

Prepared for Martinus

Methods & Results Report

Inland Rail A2I Sloane's Froglet Surveys

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Acronyms and abbreviations

BC Act	<i>NSW Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
BOM	Bureau of Meteorology
CoA	Conditions of Approval
Cwth	Commonwealth
DPIE	(Former) Department of Planning, Industry and Environment (NSW) (now DPE)
EIS	Environmental impact statement
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
GDA	Geographic Datum of Australia
GIS	Geographic information system
GPS	Geographical positioning system
km	kilometres
m	metres
Sp/spp	Species/multiple species

1. Introduction

Martinus engaged NGH to undertake targeted amphibian surveys for the Albury to Illabo (A2I) section of Inland Rail. The A2I scope broadly includes works to enhance 185 kilometres (km) of existing rail corridor between Albury and Illabo, New South Wales (NSW). Surveys were conducted for one target species, Sloane's Froglet (*Crinia sloanei*) which is listed as Endangered at both state and commonwealth levels, under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) and the *Environmental Protection and Biodiversity Conservation Act 1999* (Cwth) (EPBC Act). This memo details the Sloane's Froglet surveys undertaken by NGH on the proposed Project site on behalf of Martinus. Surveys were completed between 15 July – 22 August 2024.

2. Background

Sloane's Froglet was listed as having the potential to occur within the Project site in Appendix D2.8 of the *Albury to Illabo (A2I) Project Environmental Impact Statement Technical Paper 8 - Biodiversity Development Assessment Report* (BDAR) (ARTC, 2022a). As seasonal survey timeframes could not be met prior to the publishing of the *Albury to Illabo Environmental Impact Statement* (EIS), the species was assumed present in areas where suitable habitat values were present (ARTC, 2022b).

The surveys detailed in this memorandum were undertaken in response to the NSW Government Conditions of Approval (CoA), which stated that the Proponent must complete targeted surveys during July and/or August for Sloane's Froglet in all areas where that species was assumed present (condition E25) (NSW Government, n.d.). The CoA also stated that no works impacting areas where Sloane's Froglet presence was assumed are to be carried out prior to the completion of the targeted surveys. If the target species is identified on site, a *Sloane's Froglet Management Plan* must be prepared. Sloane's Froglet habitat mapping, demonstrating potential breeding habitat surrounding and within the Project site, was published in Appendix C-5 of the BDAR.

3. Methods

3.1. Survey methodology

Sloane's Froglet surveys were two-phased. First, areas of potential habitat illustrated within Appendix C-5 of the Albury to Illabo BDAR (ARTC, 2022a) were assessed by NGH ecologists in the field to determine the presence or absence of 'breeding habitat' as prescribed within the NSW Guidelines. Breeding habitat is defined as "still or very slow sections of permanent and temporary streams as well as pools (e.g. farm dams) with vegetation located on the subject land" p.15 (DPIE, 2020).

Where potential breeding habitat was confirmed, surveys were conducted using the aural-visual survey technique described in *NSW Survey Guide for Threatened Frogs* ('the guidelines') (DPIE, 2020). Aural-visual surveys are a combination of active listening for the calls of frogs and searching for individuals along a transect. The surveys included a call-playback component where a loudspeaker was used to broadcast the advertisement calls of the target frog species to elicit a response from any resident individuals who may not be actively calling.

Inland Rail A2I Sloane's Froglet Surveys

Four replicates of Sloane's Froglet aural-visual surveys were undertaken after sundown within the July-August survey window, in accordance with the CoA and the NSW Government BioNet Atlas (NSW Government, 2008), to optimise the likelihood of recording Sloane's Froglet if present at a site.

Five hundred metre transects were located along potential breeding habitat, such as permanent and ephemeral streams and farm dams. Surveys were conducted between 6:00pm (or following full sun-down) and 1:00am. Observers actively listened for target species calls for 5-minutes during the aural survey. Where there was suitable breeding habitat, a call-playback (2 mins broadcast + 2 mins listening) was conducted. This was followed by five minutes of visual surveying covering 50 m of the transect using head lamps and hand-held torches to scan for frogs within 10 m of either side of the transect, making 15 mins of active survey per point. Sightings of non-target species were recorded opportunistically. Where there was less than 500 m of potential habitat, all available habitat was surveyed.

All field data was collected via Mergin Maps and recorded using NGH field forms. All survey data was georeferenced, and date and time of entries recorded. GPS tracks were collected with a handheld GPS or tracking app. These were used to compile GIS maps.

