey results, there was good frog activity on the January survey but reduced Fleay's Frog activity during the two nights surveyed in March 2024. The assessment of whether corrective action is triggered based on the results of the third year of operation phase monitoring for Fleay's Frog is summarised below.

Corrective action trigger	Assessment	Corrective action required
The population at an Impact site (downstream transect) is significantly less ($p < 0.05$, using Analysis of Variance) than the Control site (upstream transect)	Frog abundance was significantly lower in operation year 5 compared with baseline surveys at both Blackfellow and Dalrymple creeks. However, since this change did not differ between upstream control and downstream impact sites, it indicates no significant impact under the BACI design. Tadpole abundance was not significantly different to the baseline at Blackfellow Creek but was significantly lower at Dalrymple Creek in operation year 5 compared with baseline surveys. However, since this change did not differ between upstream control and downstream impact sites, it indicates no significant impact under the BACI design.	No corrective action required.

Mountain Frog

Mountain Frogs were detected calling on both the upstream and downstream transects at Blackfellow Creek, the downstream transect at Lookout Road and below Sylvester's Lookout. There was no Mountain Frog calling activity upstream and downstream of the Dalrymple creek crossing. At Blackfellow Creek, frog calling activity did not vary significantly between upstream and downstream transects or between periods. The absence of Mountain Frog calling activity upstream and downstream of the Dalrymple Creek crossing was consistent with all previous surveys that have not detected Mountain Frog at those locations. At Lookout Road, frog calling activity did not vary significantly between upstream and downstream transects or between periods. The assessment of whether corrective action is triggered based on the results of the third year of operation phase monitoring for Mountain Frog is summarised in the table below.

Corrective action trigger	Assessment	Corrective action required
The population at an Impact site (downstream transect) is significantly less ($p < 0.05$, using Analysis of Variance) than the Control site (upstream transect).	Frog calling activity was not significantly different between baseline and operation year 5 periods at both downstream 'impact' and upstream 'control' sites at Blackfellow Creek. The absence of significant change in frog calling activity between the downstream and upstream transects indicate no significant impact under the BACI design.	No corrective action required.

Riparian habitat quality

There was no change in riparian habitat condition upstream and downstream of the Blackfellow Creek crossing, which remained in good condition with no evidence of damage to riparian vegetation, and no weeds were present. There was no evidence of groundcover vegetation trampling either upstream or downstream of the Dalrymple Creek crossing, no evidence of weeds, and no evidence of feral pig visitation during any survey between October 2024 and March 2025. The assessment of whether corrective action is triggered based on the results of the third year of operation phase monitoring for riparian habitat quality is summarised in the table below.

Corrective action trigger	Assessment	Corrective action required
Any damage to riparian vegetation caused by walkers using the crossings, or by feral animals.	There was no evidence of damage to riparian vegetation or evidence of feral animal activity within 100 m upstream or downstream of the Dalrymple Creek crossing. There was evidence of Feral Pig activity downstream of the Blackfellow Creek crossing; otherwise, no damage to riparian vegetation detected. Feral pigs were active in Blackfellow Creek during the baseline surveys, so the Feral Pig activity during the fourth year of operation is not attributable to the Project.	No corrective action required as QPWS already has Pig traps operational on the Winder Track above Blackfellow Creek.

Recommendations

No recommendations are made.

ECOLOGICAL MONITORING PROGRAM ANNUAL REPORT 2025

YEAR 5 OPERATION PHASE

SCENIC RIM TRAIL, MAIN RANGE NATIONAL PARK

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Appendix 1: Habitat assessment site data

Terms and Abbreviations

BAAM	Biodiversity Assessment and Management Pty Ltd
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
MRNP	Main Range National Park
NC Act	Queensland *Nature Conservation Act 1992*
QPWS	Queensland Parks and Wildlife Service
SD	Standard deviation, a measure of variability
SE	Standard error, a measure of variability
SRT	Scenic Rim Trail - Thornton Trailhead to Spicers Canopy Nature Reserve
SRTMP	Scenic Rim Trail Management Plan

1.0 Introduction

1.1 Background

Spicers Retreats Hotels and Lodges Pty Ltd (Spicers) has developed a multi-day bushwalking experience called the Scenic Rim Trail - Thornton Trailhead to Spicers Canopy Nature Reserve (SRT), which extends from Mt Mistake to Spicers Peak Nature Refuge, traversing the Main Range National Park (MRNP) in southern Queensland and the Gondwana Rainforests of Australia World Heritage Area. The length of the Class 5 Trail is approximately 53 km and is made up of existing National Park public walking tracks, Queensland Parks and Wildlife Service (QPWS) management roads, existing walking tracks on private land and new walking tracks through Main Range National Park and adjacent private lands. In addition to the walking tracks, the SRT Project constructed and now operates two new accommodation camps in Main Range National Park, the Amphitheatre Ecocamp and Woodcutters Ecocamp, the latter now known as Timber Getters Eco Cabins.

The SRT Project (EPBC 2016/7847) received approval with conditions under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 18th January 2019, with variation of conditions approved on 2nd July 2019. Construction work commenced at Woodcutters Ecocamp after building approval was received on 20 September 2020 and construction was completed in April 2020. The Blackfellow Creek track crossing was established in October 2019 and the Dalrymple Creek track crossing was established in January 2020 as part of the new trail establishment that commenced in October 2019.

The Scenic Rim Trail Management Plan (SRTMP) sets out the management objectives and actions that Spicers has committed to undertaking during the construction and operational phases of the Scenic Rim Trail to fulfil the statutory requirements of the conditions of approval for the Project.

The Commonwealth Department of Environment and Energy (the Department) conditions of approval for the Scenic Rim Trail EPBC 2016/7847, dated 2nd July 2019, specify the following under conditions 14c and 14d:

> *14c. The SRTMP required under conditions 10-13 must specify the details of a 10-year annual ongoing monitoring program (including methodology, effort, timing, frequency and responsibilities) capable of predicting and detecting:*
>
> > *i. a decrease of the population of Hastings River Mouse at the Woodcutters Ecocamp compared to the baseline population established under condition 8.a.;*
> >
> > *ii. a decrease of the population of Fleay's Frog and Mountain Frog at each crossing of the new trails at Blackfellow Creek and Dalrymple Creek compared to the baseline population established under condition 8.b.;*
> >
> > *iii. changes in water quality compared to the baseline established under condition 8.c. at either crossing of the new trails at Blackfellow Creek and Dalrymple Creek; and*
> >
> > *iv. a decrease of riparian habitat quality at either crossing of the new trails at Blackfellow Creek and Dalrymple Creek compared to the baseline established under condition 8.f.*
>
> *14d. The SRTMP required under conditions 10-13 must specify criteria that will trigger corrective action and indicative correction measures, if any decrease or change in water quality, populations or riparian habitat quality referred to in condition 14.c. is detected.*

Baseline data were collected during 2018/19 prior to the commencement of construction and operation and reported in BAAM (2018, 2019a,b).

1.2 Objectives of the Ecological Monitoring Study

The objectives of the ecological monitoring study reported on in this report are to address the annual monitoring requirements set out in the SRTMP for the fifth year of operation for the following matters:

- Hastings River Mouse (*Pseudomys oralis*), listed as endangered under the EPBC Act and the Queensland *Nature Conservation Act 1992* (NC Act), at the Woodcutters Ecocamp;
- Fleay's Frog (*Mixophyes fleayi*), listed as endangered under the EPBC Act and NC Act, at each crossing of the new trails at Blackfellow Creek and Dalrymple Creek;
- Mountain Frog (*Philoria kundagungan*), listed as vulnerable under the NC Act, at each crossing of the new trails at Blackfellow Creek and Dalrymple Creek; and
- riparian habitat quality at the crossings of the new trails at Blackfellow Creek and Dalrymple Creek.

The monitoring requirements for these matters in the SRTMP are summarised in **Table 1.1** below. They include requirements for on-ground field surveys as well as comparison of the monitoring survey data with baseline data to assess whether corrective action trigger thresholds are exceeded.

Table 1.1. Summary of ecological monitoring requirements in the SRTMP addressed in this report.

Matter	Monitoring requirements
Hastings River Mouse	***Location***: Transects within 100 m of the Woodcutters EcoCamp boundaries in Hastings River Mouse habitat and at a control site in habitat above Dalrymple Creek, approximately 600 m north-west of Woodcutters EcoCamp. ***Survey method***: Targeted trapping survey using size-A Elliott traps baited with peanut butter and rolled oats. Traps placed preferentially in local-scale habitat to maximise the likelihood of capture e.g. near fallen trees, adjacent to rock outcrops, trees with basal cavities, dense grass, and burrows of suitable size. Traps set in the late afternoon and checked again within two hours of sunrise to identify and release all animals live-trapped overnight. The total number of individuals of all rodent species trapped each night on each transect to be recorded and the capture rate to be standardised as captures per 100 trap nights. Habitat assessment at each of four habitat assessment sites, recording the following vegetation characteristics: (1) the canopy height range, median height and percentage canopy cover for each of the canopy, subcanopy, shrub and groundcover layers using a line-intercept method along a 50 m transect, and the dominant species in each layer; (2) the floristic species richness of groundcover vegetation within each of five 1 m x 1 m quadrats spaced at 10 m intervals along the 50 m transect; and (3) the general abundance of potential shelter sites for Hastings River Mouse. ***Effort***: 400 trap-nights (4 transects of 25 traps over four consecutive nights) in habitat within 100 m of Woodcutters EcoCamp boundaries and 400 trap-nights (4 transects of 25 traps over four consecutive nights) at the control site. ***Timing***: Spring, when risk of hypothermia is low; following three days of dry conditions and the forecast does not predict rain heavy rain. ***Frequency***: One period of four consecutive nights, annually, for ten years. ***Correction trigger values***: The trigger for a management response will be the absence of or significant reduction in the presence of Hastings River Mouse during any annual trapping period and/or the capture of feral rodents during the live trapping.
Fleay's Frog	***Location***: Transects upstream and downstream of the crossings of Blackfellow Creek and Dalrymple Creek, as well as along the Cascades Trail. ***Survey method***: Nocturnal survey along transects upstream (100m) and downstream (100m) of the crossings of Blackfellow Creek and Dalrymple Creek, and the Cascades Trail. Each nocturnal survey to start at least 45 minutes after sunset and involve walking slowly and quietly along the transect listening for calling frogs and searching for frogs based on reflective eye-shine from the light of a head-torch and pausing at intervals to use call-playback to stimulate calling (in accordance with the 'Audio strip transect survey' method).