3.2. Survey team

The surveys were completed by:

- Jonathon Sweeney (Senior Ecologist)
- Michael Cleland (Ecologist)
- Stella O'Dwyer (Ecologist)
- Maddie Robertson (Ecologist)
- Marcus Hoskins (Ecologist)
- Ben Sloggett (Ecologist)
- Taylor Hume (Ecologist)
- Julia Chabros (Graduate Ecologist)
- Justin Solomons (Graduate Ecologist)
- Evan Creek (Graduate Ecologist).

3.3. Survey effort

Survey dates at each of the 21 sites are show in Table 3-1. For aural-visual surveys of Sloane's Froglet, the guidelines require 480 minutes (eight hours) of survey per 500 m of suitable breeding habitat (with call playback points approximately 50 m apart) over four replicates. The replicate requirement was met at all sites where potential breeding habitat was confirmed. Survey points along breeding habitat transects are shown in figures in Appendix A. Survey dates, number of survey points and the length of potential breeding habitat at each site is listed in Table 3-1. Overall, there was 9311 m of breeding habitat surveyed over 201 hours. The effort in parts of the Murray River, Albury, Billy Hughes, Uranquinty, Harefield, Junee 2 Illabo 3 and Junee 2 Illabo 4 sites did not meet the 480 minutes per 500 m survey effort requirement, however, the overall effort achieved for the sites significantly exceeded the effort required.

Table 3-1 Survey effort

No.	Site name	Survey dates	Length of confirmed potential breeding habitat (m)	No. of survey points	Survey time achieved in 1 night (min)	Survey time achieved in full effort (4 nights) (min)	Required survey effort achieved?
Total habitat inside Study Area: 3114 m Total habitat outside Study Area: 6197 m Total breeding habitat: 9311 m			Effort required: 2989 min inside Study Area, 5949 min outside Study Area Effort undertaken: 3480 min inside Study Area, 8580 min outside study area		Total effort required: 8938 min (149 hours) Total effort undertaken: 12,060 min (201 hours)		
1	Murray River Bridge	22-25 July 2024 12 August 2024	Inside Study Area: 28 m Outside Study Area: 245 m	Inside Study Area: 2 Outside Study Area: 2	Inside Study Area: 2 points x 15 min = 30 min Outside study Area: 2 points x 15 min = 30 min	Inside Study Area: 30 min x 4 reps = 120 min Outside Study Area: 30 min x 4 reps = 120 min	Inside Study Area: effort exceeded by 93 minutes Outside Study Area: effort insufficient by 115 min
2	Albury	15-18 July 2024	Inside Study Area: 664 m Outside Study Area: 0 m	10	10 points x 15 min = 150 min	150 min x 4 reps = 600 min	Effort insufficient by 37 min
3	Billy Hughes Bridge	15-18 July 2024 12-15 August 2024	Inside Study Area: 245 Outside Study Area A: 370 Outside Study Area B: 210	Inside Study Area: 4 Outside Study Area A: 9 Outside Study Area B: 3	Inside Study Area: 60 Outside Study Area A: 135 Outside Study Area B: 45	Inside Study Area: 240 Outside Study Area A: 540 Outside Study Area B: 135	Inside Study Area: effort achieved Outside Study Area A: effort exceeded Outside Study Area B: effort insufficient by 25

No.	Site name	Survey dates	Length of confirmed potential breeding habitat (m)	No. of survey points	Survey time achieved in 1 night (min)	Survey time achieved in full effort (4 nights) (min)	Required survey effort achieved?
							min
4	Table Top	15-18 July 2024 13-15 August 2024 21 August 2024	Inside Study Area: 16 Outside Study Area: 568	Inside Study Area: 1 Outside Study Area: 6	Inside Study Area: 15 Outside Study Area: 240	Inside Study Area: 60 Outside Study Area: 960	Inside Study Area: effort exceeded Outside Study Area: effort exceeded
5	Culcairn	22-25 July 2024	Inside Study Area: 61 Outside Study Area: 0	Inside Study Area: 1	Inside Study Area: 15	Inside Study Area: 60	Inside Study Area: effort satisfied
6	Henty	22-25 July 2024 6 August 2024 13-15 August 2024 20 August 2024	Inside Study Area: 0 Outside Study Area: 600	Outside Study Area: 12	Outside Study Area: 180	Outside Study Area: 720	Outside Study Area: effort exceeded
7	Yerong Creek	22 July 2024 29 July-1 August 2024 19-22 August 2024	Inside Study Area: 0 Outside Study Area: 160	Outside Study Area: 9	Outside Study Area: 135	Outside Study Area: 540	Outside Study Area: effort exceeded
8	The Rock	22-25 July 2024 29 July 2024 19-22 August 2024	Inside Study Area: 6 Outside Study Area: 387	Inside Study Area: 1 Outside Study Area: 13	Inside Study Area: 15 Outside Study Area: 195	Inside Study Area: 60 Outside Study Area: 780	Inside Study Area: effort exceeded Outside Study Area:

No.	Site name	Survey dates	Length of confirmed potential breeding habitat (m)	No. of survey points	Survey time achieved in 1 night (min)	Survey time achieved in full effort (4 nights) (min)	Required survey effort achieved?
							effort exceeded
9	Uranquinty	22-25 July 2024 29 July 2024	Inside Study Area: 148 Outside Study Area: 611	Inside Study Area: 3 Outside Study Area: 8	Inside Study Area: 45 Outside Study Area: 120	Inside Study Area: 180 Outside Study Area: 480	Inside Study Area: effort exceeded Outside Study Area: effort insufficient by 100 min
10	Pearson Street	22-25 July 2024	Inside Study Area: 300 Outside Study Area: 141	Inside Study Area: 8 Outside Study Area: 4	Inside Study Area: 120 Outside Study Area: 60	Inside Study Area: 480 Outside Study Area: 240	Inside Study Area: effort exceeded Outside Study Area: effort exceeded
11	Wagga Yard	Assessed on 22 July 2024, no suitable habitat	-	-	-	-	-
12	Bomen	29 July-1 August 2024 19-22 August 2024	Inside Study Area: 21 Outside Study Area: 344	Inside Study Area: 1 Outside Study Area: 14	Inside Study Area: 15 Outside Study Area: 210	Inside Study Area: 60 Outside Study Area: 840	Inside Study Area: effort exceeded Outside Study Area: effort exceeded
13	Harefield	29 July-1 August 2024 19-22 August 2024	Inside Study Area: 55 Outside Study Area: 540	Inside Study Area: 2 Outside Study Area: 7	Inside Study Area: 30 Outside Study Area: 105	Inside Study Area: 120 Outside Study Area: 420	Inside Study Area: effort exceeded Outside Study Area:

No.	Site name	Survey dates	Length of confirmed potential breeding habitat (m)	No. of survey points	Survey time achieved in 1 night (min)	Survey time achieved in full effort (4 nights) (min)	Required survey effort achieved?
							effort insufficient by 98 min
14	Kemp Street	Assessed on 29 July 2024, no suitable habitat	-	-	-	-	-
15	Junee Yard	Assessed on 29 July 2024, no suitable habitat	-	-	-	-	-
16	Olympic Highway	Assessed on 29 July 2024, no suitable habitat	-	-	-	-	-
17	Junee 2 Illabo 1	30 July-1 August 2024 5 August 2024 19-22 August 2024	Inside Study Area: 0 Outside Study Area: 40	Outside Study Area: 2	Outside Study Area: 30	Outside Study Area: 120	Effort exceeded
18	Junee 2 Illabo 2	30 July-1 August 2024 5 August 2024 19-22 August 2024	Inside Study Area: 72 Outside Study Area: 226	Inside Study Area: 2 Outside Study Area: 7 Surveys in unsuitable habitat: 6	Inside Study Area: 30 Outside Study Area: 105	Inside Study Area: 120 Outside Study Area: 420	Inside Survey Area: effort exceeded Outside Study Area: effort exceeded
19	Junee 2 Illabo 3	30 July-1 August 2024 5 August 2024	Inside Study Area: 1175 Outside Study Area: 284	Inside Study Area: 17 Outside Study Area: 11	Inside Study Area: 255 Outside Study Area: 165	Inside Study Area: 1020 mins Outside Study Area: 660	Inside Study Area: effort insufficient by 108 min Outside Study Area:

No.	Site name	Survey dates	Length of confirmed potential breeding habitat (m)	No. of survey points	Survey time achieved in 1 night (min)	Survey time achieved in full effort (4 nights) (min)	Required survey effort achieved?
		19-22 August 2024					effort exceeded
20	Junee 2 Illabo 4	5-8 August 2024 19-22 August 2024	Inside Study Area: 150 Outside Study Area: 942	Inside Study Area: 2 Outside Study Area: 12	Inside Study Area: 30 Outside Study Area: 180	Inside Study Area: 120 Outside Study Area: 720	Inside Study Area: effort insufficient by 24 min Outside Study Area: effort insufficient by 184 min
21	Junee 2 Illabo 5	5-8 August 2024 19-22 August 2024	Inside Study Area: 173 Outside Study Area: 529	Inside Study Area: 4 Outside Study Area: 14 Plus 1 survey point of extra effort in area later determined unsuitable	Inside Study Area: 60 Outside Study Area: 210	Inside Study Area: 240 Outside Study Area: 840	Inside Study Area: effort exceeded Outside Study Area: effort exceeded Additional extra effort = 60 mins

3.4. Weather conditions

Weather conditions during survey influence survey success (DPIE, 2020). Generally, ideal conditions for amphibian surveys are warm (>18°C) and moist (recent rainfall). However, particular species may differ such as Sloane's Froglet with the peak calling period occurring in winter. The weather data in Table 3-2 was drawn from Wagga Wagga AMO, station 072150 (Bureau of Meteorology, 2024). Weather during the survey period was cold to mild with variable rainfall. The weather conditions satisfied the guidelines' requirement to sample across a variety of conditions.

Table 3-2 Daily weather conditions for the duration of the surveys

Week	Date	Temp min (°C)	Temp max (°C)	Rainfall (mm)	Max. wind gust (km/h)	RH 9am ¹ (%)
Week 1	15/07/2024	0.5	10.0	0.2	39	97
	16/07/2024	3.3	11.8	13.6	46	98
	17/07/2024	6.0	11.6	6.2	20	99
	18/07/2024	1.0	10.8	0.2	33	80
Week 2	22/07/2024	6.7	14.9	0.8	30	99
	23/07/2024	2.1	16.3	0	15	89
	24/07/2024	1.8	15.2	0	19	68
	25/07/2024	6.5	13.4	0	33	99
Week 3	29/07/2024	-1.5	12.1	0	33	77
	30/07/2024	-2.8	13.2	0.2	17	78
	31/07/2024	-2.2	14.7	0	19	78
	1/08/2024	-2.5	14.7	0	15	86
Week 4	5/08/2024	5.9	13.9	0	28	98
	6/08/2024	2.2	15.2	0.4	31	95
	7/08/2024	-0.8	16.1	0	24	81
	8/08/2024	0.7	16.9	0	28	96

¹ RH = relative humidity. Provided for 9am the following morning as best matches site conditions on survey night.

Week	Date	Temp min (°C)	Temp max (°C)	Rainfall (mm)	Max. wind gust (km/h)	RH 9am ¹ (%)
Week 5	12/08/2024	5.4	19.9	0	26	80
	13/08/2024	5.4	20.5	0	22	96
	14/08/2024	10.4	18.8	15.4	19	91
	15/08/2024	6.1	20.7	0.4	17	91
Week 6	19/08/2024	3.6	18.4	0	26	77
	20/08/2024	7	18.8	0.2	39	90
	21/08/2024	8.5	14.7	0	31	92
	22/08/2024	6.1	17.9	0	26	88

3.5. Limitations

The discussion on limitations below is based on the approach of the guidelines as well as particular limitations of the site.

Optimise time of year and meteorological conditions

Targeted surveys were taken at the optimal time of year and in mostly optimal conditions in terms of rainfall and temperature. However, some nights of surveys were conducted at low temperatures (Table 3-2). As some frog species can become less active in these lower temperatures, this may impact results for cold nights. As the surveys were taken across a range of conditions, as per the guidelines, this limitation has not affected the efficacy of the survey.

Identified potential habitat

Despite available research on habitat characteristics and key microhabitat components required for Sloane's Froglet (Knight A. , 2015; Knight, Watts, Allan, McDonald, & Lappin, 2024), we opted for the most conservative definition of potential breeding habitat as defined by the guidelines. This likely resulted in more areas categorised as potential breeding habitat than may actually occur. This limitation has ensured high survey coverage of the proposal area and a high confidence that Sloane's Froglet would be detected should it occur.