Matter	Monitoring requirements
	Supplementary monitoring to occur along the Cascades Track from Manna Gum Campground to the Dalrymple Creek crossing point (a 2,700 m long transect survey). The position of all frogs seen or heard along the transects to be recorded using a hand-held GPS. Fleay's Barred Frog larvae (tadpoles) to be monitored by dip-netting in five pools per 100m transect (upstream and downstream of each creek crossing point) during the day. The total number of Fleay's Barred Frog tadpoles captured (and subsequently released) in each of two 5-second sweeps of the net at each pool to be recorded. ***Effort***: At least two separate surveys (two nights each) for adult frogs during ideal conditions, at each of the crossing points. Tadpoles to be surveyed in three sample periods per year. ***Timing***: Frog surveys in the late breeding season within the period January-March, when the substrate and leaf litter are wet after a rainfall event of at least 20 mm, but not during strong stream flow conditions within the first week after heavy rainfall. Larval surveys during base stream flow conditions, i.e. not during strong stream flow conditions within the first week after heavy rainfall, once in the early breeding season and twice in the late breeding season. ***Frequency***: Two adult surveys and three larval surveys, annually, for ten years. ***Correction trigger values***: The trigger for a management response will be if the population at an Impact site (downstream transect) is significantly less ($p < 0.05$, using Analysis of Variance) than the Control site (upstream transect).
Mountain Frog	***Location***: Transects upstream and downstream of the crossings of Blackfellow Creek and Dalrymple Creek, as well as Rainforest spinach habitat adjacent to the SRT near Sylvester's Lookout. Supplementary sampling of a control site on an unnamed creek on Lookout Road. ***Survey method***: Daytime survey for calling male frogs along transects upstream (100m) and downstream (100m) of the crossings of Blackfellow Creek and Dalrymple Creek, as well as Rainforest spinach habitat adjacent to the SRT near Sylvester's Lookout. The audio strip-transect survey method to be applied, including call-playback, and the number and location of calling frogs to be recorded on hand-held GPS. ***Effort***: At least two separate survey days at each site. ***Timing***: Between September to early November, the main calling period for Mountain Frog at Main Range National Park. ***Frequency***: Two survey days, annually, for ten years. ***Correction trigger values***: The trigger for a management response will be if the population at an Impact site (downstream transect) is significantly less ($p < 0.05$, using Analysis of Variance) than the Control site (upstream transect).
Riparian habitat quality	***Location***: Transects upstream and downstream of the crossings of Blackfellow Creek and Dalrymple Creek. ***Survey method***: Monitoring of the following key indicators of riparian habitat condition: • Extent of trampling of sensitive groundcover vegetation along the riparian bank; • Extent of erosion along the hiking trail in the vicinity of the creek crossings; • Extent of feral pig tracks, scats, diggings or mud wallows; • Extent of domestic cattle tracks, pugging, scats or browsing of groundcover vegetation; • Extent of sediment in the in-stream channel; • Extent of damage to riparian bank stability; and • Extent of weeds. Supplementary monitoring of riparian vegetation at the crossings using fixed photo points. ***Effort***: The 100m transect upstream and downstream of the Blackfellow Creek and Dalrymple Creek crossings to be walked and the species and condition of the vegetation, the condition of the creek bank, and instream habitat condition, within a 5 m strip either side of the creek to be recorded. ***Timing***: In conjunction with the frog surveys. ***Frequency***: Once, annually, for ten years. ***Correction trigger values***: The trigger for a management response will be any damage to riparian vegetation caused by walkers using the crossings, or by feral animals.

The SRTMP further requires that all monitoring, assessment, and reporting is to be undertaken by a suitably qualified person, defined in the conditions of approval for EPBC 2016/7847 as a person who has professional qualifications, dated training, skills or experience relevant to the matter of concern, and who can give authoritative assessment, advice and analysis using relevant protocols, standards, codes of conduct, methods or literature.

2.0 Study Approach

2.1 Field Surveys

Field surveys were undertaken in accordance with the monitoring survey requirements of the SRTMP summarised in **Table 1.1** above.

2.2 Rainfall Data

As an indicator of rainfall within the study area during the survey period to inform frog survey planning, daily rainfall data were sourced for the Mt Castle rain gauge station located at the headwaters of Blackfellow Creek at the end of Lookout Road in Main Range National Park (Bureau of Meteorology 2024). The Mt Castle rain gauge data are only publicly available for 24 hours after each day. However, since the closure of the Cunningham's Gap weather station further south in Main Range National Park two years ago, there is no other rainfall station that is representative of rainfall in the study area.

2.3 Analysis

Survey data were compared with baseline survey data reported in BAAM (2018, 2019a,b), construction phase data (BAAM 2020) and years 1 to 4 operation phase data (BAAM 2021 to 2024). Comparisons with baseline data were undertaken using analysis of variance (ANOVA) within a before-after, control-impact (BACI) design. Average counts are reported together with the standard deviation (SD) or standard error (SE), which are measures of the variability in the counts. Data were log-transformed where necessary to meet assumptions of normality.

2.4 Suitably Qualified Persons and Permits

Dr Colin Trainor (Senior Ecologist) and Emma Green (Project Ecologist) conducted the spring survey targeting Hastings River Mouse and Mountain Frog, while Dr Penn Lloyd (Senior Principal Ecologist) conducted the late summer surveys targeting Fleay's Frog. Colin is a suitably qualified person who has a PhD in zoology and more than 30 years of field experience as an ecologist. Emma is a suitably qualified person who has a BAppSc degree in Wildlife Science and 8 years of field experience as an ecologist. Penn is a suitably qualified person who has a PhD in zoology and more than 30 years of field experience as an ecologist, has published 66 peer-reviewed scientific publications in ecology and has authored over 300 consultancy reports, and is a Certified Environmental Practitioner (Ecology Specialist) with the Environment Institute of Australia and New Zealand (EIANZ). All have experience in surveying the focal species.

Survey activities were conducted in accordance with the following permits:

- Scientific Purposes permit WA0024832 valid to 19/07/2025;
- Permit P-PTUKI-100378467 to take, use, keep or interfere with cultural or natural resources (Scientific Purpose) in Main Range National Park, valid to 26/03/2026; and
- Animal Ethics Committee approval number CA 2023/10/1790.

3.0 RESULTS AND DISCUSSION

3.1 Hastings River Mouse

3.1.1 Survey timing and conditions

The monitoring survey for Hastings River Mouse was undertaken over five days and four consecutive nights from 28th October to 1st November 2024. The survey started two days after 11 mm rainfall and conditions remained mild to warm and dry throughout the survey.

3.1.2 Trapping survey results

The locations of the trapping transects and trap locations are shown in **Figure 3.1** in relation to the mapping of potentially suitable habitat for Hastings River Mouse. The trapping survey effort and capture results are summarised in **Table 3.1**. No Hastings River Mouse captures occurred at either the impact site or control site. No feral rodents were captured.

Table 3.1. Summary of trapping survey results for the survey of 28 October to 1 November 2024.

Species	Common name	EPBC[1]	NCA[1]	Woodcutters (400 trap nights)	Control (400 trap nights)	Total
Melomys cervinipes	Fawn-footed Melomys		LC		1	1
Pseudomys oralis	Hastings River Mouse	E	E			0
Rattus fuscipes	Bush Rat		LC	11	16	27
Rattus lutreolus	Swamp Rat		LC	8	2	10
Bellatorias frerei	Major Skink		LC	1	7	8
Egernia cunninghami	Cunningham's Skink		LC		2	2
Total				**20**	**28**	**48**

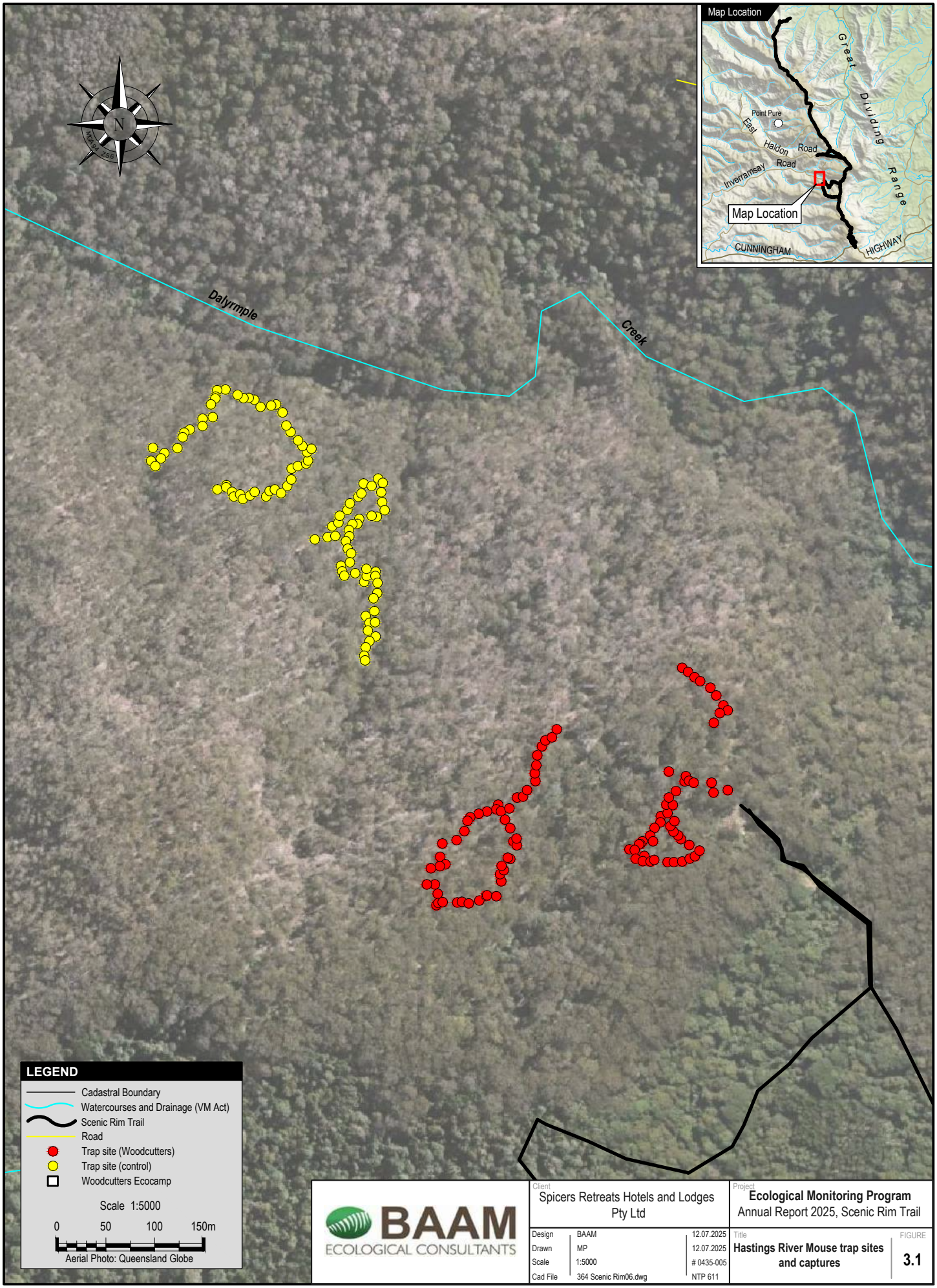
[1] Status under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) and Queensland *Nature Conservation Act 1992* (NCA): E = endangered; LC = least concern, I = introduced.

3.1.3 Comparison with baseline and construction survey results

The overall trapping rates were slightly lower in 2024 than during the baseline surveys of 2016/17 (**Table 3.2**). While a single Hastings River Mouse was caught at each of the impact and control sites during the baseline surveys, none were caught at either the impact or control sites in 2024.

Table 3.2. Comparison of trapping rates (number trapped per 100 trap nights) in habitat surrounding Woodcutters Ecocamp (impact site) and a control site between the baseline survey prior to the commencement of the Project, and the fifth year of operation.

Taxon	Baseline (2016/17) trapping rate		Operation Yr 5 (2024) trapping rate	
	Impact (400 trap nights)	Control (100 trap nights)	Impact (400 trap nights)	Control (400 trap nights)
Hastings River Mouse	0.25	1.00	0	0
Bush Rat	4.25	1.00	2.75	4.00
Swamp Rat	0.75	1.00	2.00	0.50
Fawn-footed Melomys	0.5	2.00	0	0.25
Brown Antechinus	5.00	1.00	0	0
***Rattus* spp.**	**5.00**	**2.00**	**4.75**	**4.50**
Total small mammals	**10.75**	**6.00**	**4.75**	**4.75**



BAAM ECOLOGICAL CONSULTANTS

Client: Spicers Retreats Hotels and Lodges Pty Ltd

Project: **Ecological Monitoring Program** Annual Report 2025, Scenic Rim Trail

Design	BAAM	12.07.2025
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Scale	1:5000	# 0435-005
Cad File	364 Scenic Rim06.dwg	NTP 611

Title: **Hastings River Mouse trap sites and captures**

FIGURE: **3.1**

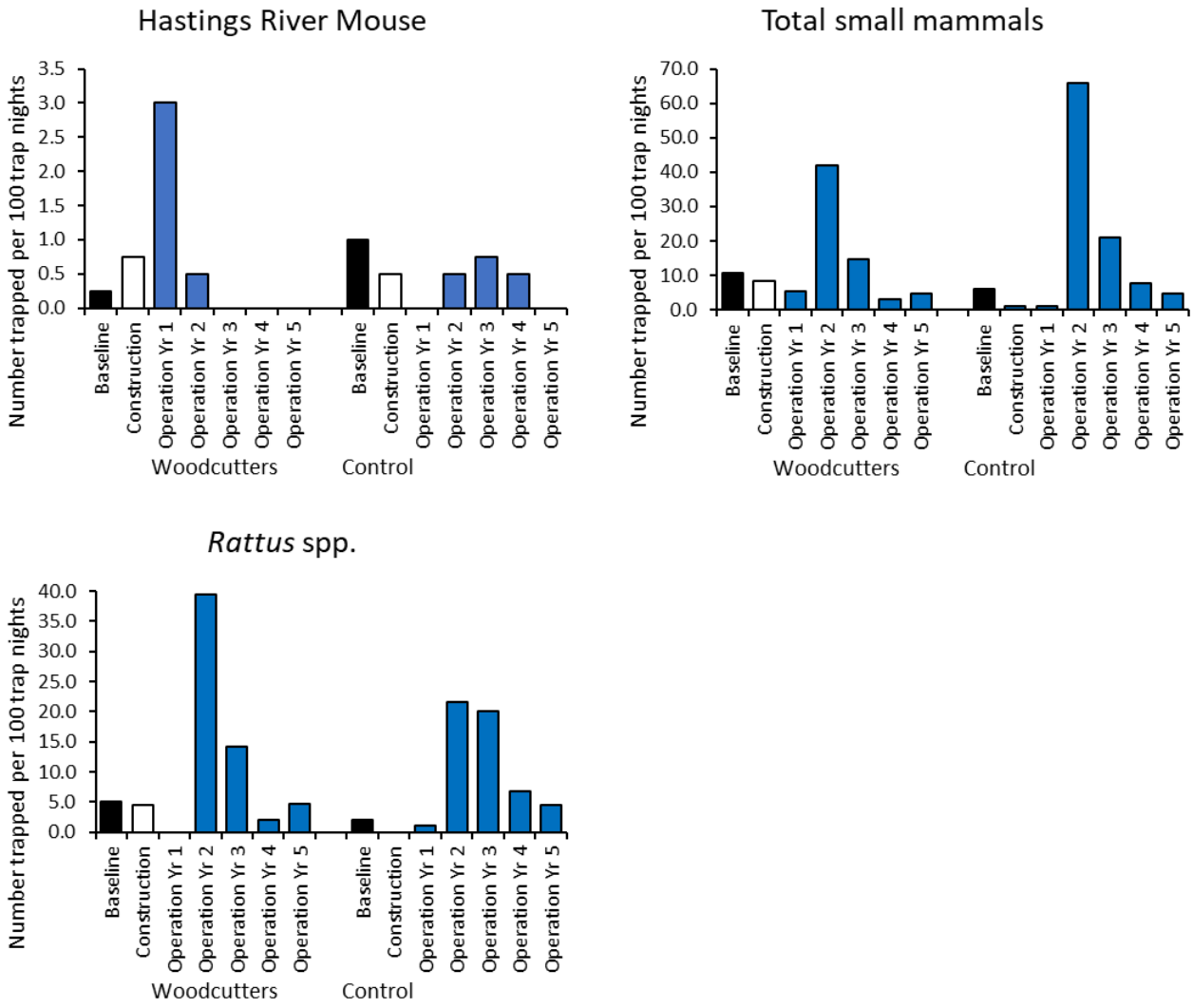


Figure 3.2. Comparison of trapping rates (number trapped per 100 trap-nights) between baseline (2016/17), year of construction (2019) and years 1 to 5 of operation (2020-2024).

The trapping rate for rats (*Rattus* spp.) at Woodcutters was relatively low during the baseline and construction surveys, reduced to zero during the first year of operation survey, increased to a record high rate in the second year of operation, largely due to a dramatic increase in Bush Rat numbers, before decreasing in recent years again (**Figure 3.2**). The trapping rate for rats was low at the control site during the baseline to first year of operation surveys but also increased to record high rates in the second and third year of operation before decreasing again (**Figure 3.2**). The total small mammal trapping rate showed similar variability. The decrease between baseline and construction phases may reflect the unusually severe drought conditions at the time of the construction survey, and the dramatic increase in Bush Rat trapping rates between the 2020 and each of the 2021 and 2022 surveys may reflect increased reproduction and survival following three consecutive years of above average rainfall. The large reduction in trapping rates between 2022 and 2023 followed below average rainfall through the summer to autumn of 2022/23. While small mammal populations in arid regions of Australia are known to decrease during droughts and increase in years of above-average rainfall (Dickman *et al*. 1999, Dickman *et al*. 2001), the influence of rainfall on small mammal population dynamics is variable in tropical or rainforest habitats (Heinsohn and Heinsohn 1999, Madsen and Shine 1999).

The trapping rate for Hastings River Mouse has been variable between baseline, construction and operation phase surveys in both the habitat surrounding Woodcutters Ecocamp and at the control site (**Figure 3.2**). The 2024 survey is the third consecutive survey that Hastings River Mouse has not been captured in the environs of the Woodcutters Ecocamp; however, the zero captures from 400 trap nights is little different from the single capture from 400 trap nights during the baseline survey. Furthermore, the absence of captures at Woodcutters Ecocamp in 2024 was matched by an absence of captures at the control site.

Due to the naturally low and variable trapping rates for this species, there is no firm evidence of a significant impact of the Project on Hastings River Mouse relative abundance in the vicinity of the ecocamp based on the monitoring data to date. The increase in the Hastings River Mouse trapping rate at Woodcutters in the first year of operation paralleled a decrease in the trapping rate of rats, and the subsequent decrease in the Hastings River Mouse trapping rate the next two years paralleled a dramatic increase in the trapping rate of rats. These observations are consistent with the results of a study that found a strong negative relationship between Hasting River Mouse occupancy and native rat abundance; native rats are thought to compete for resources with Hastings River Mouse (Law *et al*. 2016).

3.1.4 Habitat assessment results

The habitat assessment results at two transects in Hastings River Mouse habitats adjacent to Woodcutters Ecocamp and two transects in habitats at the control site are presented in **Appendix 1**. Percentage groundcover and groundcover species richness in January 2025 were within the range recorded on previous surveys, with no notable change in vegetation composition, structure or cover.

3.1.5 Corrective action triggers

The assessment of whether corrective action is triggered based on the results of the third year of operations monitoring is summarised in **Table 3.3** below.

Table 3.3. Assessment of corrective action triggers in accordance with the SRTMP.

Corrective action trigger	Assessment	Corrective action required
Absence of or significant reduction in the presence of Hastings River Mouse during any annual trapping period.	The 2024 survey is the third consecutive year that Hastings River Mouse has not been captured in the environs of the Woodcutters Ecocamp; however, the zero captures from 400 trap nights in 2024 is little different from the single capture from 400 trap nights during the baseline survey and the absence of captures at Woodcutters Ecocamp in 2024 was matched by an absence of captures at the control site; due to the naturally low and variable trapping rates for this species, there is no evidence of a significant impact of the Project on Hastings River Mouse relative abundance in the vicinity of the ecocamp based on the monitoring data to date.	No corrective action required.
Capture of feral rodents during Hastings River Mouse trapping surveys.	No feral rodents were captured during the 2024 survey.	No corrective action required.

3.2 Fleay's Frog

3.2.1 Survey timing and conditions

The timing and rainfall conditions of the Fleay's Frog monitoring surveys are summarised in **Table 3.4**. The first survey over two consecutive nights on 18-19 January 2025 was undertaken during ideal survey conditions (Quick *et al*. 2015), 5-6 days after rainfall of 133 mm over 6 days and directly after a light shower had wet the substrate. The second survey over two consecutive nights on 19-20 March 2025 was undertaken during ideal survey conditions (Quick *et al*. 2015), 8-9 days after a total of 467 mm over 5 days; however, stream flow was still slightly elevated above base flow levels (**Table 1.1**).

Table 3.4. Summary of Fleay's Frog survey timing and conditions.

Locality	Survey timing	Survey conditions
Blackfellow Creek crossing (250m strip-transect upstream, 200m strip transect downstream) altitude 920-940m	18/01/2025 (nocturnal 19:33 to 20:38)	Cloudy, mild, light showers in afternoon (16 mm at Mt Castle, less at Dalrymple Creek) ended just before the survey started; 5 days after rainfall of 133 mm over 6 days; substrate wet, base stream flow. Fleay's Frogs calling independently.
	19/01/2025 (nocturnal 22:02 to 22:41)	Mild, clear evening; 1 day after 16 mm rainfall from light showers, 6 days after rainfall of 133 mm over 6 days; substrate damp to dry, base stream flow. Fleay's Frogs calling independently.
	19/03/2025 (nocturnal 22:38 to 23:24)	Mild, partly cloudy evening, 8 days after a total of 467 mm over 5 days; substrate damp but stream flow still slightly elevated. A few Fleay's Frogs calling independently.
	20/03/2025 (nocturnal 21:54 to 22:34)	Mild, overcast evening, 9 days after a total of 467 mm over 5 days; substrate wet after brief shower prior to survey but stream flow still slightly elevated. A few Fleay's Frogs calling independently.
Dalrymple Creek crossing (200m strip-transect upstream, 100m strip transect downstream) altitude 770-800m	18/01/2025 (nocturnal 19:21 to 19:59)	As per Blackfellow Creek survey conditions above. Some Fleay's Frog calling activity.
	19/01/2025 (nocturnal 19:22 to 20:15)	As per Blackfellow Creek survey conditions above. Some Fleay's Frog calling activity.
	19/03/2025 (nocturnal 19:09 to 19:54)	As per Blackfellow Creek survey conditions above, stream flow slightly elevated above base flow. Some Fleay's Frog calling activity.
	20/03/2025 (nocturnal 18:38 to 19:04)	As per Blackfellow Creek survey conditions above, stream flow slightly elevated above base flow. A few Fleay's Frogs calling independently.
Cascades Circuit trail (2,700m strip transect) altitude 700-780m	18/01/2025 (nocturnal 20:02 to 21:40)	As per Dalrymple Creek survey conditions above. Frogs calling independently and males aggregated around preferred breeding riffle sites.
	19/01/2025 (nocturnal 20:16 to 21:48)	As per Dalrymple Creek survey conditions above. Frogs calling independently and males aggregated around preferred breeding riffle sites.
	19/03/2025 (nocturnal 19:54 to 21:25)	As per Dalrymple Creek survey conditions above. A few frogs calling independently and males aggregated around preferred breeding riffle sites.
	20/03/2025 (nocturnal 19:04 to 20:20)	As per Dalrymple Creek survey conditions above. A few frogs calling independently and males aggregated around preferred breeding riffle sites.

3.2.2 Frog survey results

Figures 3.3 to **3.5** show the locations of the survey transects and Fleay's Frog observations from the surveys. The crossing point of Blackfellow Creek occurs approximately 70 m downstream of the originally proposed crossing point. To maintain equivalency with the baseline survey data, the frog surveys in 2020 to 2024 used the same survey transects that were used to collect the baseline survey data; i.e. a 250m strip-transect upstream and 200m strip transect downstream of the originally proposed crossing point (**Figure 3.3**).

Table 3.5 below summarises the Fleay's Frog survey results from four nights of survey in the summer of 2025. Blackfellow Creek could not be surveyed on the first survey of 18-19 January because a large fallen tree had blocked Lookout Road, which prevented access to Blackfellow Creek. This was unfortunate since Fleay's Frog activity was greater during the January survey than during the second survey in March.

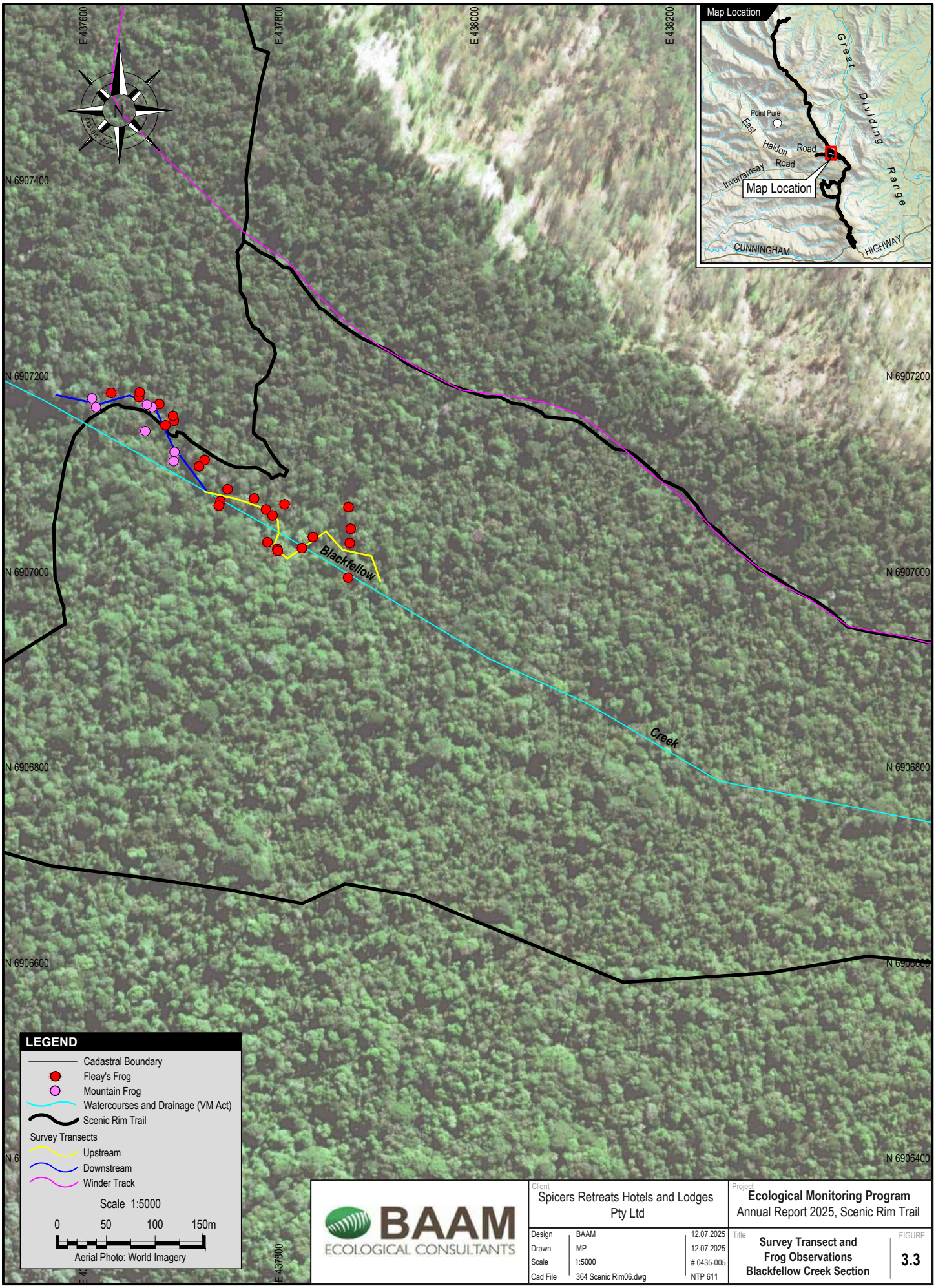
Table 3.5. Summary of total Fleay's Barred Frogs detected upstream and downstream of the new trail crossings of Blackfellow Creek and Dalrymple Creek as well as along the Cascades Trail during each survey.

	Blackfellow Creek		Dalrymple Creek		Cascades Trail (2,700 m)
Date	Upstream (250 m)	Downstream (200 m)	Upstream (200 m)	Downstream (100 m)	
18/01/2025	No survey	No survey	10	4	124
19/01/2025	No survey	No survey	11	12	87
19/03/2025	13	24	4	1	33
20/03/2025	21	9	6	1	58
Average (±1SD)	***17.0 ± 5.7***	***16.5 ± 10.6***	***7.8 ± 3.3***	***4.5 ± 5.2***	***75.5 ± 39.1***

There was high variability in the number of frogs recorded between surveys due to variable survey conditions. Fleay's Frog calling activity was high during the two nights survey in January, with frog numbers similar to numbers observed during high frog activity periods on previous surveys of the Cascades Trail. Although rainfall conditions preceding the January and March 2025 surveys appeared to be suitable for Fleay's Frog activity based on prior survey results, there was good frog activity on the January survey but reduced Fleay's Frog activity during the two nights surveyed in March 2024.

3.2.3 Tadpole survey results

The average number of Fleay's Barred Frog tadpoles captured per dip-net sweep was variable between surveys at both Blackfellow Creek and Dalrymple Creek (**Figure 3.6**). No tadpoles were found in the pools of the upstream section of Dalrymple Creek during the January 2025 survey despite good numbers being present three months earlier in October 2024 (**Figure 3.6**). Tadpoles may have been washed out of the shallower pools in this section during heavy rainfall that fell between the two survey events.



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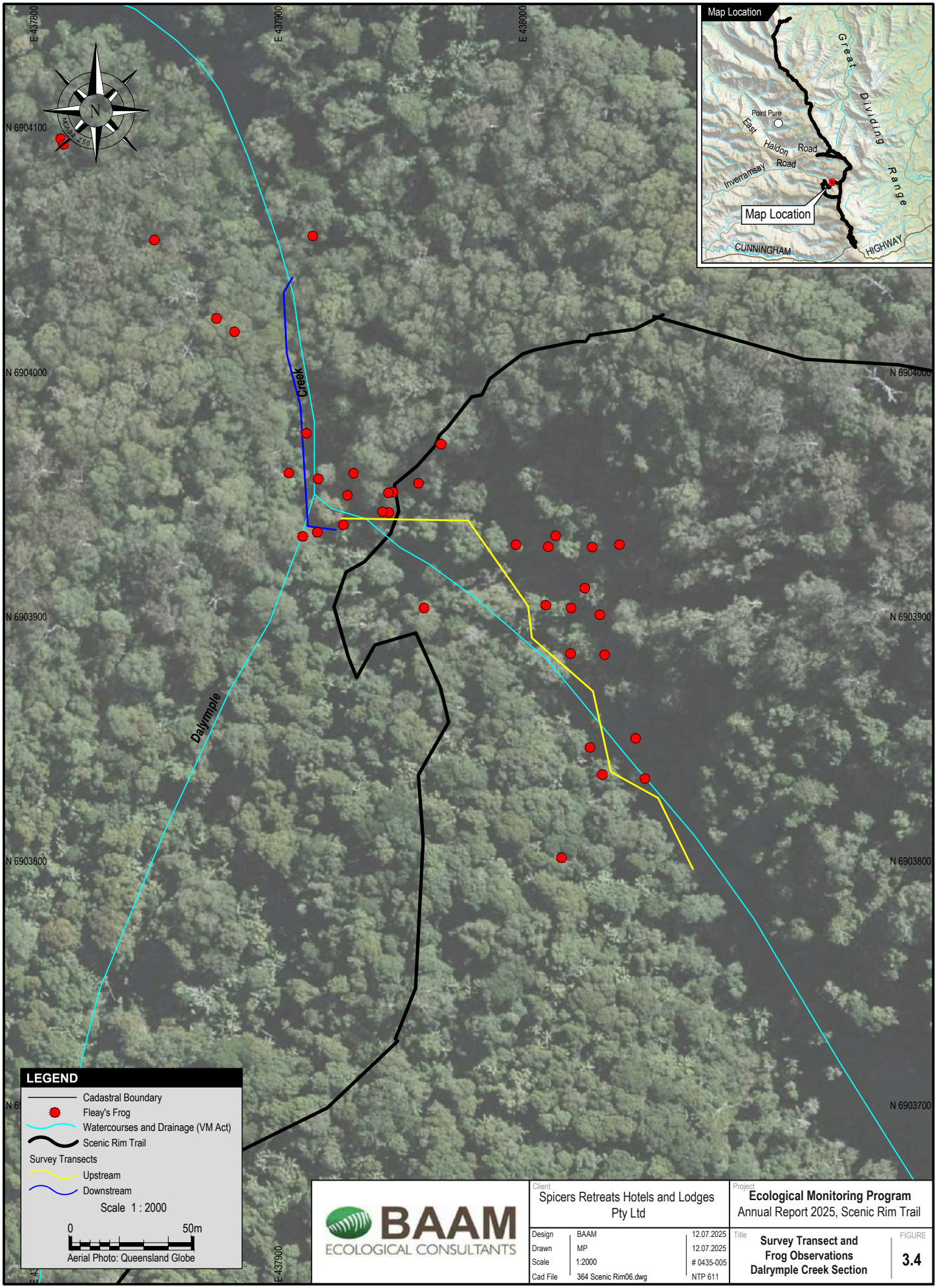
Project: **Ecological Monitoring Program** Annual Report 2025, Scenic Rim Trail

Design	BAAM	12.07.2025	
Drawn	MP	12.07.2025	
Scale	1:5000	# 0435-005	
Cad File	364 Scenic Rim06.dwg	NTP 611	

Title: **Survey Transect and Frog Observations Blackfellow Creek Section**

FIGURE **3.3**



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Design	BAAM	12.07.2025
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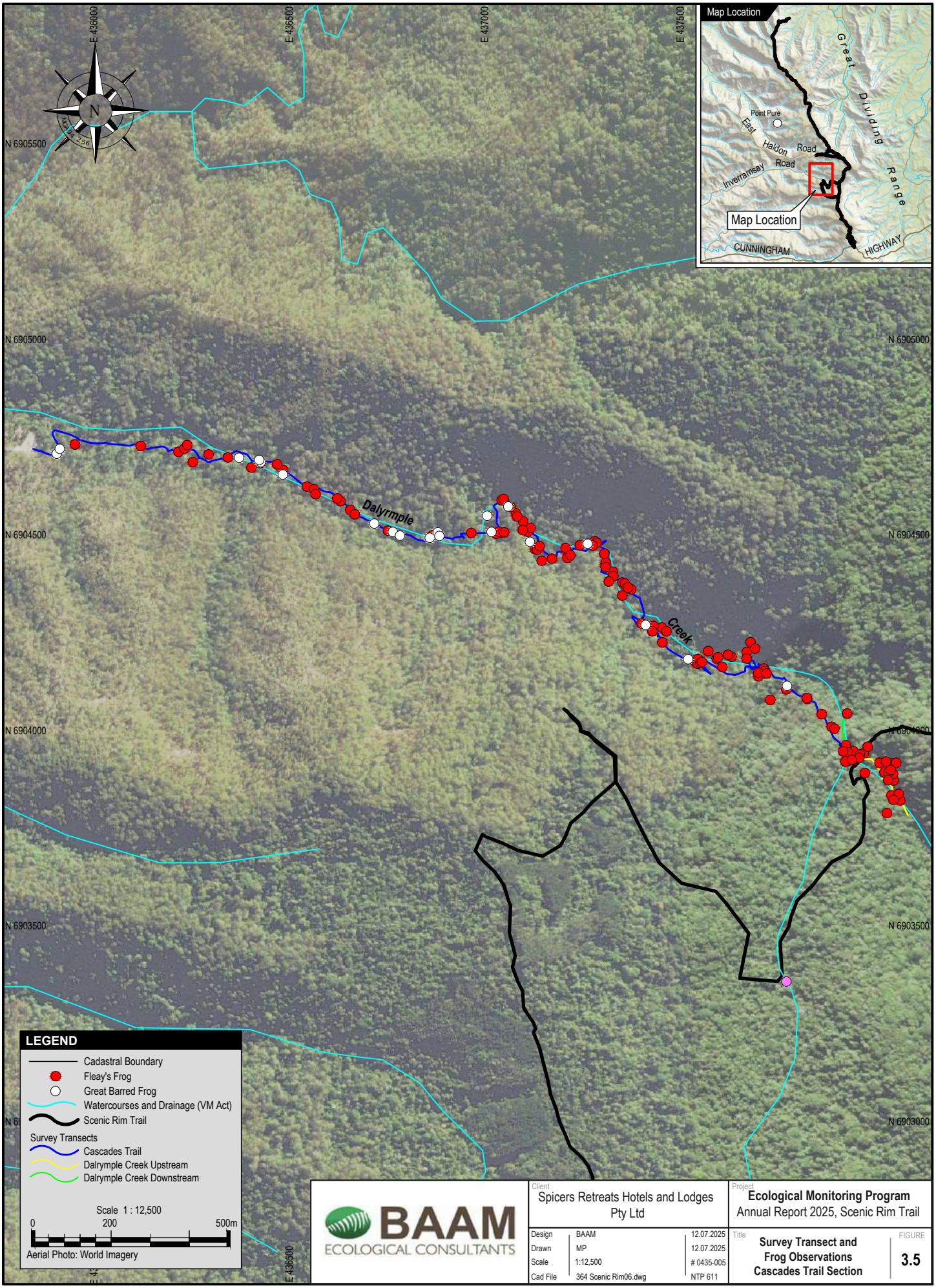
Scale	1:2000	# 0435-005
Cad File	364 Scenic Rim06.dwg	NTP 611

Title: **Survey Transect and Frog Observations Dalrymple Creek Section**

FIGURE **3.4**



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Project: **Ecological Monitoring Program** Annual Report 2025, Scenic Rim Trail

Design	BAAM	12.07.2025
Drawn	MP	12.07.2025
Scale	1:12,500	# 0435-005
Cad File	364 Scenic Rim06.dwg	NTP 611

Title: **Survey Transect and Frog Observations Cascades Trail Section**

FIGURE **3.5**

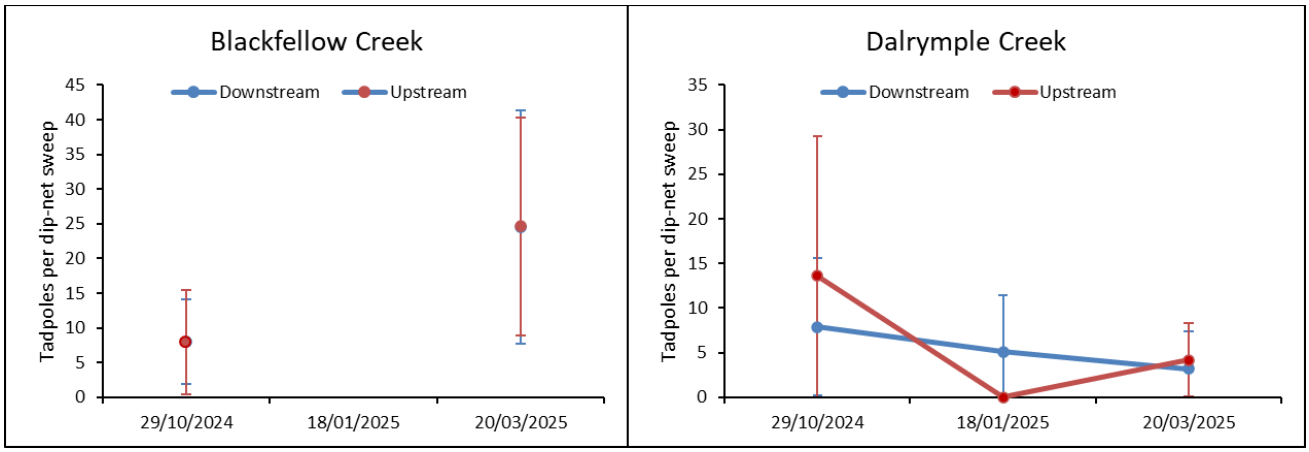


Figure 3.6. Average (±1SD) number of Fleay's Barred Frog larvae (tadpoles) captured per dip-net sweep in pools along each transect upstream and downstream of the crossing points on Blackfellow Creek and Dalrymple Creek.

3.2.4 Comparison with baseline and construction survey results

Adult frogs

To test for an impact on frog abundance in the BACI design, for each creek and for the Cascades Trail, a two-way ANOVA was carried out on the number of frogs by location (upstream control, downstream impact) and period (baseline, operation year 5). See **Figure 3.7** for a graphical summary of the data.

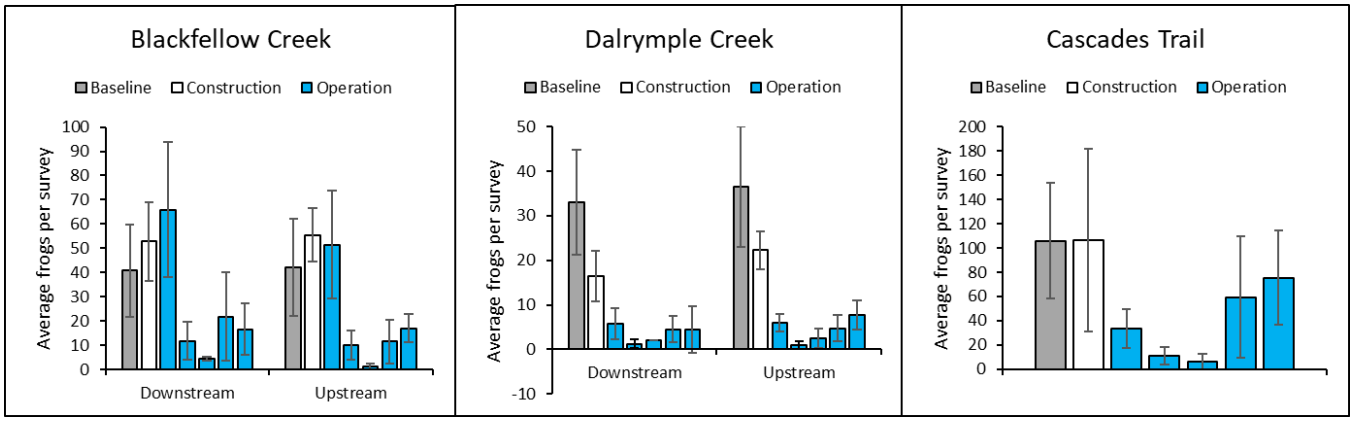


Figure 3.7. Comparison of the average (±1SD) number of Fleay's Frogs detected per survey upstream and downstream of the crossing points on Blackfellow Creek and Dalrymple Creek and along the Cascades Trail prior to the Project (baseline, 2018/19), during the construction period (2019/20), and the first five years of operation (2020/21 to 2024/25).

At Blackfellow Creek, frog abundance was marginally significantly different between baseline and operation year 5 periods ($F_{1,8}$ = 5.30, P = 0.05), did not vary significantly between locations ($F_{1,8}$ = 0.01, P = 0.92), and the interaction between location and period was non-significant ($F_{1,8}$ = 0.001, P = 0.97). Thus, frog abundance decreased significantly in operation year 5 compared with baseline surveys at both downstream 'impact' and upstream 'control' sites. Since this change did not differ between control and impact sites, it indicates no significant impact under the BACI design. Instead, the significant decrease in frog abundance in operation year 5 is attributed to differences in environmental conditions during the surveys in 2025 and a reduced sample size of only two nights of survey in 2025. It is notable that there has been no decrease in the abundance of tadpoles at Blackfellow Creek (see under next section), indicating no significant change in breeding success.

At Dalrymple Creek, frog abundance varied significantly between baseline and operation year 5 periods ($F_{1,12}$ = 36.39, P < 0.001), did not vary significantly between locations ($F_{1,12}$ = 0.51, P = 0.49), and the interaction between location and period was non-significant ($F_{1,12}$ = 0.001, P = 0.98). Thus, frog abundance had decreased significantly between baseline and operation year 5 at both downstream 'impact' and upstream 'control' sites. Since this change did not differ between control and impact sites, it indicates no significant impact under the BACI design. The significant reduction in Fleay's Barred Frog abundance at Dalrymple Creek in every year since the baseline surveys (**Figure 3.7**) suggests there has been a real reduction in the population size of this species at this location, although there is evidence of some recovery in recent years. This reduction in the population at this location is unlikely to have been caused by the new trail crossing since there has been negligible disturbance to the creek banks and pools as a result of the new trail. Severe flooding of Dalrymple Creek that reduced tadpole abundance in several years during operation may have been a contributing factor to the decreased frog abundance since then.

Along the Cascades Trail, frog abundance did not vary significantly between periods ($F_{1,6}$ = 0.97, P = 0.36), indicating no significant change in frog abundance between baseline and operation year 5 periods. Thus, frog abundance had recovered since the low frog abundance recorded during the first three years of operation (**Figure 3.7**).

Tadpoles

To test for an impact on tadpole abundance in the BACI design, for each creek, a two-way ANOVA was carried out on tadpoles (per dip-net sweep) by location (upstream control, downstream impact) and period (baseline, operation year 4). See **Figure 3.8** for a graphical summary of the data.

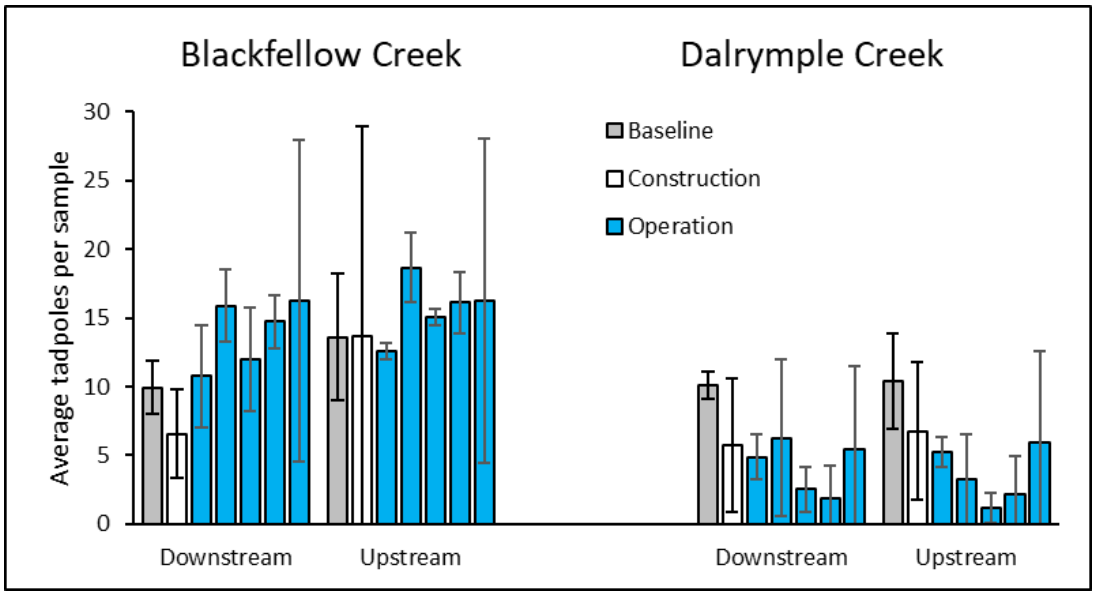


Figure 3.8. Comparison of the average (±1SE) number of Fleay's Frog larvae (tadpoles) captured per dip-net sweep in pools along each transect upstream and downstream of the crossing points on Blackfellow Creek and Dalrymple Creek prior to the Project (baseline, 2018/19), during the construction period (2019/20) and during the first five years of operation (2020/21 to 2024/25).

For Blackfellow Creek, tadpole abundance was not significantly different between baseline and operation year 5 periods ($F_{1,8}$ = 1.22, P = 0.30), did not vary significantly between locations ($F_{1,8}$ = 0.42, P = 0.54) and the interaction between location and period was non-significant ($F_{1,8}$ = 0.21, P = 0.66). Thus, there was no significant difference in tadpole abundance between baseline and operation year 5 at both control and impact transects, indicating no significant impact under the BACI design.

For Dalrymple Creek, tadpole abundance varied significantly between periods ($F_{1,8}$ = 6.13, P = 0.002) but did not vary significantly between locations ($F_{1,8}$ = 0.16, P = 0.69) and the interaction between location and period was non-significant ($F_{1,8}$ = 0.39, P = 0.81). Thus, the decrease in tadpole abundance between baseline and operation year 5 did not differ between control and impact sites, indicating no significant impact under the BACI design.

Tadpole abundance on both upstream and downstream transects on Dalrymple Creek decreased to zero in the final survey of operation year 2, which was attributed to the effect of severe flooding of Dalrymple Creek that may have washed the tadpoles further downstream. Tadpole abundance recovered thereafter, but there was a similar loss of tadpoles from the upstream transect again between the October 2024 and January 2025 surveys, with some recovery again by March 2025 (**Figure 3.6**).

3.2.5 Corrective action triggers

The assessment of whether corrective action is triggered based on the results of the first year of construction monitoring is summarised in **Table 3.6** below. The assessment found that no corrective action is required.

Table 3.6. Assessment of corrective action triggers for Fleay's Barred Frog in accordance with the SRTMP.

Corrective action trigger	Assessment	Corrective action required
The population at an Impact site (downstream transect) is significantly less ($p < 0.05$, using Analysis of Variance) than the Control site (upstream transect)	Frog abundance was significantly lower in operation year 5 compared with baseline surveys at both Blackfellow and Dalrymple creeks. However, since this change did not differ between upstream control and downstream impact sites, it indicates no significant impact under the BACI design. Tadpole abundance was not significantly different to the baseline at Blackfellow Creek but was significantly lower at Dalrymple Creek in operation year 5 compared with baseline surveys. However, since this change did not differ between upstream control and downstream impact sites, it indicates no significant impact under the BACI design.	No corrective action required.

3.3 Mountain Frog

3.3.1 Survey timing and conditions

The timing and rainfall conditions of the Mountain Frog monitoring surveys are summarised in **Table 3.7** below. The two surveys met the minimum requirement for two surveys and were conducted during ideal survey conditions.

Table 3.7. Summary of Mountain Frog survey timing and conditions.

Locality	Survey timing	Survey conditions
Blackfellow Creek crossing (250m strip-transect upstream, 200m strip transect downstream) altitude 920-940m	29 October 2024 (12:35-13:40)	Fine, warm, partly cloudy, 3 days after 11mm rainfall. Mountain Frogs calling.
	30 October 2024 (14:45-15:35)	Fine, warm, partly cloudy, 4 days after 11mm rainfall. Mountain Frogs calling.
Dalrymple Creek crossing (200m strip-transect upstream, 100m strip transect downstream) altitude 770-800m	30 October 2024 (09:05-10:15)	Conditions as for Blackfellow Creek. No Mountain Frogs calling.
	31 October 2024 (09:10-09:40)	Conditions as for Blackfellow Creek. No Mountain Frogs calling.
Sylvester's Lookout rock seep (static call survey) altitude 1030m	29 October 2024 (15:30-15:35)	Conditions as for Blackfellow Creek. Mountain Frogs calling.
	31 October 2024 (14:15-14:30)	Conditions as for Blackfellow Creek. Mountain Frogs calling.
Lookout Road creek crossing (aquatic control site, 200m strip-transect upstream, 200m strip transect downstream) altitude 940-960m	29 October 2024 (14:40-15:15)	Conditions as for Blackfellow Creek. Mountain Frogs calling.
	30 October 2024 (15:05-15:30)	Conditions as for Blackfellow Creek. Mountain Frogs calling.

3.3.2 Frog survey results

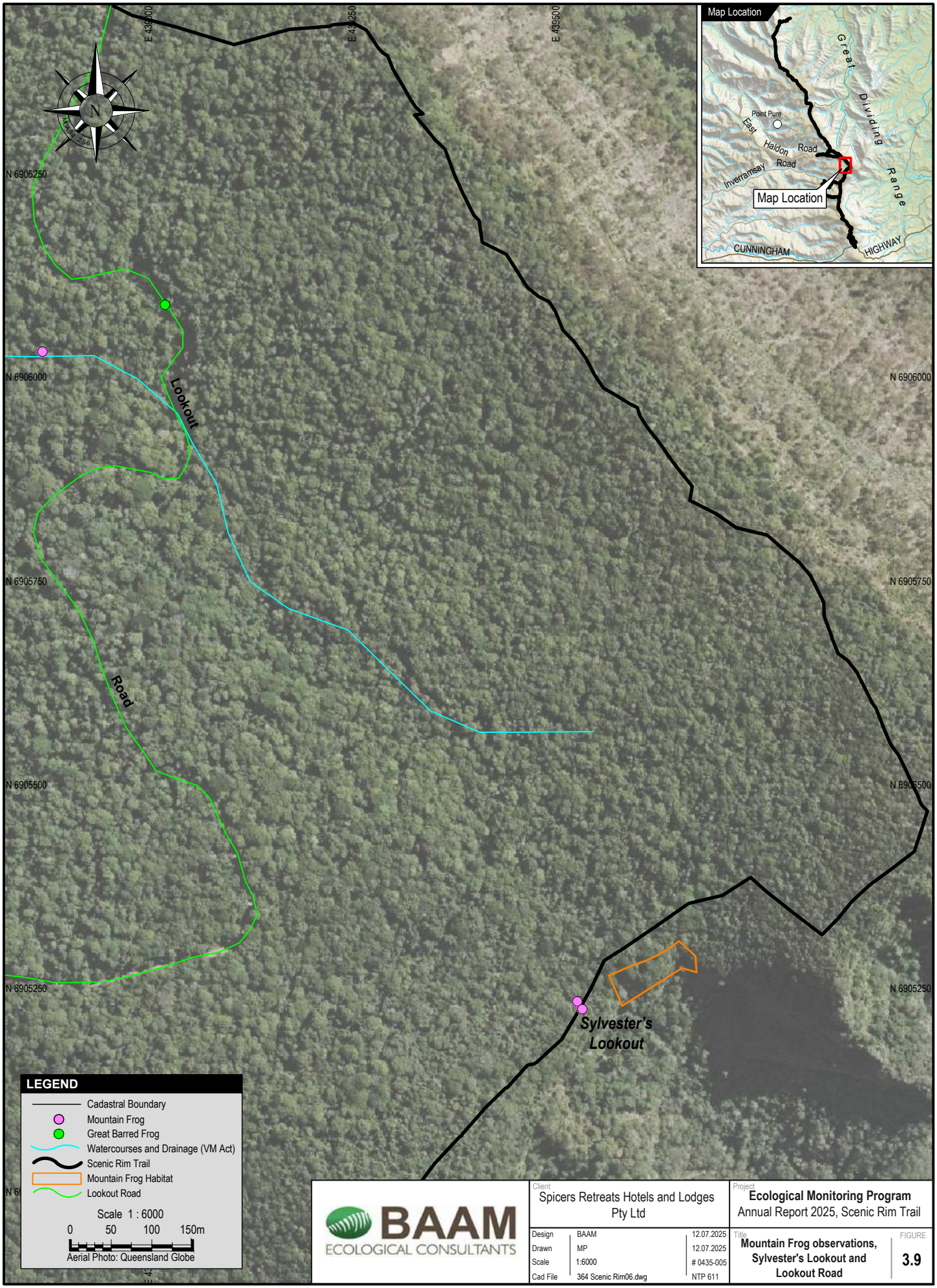
Mountain Frogs were detected calling on both the upstream and downstream transects at Blackfellow Creek, the downstream transect at Lookout Road and below Sylvester's Lookout (**Table 3.8**). The locations of Mountain Frog records are shown in **Figures 3.4, 3.6** and **3.9**. There was no Mountain Frog calling activity upstream and downstream of the Dalrymple creek crossing.

Table 3.8. Summary of total Mountain Frogs detected upstream and downstream of the new trail crossings of Blackfellow Creek and Dalrymple Creek and close to the trail at Sylvester's Lookout and a control site on Lookout Road during each survey, together with the average (± 1 SD).

Date	Blackfellow Creek		Dalrymple Creek		Lookout Road		Sylvester's Lookout
	Upstream (250 m)	Downstream (200 m)	Upstream (200 m)	Downstream (100 m)	Upstream (200 m)	Downstream (200 m)	
29/10/2024	1	5			0	2	1
30/10/2024	1	4	0	0			
31/10/2024			0	0	0	2	2
Average (±1SD)	***1 ± 0***	***4.5 ± 0.7***	***0 ± 0***	***0 ± 0***	***0 ± 0***	***2 ± 0***	***1.5 ± 0.7***

3.3.3 Comparison with baseline survey results

Variation in the average number of Mountain Frogs calling on each transect each year is illustrated in **Figure 3.10**. Following a notable reduction in the number of Mountain Frogs at Blackfellow Creek after the initial baseline surveys, the numbers in 2024 were similar to baseline levels on the downstream (impact) transect at least. While small numbers of frogs were calling on the downstream transect at the Lookout Road control site in 2024, the overall numbers on the upstream and downstream transects were notably lower than during the initial baseline survey.



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Scale	1:6000	# 0435-005
Cad File	364 Scenic Rim06.dwg	NTP 611

Title: **Mountain Frog observations, Sylvester's Lookout and Lookout Road**

FIGURE **3.9**

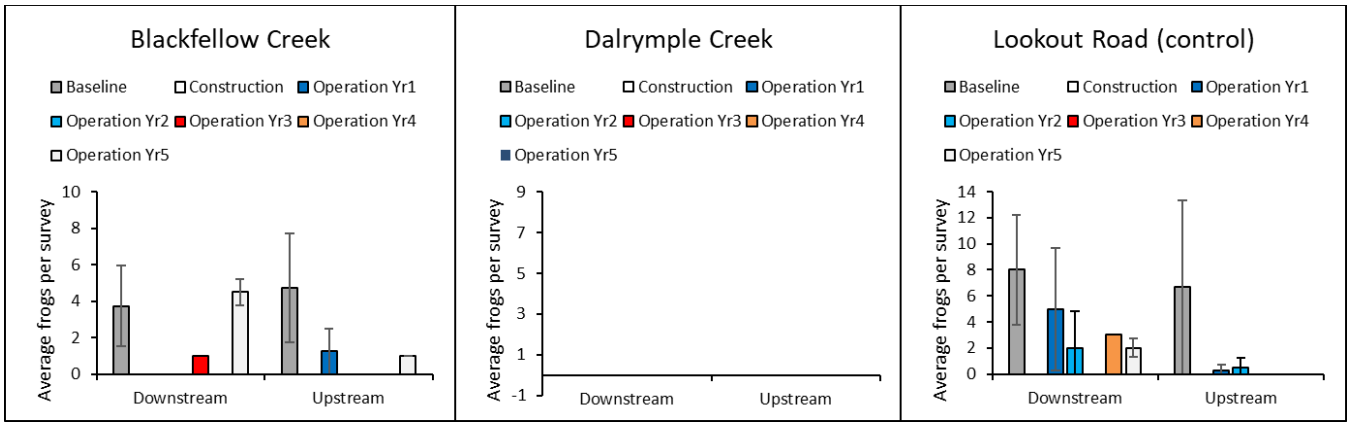

Figure 3.10. Comparison of the average (±1SD) number of Mountain Frogs detected calling per survey upstream and downstream of the crossing points on Blackfellow Creek and Dalrymple Creek and on the Lookout Road control site prior to the Project (baseline, 2018), during the construction period (2019), and the first five years of operation (2020 to 2024).

To test for an impact on frog abundance in the BACI design between survey periods, for each of Blackfellow Creek and the Lookout Road control site, a two-way ANOVA was carried out on the number of frogs by location (upstream control, downstream impact) and period (baseline, operation year 4).

At Blackfellow Creek, Mountain Frog calling activity did not vary significantly between periods ($F_{1,8}$ = 1.14, P = 0.32) or locations ($F_{1,8}$ = 0.14, P = 0.72) and the interaction between location and period was non-significant ($F_{1,8}$ = 2.57, P = 0.15). The results indicate no significant impact under the BACI design.

At Lookout Road, frog calling activity did not vary significantly between periods ($F_{1,5}$ = 4.18, P = 0.10) or between locations ($F_{1,5}$ = 0.10, P = 0.76), and the interaction between location and period was non-significant ($F_{1,5}$ = 0.01, P = 0.92). The absence of Mountain Frog calling activity upstream and downstream of the Dalrymple Creek crossing was consistent with all previous surveys that have not detected Mountain Frog at those locations.

3.3.4 Corrective action triggers

The assessment of whether corrective action is triggered based on the results of the first year of construction monitoring is summarised in **Table 3.8** below.

Table 3.8. Assessment of corrective action triggers for Mountain Frog in accordance with the SRTMP.

Corrective action trigger	Assessment	Corrective action required
The population at an Impact site (downstream transect) is significantly less ($p < 0.05$, using Analysis of Variance) than the Control site (upstream transect).	Frog calling activity was not significantly different between baseline and operation year 5 periods at both downstream 'impact' and upstream 'control' sites at Blackfellow Creek. The absence of significant change in frog calling activity between the downstream and upstream transects indicate no significant impact under the BACI design.	No corrective action required.

3.4 Riparian Habitat Condition

3.4.1 Blackfellow Creek

Blackfellow Creek within 100m upstream and downstream of the new trail crossing is a high-energy, headwater perennial stream located in the bed of a steep valley on an escarpment plateau. The stream has a bankfull width of 3-6m and comprises a series of mostly shallow pools separated by short riffle zones, with occasional pools that reach a depth of a little over 0.5m. The streambed is stable, having a range of sediment sizes and comprised of consolidated (tightly arranged and packed) material, with a channel that is in a relatively natural state (not deepened or infilled) with bed and bar sediments roughly the same size. Many pools have a bedrock bed with loose cobbles and limited fine sediments (**Photos 3.1** and **3.2**).

Photo 3.1 Blackfellow Creek photo-point within 100m downstream of the crossing point, October 2018.

Photo 3.2 Blackfellow Creek photo-point within 100m downstream of the crossing point, March 2025.

The creek is located in complex notophyll vine forest, a type of rainforest. The concave creek banks are continuously vegetated, with a moderate abundance of trailing bank vegetation. The banks are stable, with little evidence of erosion and little potential for future problems evident. The riparian zone groundcover comprises native vegetation, leaf litter, fallen tree logs or bedrock. The ground vegetation at the stream edges and along the banks is dominated by Rainforest Spinach (*Elatostema reticulatum*), with patchy co-dominance by *Pollia crispata*. A variety of ferns occur frequently, particularly Soft Bracken (*Calochlaena dubia*) and *Asplenium attenuatum*, Scaly Treefern (*Cyathea cooperi*), Bangalow Palm (*Archontophoenix cunninghamiana*), *Cordyline petiolaris* and a variety of rainforest tree saplings occur commonly along the banks in the shrub layer. There was no evidence of introduced plant weed species anywhere along the creek.

The crossing point of Blackfellow Creek occurs approximately 70 m downstream of the originally proposed crossing point, on a narrow section of the stream with gently sloping banks on either side (**Photos 3.3** to **3.10**). The stream bed at the crossing point is bedrock. Construction of the crossing point involved the raking of surface litter along the track-line on the gently sloping banks on each side of the crossing, with no other soil disturbance, and there was no disturbance to the bedrock across the crossing itself. Consequently, construction of the trail involved negligible disturbance to the riparian habitats of Blackfellow Creek. No change to the condition of the crossing point was observed during operation year 5 surveys compared to the previous year.

Rainforest Spinach, the predominant groundcover along the stream banks, is a weak-stemmed herb that is highly sensitive to trampling; i.e. trampling impacts are readily identifiable and immediately apparent. There was no evidence of groundcover vegetation trampling either upstream or downstream of the crossing point. The groundcover of Rainforest Spinach has remained high following average to above average rainfall.

Photo 3.3 Crossing of Blackfellow Creek; view of eastern approach, February 2021.

Photo 3.4 Crossing of Blackfellow Creek; view of eastern approach, March 2025.

Photo 3.5 Crossing of Blackfellow Creek; view of western approach, February 2021.

Photo 3.6 Crossing of Blackfellow Creek; view of western approach, March 2025.

Photo 3.7 Crossing of Blackfellow Creek; view downstream of crossing, February 2021.

Photo 3.8 Crossing of Blackfellow Creek; view downstream of crossing, March 2025.

Photo 3.9 Crossing of Blackfellow Creek; view upstream of crossing, February 2021.

Photo 3.10 Crossing of Blackfellow Creek; view upstream of crossing, March 2025.

Table 3.9 summarises the status of key indicators of riparian habitat quality at Blackfellow Creek during the fourth year of operation of the new section of the Scenic Rim Trail that crosses the creek.

Table 3.9. Operation phase status of key indicators of riparian habitat quality within 100m upstream and downstream of the crossing of Blackfellow Creek during 2024/25.

Key indicator	Within 100m upstream	Within 100m downstream
Evidence and extent of trampling of sensitive groundcover vegetation along the riparian bank	No evidence of trampling during any of the surveys.	No evidence of trampling during any of the surveys.
Evidence and extent of erosion along the hiking trail in the vicinity of the creek crossings	No evidence of erosion during any of the surveys.	No evidence of erosion during any of the surveys.
Evidence and extent of feral pig and/or domestic cattle activity	No evidence of feral pigs or domestic cattle.	A feral pig sighted using a wallow next to the creek at the historical feral pig crossing point but no recent diggings throughout the season. No evidence of domestic cattle.
Evidence and extent of sediment in the in-stream channel	Limited sediment in pools, which had a range of sediment sizes.	Occasional vegetated side bars; limited sediment in pools, which had a range of sediment sizes.
Evidence and extent of damage to riparian bank stability	No damage to bank stability.	No damage to bank stability.
Evidence and extent of weeds	No weeds present.	No weeds present.
Mt Mistake Spiny Crayfish population	A total of 7 active burrows detected within 100m upstream of the constructed crossing point, confirming a healthy population.	A total of 4 active burrows detected within 100m downstream of the constructed crossing point, confirming a healthy population.

3.4.2 Dalrymple Creek

Dalrymple Creek within 100 m upstream and downstream of the new trail crossing is a high-energy headwater perennial stream located in the bed of a steep valley. The stream is sharply incised in the valley and has a bankfull width of 5-10 m above the crossing and 10-15m below the crossing below the junction with another stream. The stream above the crossing comprises a series of mostly shallow pools separated by short riffle zones or flows over bedrock, with occasional pools that reach a depth of a little over 0.5 m. The stream below the crossing has larger, deeper pools interspersed with short riffle zones or flows over bedrock slopes or platforms (**Photos 3.11** - **3.12**).

Photo 3.11 Dalrymple Creek photo-point a little below the crossing point, October 2018.

Photo 3.12 Dalrymple Creek photo-point a little below the crossing point, March 2025.

The streambed is stable, having eroded to bedrock over much of its length within the assessment area, with a channel that is in a relatively natural state (not deepened or infilled) with bed and bar sediments roughly the same size. Many pools have a bedrock bed with loose cobbles and limited fine sediments.

The creek is located in complex notophyll vine forest. The concave, steeply-sloped creek banks are continuously vegetated, with a moderate abundance of trailing bank vegetation. The banks are stable, with little evidence of erosion and little potential for future problems evident; occasional bars of accumulated coarse sediment suggest occasional sediment inputs from landslips, a natural process in the very steep surrounding mountain slopes. The streambank surfaces and immediate riparian zone are covered by a mosaic of native vegetation, leaf litter, fallen tree logs and extensive areas of bedrock; exposed bedrock on the stream banks is substantially covered with moss.

The ground vegetation at the stream edges and along the banks is dominated by Rainforest Spinach (*Elatostema reticulatum*), with patchy co-dominance by *Pollia crispata*. Other groundcover species include Cunjevoi (*Alocasia brisbanensis*) and a variety of ferns, particularly Soft Bracken (*Calochlaena dubia*), Sickle Fern (*Pellaea nana*), Tender Brake (*Pteris umbrosa*) and Birds Nest Fern (*Asplenium australasicum*). Scaly Treefern (*Cyathea cooperi*), *Cordyline petiolaris* and a variety of rainforest tree saplings occur commonly along the banks in the shrub layer. There was no evidence of introduced plant weed species anywhere along the creek.

The constructed crossing point of Dalrymple Creek is approximately 30 m upstream of the originally proposed crossing point, thereby avoiding the trail descending a steep bank to reach the creek bed. Instead, the constructed trail uses a gentle slope to reach the bank of the creek, where there is a step down to cross the creek on a rock platform (**Photos 3.13** and **3.14**). The trail then tracks downstream along the edge of the creek, descending a short rockface along the side of a small waterfall (**Photos 3.15** and **3.16**) before joining the existing Cascades Trail approximately 20 m above the junction of Dalrymple Creek with a similar-sized tributary.

Photo 3.13 Crossing point on Dalrymple Creek where the trail steps down from the bank on the far side, February 2021.

Photo 3.14 Trail tracking along the left (southern) bank of Dalrymple Creek below the crossing point, January 2025.

Photo 3.15 Downstream from the crossing point on Dalrymple Creek, October 2018.

Photo 3.16 Downstream from the crossing point on Dalrymple Creek, March 2025.

There was no evidence of groundcover vegetation trampling either upstream or downstream of the crossing point, no evidence of weeds, and no evidence of feral pig visitation during any survey between October 2024 and March 2025. **Table 3.10** summarises the status of key indicators of riparian habitat quality at Dalrymple Creek during the fourth year of operation of the new section of the Scenic Rim Trail that crosses the creek.

Table 3.10. Operation phase status of key indicators of riparian habitat quality within 100m upstream and downstream of the new trail crossing of Dalrymple Creek during 2024/25.

Key indicator	Within 100m upstream	Within 100m downstream
Evidence and extent of trampling of sensitive groundcover vegetation along the riparian bank	No evidence of trampling.	No evidence of trampling.
Evidence and extent of erosion along the hiking trail in the vicinity of the creek crossings	No evidence of erosion during any of the surveys.	No evidence of erosion during any of the surveys.
Evidence and extent of Feral Pig and/or domestic cattle activity	None.	None.
Evidence and extent of sediment in the in-stream channel	Occasional vegetated and unvegetated side bars; limited sediment in pools, which have a range of sediment sizes.	Limited sediment in pools, which have a range of sediment sizes.
Evidence and extent of damage to riparian bank stability	No damage to bank stability.	No damage to bank stability.

Key indicator	Within 100m upstream	Within 100m downstream
Evidence and extent of weeds	No weeds present.	No weeds present.
Mt Mistake Spiny Crayfish population	A total of 1 active burrows detected within 100m upstream of the crossing point, confirming species presence.	No active burrows detected within 100m downstream of the proposed crossing point.

3.4.3 Corrective action triggers

The assessment of whether corrective action is triggered based on the results of the first year of construction monitoring is summarised in **Table 3.11** below. There was evidence of recent Feral Pig activity downstream of the crossing at Blackfellow Creek and along the Winder Track during the 2024/25 surveys, but Feral Pigs were active in Blackfellow Creek and along the Winder Track throughout the 2018/19 baseline surveys, so the presence of Feral Pigs after the construction of the new trail section is not attributable to the Project. Queensland Parks and Wildlife Service (QPWS) have had a Feral Pig trap operational on the Winder Track upslope from the Blackfellow Creek trail over the past several years; consequently, no corrective action is required.

Table 3.11. Assessment of corrective action triggers for riparian habitat condition in accordance with the SRTMP.

Corrective action trigger	Assessment	Corrective action required
Any damage to riparian vegetation caused by walkers using the crossings, or by feral animals.	There was no evidence of damage to riparian vegetation or evidence of feral animal activity within 100 m upstream or downstream of the Dalrymple Creek crossing. There was evidence of Feral Pig activity downstream of the Blackfellow Creek crossing; otherwise, no damage to riparian vegetation detected. Feral pigs were active in Blackfellow Creek during the baseline surveys, so the Feral Pig activity during the fourth year of operation is not attributable to the Project.	No corrective action required as QPWS already has Pig traps operational on the Winder Track above Blackfellow Creek.

4.0 RECOMMENDATIONS

No recommendations are made.

5.0 References

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APPENDIX 1

Habitat assessment site data

Table A.1: Vegetation composition and structure at Hastings River Mouse detailed habitat assessment sites.

Site: T1 Woodcutters	Representative photograph
Canopy (T1): Height range 20-35m; Median height 30m; Cover: 95% Dominant species: *Eucalyptus campanulata*; *E. saligna.* **Sub-canopy (T2):** Height range 5-10m; Median height 6m; Cover: 30% Dominant species: *Allocasuarina torulosa*; *Eucalyptus* saplings. **Shrub (S1):** Height range 1-2m; Median height 1m; Cover: 1% Dominant species: *Polyscias sambucifolia*, *E. campanulata, A. torulosa, Xanthorrhoea glauca* **Groundcover:** Height range 0-1m; Median height 0.4m; Cover: 65% Dominant species: *Lomandra longifolia*, *Poa labillardierei*, *Doodia aspera, Dianella caerulea*. **Notes**: Shelter sites include abundant large fallen logs with hollows. **Hastings River Mouse capture site: November 2016, October 2020, September 2021**.	
Site: T2 Woodcutters	**Representative photograph**
Canopy (T1): Height range 20-35m; Median height 30m; Cover: 80% Dominant species: *Eucalyptus eugenioides*; *E. saligna*; *E. campanulata.* **Sub-canopy (T2):** Height range 6-12m; Median height 10m; Cover: 50% Dominant species: *Allocasuarina torulosa*; *Eucalyptus campanulata*; *Acacia melanoxylon*. **Shrub (S1):** Height range 1.5-5m; Median height 5m; Cover: 15% Dominant species: *Xanthorrhoea glauca*; *Eucalyptus* saplings. **Groundcover:** Height range 0-1m; Median height 0.5m; Cover: 60% Dominant species: *Lomandra longifolia*, *Oplismenus aemulus*. **Notes**: Shelter sites include scattered large fallen logs and nearby rock outcroppings in gullies. **Hastings River Mouse capture site: October 2019**.	
Site: T3 Woodcutters (control)	**Representative photograph**
Canopy (T1): Height range 15-25m; Median height 20m; Cover:75% Dominant species: *Eucalyptus melliodora*; *E. saligna, E. campanulata, Lophostemon confertus*. **Sub-canopy (T2):** Height range 6-12m; Median height 10m; Cover: 65% Dominant species: *Allocasuarina torulosa*; *Lophostemon confertus.* **Shrub (S1):** Height range 1.5-5m; Median height 2m; Cover: 20% Dominant species: *Acacia maidenii*; *Breynia oblongifolia*; *Lophostemon confertus*; *Pimelea neoanglica*. **Groundcover:** Height range 0-1m; Median height 0.3m; Cover: 85% Dominant species: *Lomandra longifolia, Poa labillardierei*, *Themeda triandra*, *Doodia aspera.* **Notes**: Shelter sites include scattered large fallen logs with hollows and small surface rock outcroppings.	
Site: T4 Woodcutters (control)	**Representative photograph**
Canopy (T1): Height range 15-25m; Median height 20m; Cover: 95% Dominant species: *Eucalyptus campanulata*; *E. eugenioides*; *E. saligna*; *E. biturbinata*; *Lophostemon confertus.* **Sub-canopy (T2):** Height range 6-12m; Median height 10m; Cover: 40% Dominant species: *Allocasuarina torulosa*; *Lophostemon confertus*. **Shrub (S1):** Height range 1.5-5m; Median height 2m; Cover: 7% Dominant species: *Xanthorrhoea glauca, Lophostemon confertus*; *Myrsine variablis*; *Lantana camara**. **Groundcover:** Height range 0-1m; Median height 0.3m; Cover: 75% Dominant species: *Themeda triandra*, *Poa labillardierei.* **Notes:** Shelter sites include scattered large fallen logs and small surface rock outcroppings. **Hastings River Mouse capture site nearby: March 2017, October 2022, October/November 2023**.	

Table A.2: Frequency of occurrence (%) of groundcover species in five 1m x 1m quadrats at detailed habitat assessment sites.

Species	Site			
	T1	T2	T3	T4
Acacia maidenii	5	0	0	10
Adiantum atroviride	0	0	15	0
Breynia oblongifolia	0	5	0	0
Cissus antarctica	5	5	15	0
Cissus hypoglauca	0	5	5	0
Clematis glycinoides	0	0	5	0
Commelina diffusa	0	0	5	0
Desmodium brachypodum	0	5	0	5
Desmodium gunnii	10	15	5	10
Desmodium rhytidophyllum	0	5	0	0
Dianella caerulea	20	5	5	0
Dichondria repens	0	0	0	10
Dioscorea transversa	0	0	5	0
Doodia aspera	25	10	5	5
Eustrephus latifolius	5	5	5	5
Galium migrans	0	5	10	0
Geranium homeanum	0	5	10	5
Glycine clandestina	10	5	5	5
Hardenbergia violeceae	10	5	10	0
Hibbertia scandens	25	15	5	0
Imperata cylindrica	0	15	15	15
Lobelia purpurascens	0	0	10	10
Lomandra longifolia	25	20	15	5
Maytenus sp.	0	0	5	0
Microlaena stipoides	0	0	5	0
Myrsine variabilis	0	0	10	5
Oplismenus hirtellus	10	15	15	10
Oxalis chnoodes	0	0	5	5
Pimelea neo-angelica	0	0	5	5
Plectranthus parviflorus	5	5	10	10
Poa labillardierei	15	25	10	10
Polyscias sambucifolia	5	5	0	0
Pteridium esculentum	0	0	5	0
Rubus molucccanus	5	0	0	0
Rubus parviflorus	10	10	10	0
Sigesbeckia orientalis	0	5	0	0
Stephania japonica	0	0	5	0
Tetrastigma nitens	5	5	0	0
Themeda triandra	0	0	5	25
Unidentified herb 1	0	0	0	5
Viola silicestris	5	5	0	0
Xanthorrhoea glauca	0	5	0	0
Total groundcover species	**18**	**25**	**30**	**19**