Some areas that were mapped as potential habitat in Appendix C-5 of the Albury to Illabo BDAR were not surveyed after habitat assessment (see Table 4-1). The sites that did not contain suitable habitat and were excluded completely were Wagga Yard, Kemp Street, Junee Yard and Olympic Highway. Other sites had areas that were excluded, such as a large concrete drainage spillway in Pearson Street that was filled with concrete slabs, or a depression with exotic grass and no water in Junee to Illabo 4. These areas lacked water and/or vegetation, and as a result do not meet the prescribed criteria for suitable Sloane's Froglet habitat.

Access

Visual surveying was difficult to accomplish in some areas where the watercourse was inaccessible due to steep drainage line walls, particularly in the southern section of the Albury site. In these instances, transects were completed along the verge or the drain, as close to the waterline as possible. As frogs were heard from these locations, this limitation has not affected the efficacy of survey.

Access to the areas identified in the BDAR was organised by Martinus, including entry into rail corridors and onto privately-owned land. There were several potential habitat areas that were inaccessible due to non-agreement by private landholders: Some areas of private property at sites Junee 2 Illabo 1, Junee 2 Illabo 2, Junee 2 Illabo 3 and Junee 2 Illabo 4 were inaccessible for survey. Likewise, several dams and survey points at the Harefield, Bomen and Yerong Creek sites were inaccessible directly.

An assessment of habitat was made from closest access points (e.g. property fencelines) and where breeding habitat could not be observed, no surveys were undertaken. Where breeding habitat was observed or considered likely to occur, aural-playback surveys were conducted at points along the fence-line closest to the waterbody. Visual surveys were not possible; however, aural surveys confirmed the presence of conspecific frogs (e.g. Eastern Sign Bearing Froglet and Bibron's Froglet). This indicates a capacity for assessors to identify calling frogs present at the site, despite not having physical access. Sloane's Froglet were not recorded calling or responding to call-playback efforts across the four survey nights. This limitation is not considered to have affected the efficacy of the survey.

Site conditions


Proximity to roads and highways may have limited the efficacy of call playback at some sites due to noise competition with passing traffic. This was prevalent at all sites where survey points were within approximately 30 m of roadways. Some points were not surveyed due to proximity to main highway. For example, the southern habitat area for Billy Hughes Bridge ought to have had an additional survey point but due to proximity to Hume Freeway, this point was not utilised. This may have impeded the ability for local frogs to hear broadcast calls. This limitation is likely mitigated by the repetitive structure of the survey methodology giving multiple opportunities for call-playback within and across survey nights to maximise the opportunity for a successful response call were the target species present. Thus, the efficacy of the survey is satisfactory.


4. Results

Sloane's Froglet was not recorded at any of the 21 sites across the entire survey period. A summary of each site is provided in the Table 4-1. Details from each site are given in Appendix B.

Table 4-1 Results of *Crinia sloanei* targeted surveys

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
1	Murray River Bridge	<p>This site had juvenile <i>Eucalyptus sp.</i> on the water's edge with some scattered <i>Acacia sp.</i> The understorey was made up mostly of Kikuyu grass (<i>Cenchrus clandestinus</i>). Several logs and debris were within the river. Eastern Sign-bearing Froglets (<i>Crinia parinsignifera</i>) recorded aurally.</p> <p>Murray River Bridge A contained fast flowing water and a strong current. The faster flow and small amount of riparian vegetation made this sub-site unsuitable breeding habitat for the target species. Murray River Bridge B had slow-moving water near the bank, which made the habitat suitable for the target species. Murray River C was made up of a string of ponds with overgrown vegetation, also suitable breeding habitat.</p>	Absent	


Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
2	Albury	<p>The site consisted mainly of concrete drainage areas with stagnant or slow-moving water. Vegetation surrounding the water was predominantly exotic, and included Kikuyu (<i>Cenchrus clandestinus</i>), Privet (<i>Ligustrum lucidum</i>), Ash (<i>Fraxinus</i> sp.), and <i>Phalaris</i> sp. Native species included <i>Austrostipa</i> sp. No frog species were recorded aurally or visually.</p> <p>Albury A had a low level of slow flowing water in concrete drain, and vegetation along banks. Albury B was a concrete drain with no water, therefore, no habitat for the target species. Albury C had slow moving water with algae in deep concrete drain algae present. Albury D was a wide concrete drain, with shallow flowing or still water, and some vegetation surrounding it.</p>	Absent	


Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
3 & 4	Billy Hughes Bridge	<p>Potential breeding habitat present; surveys undertaken.</p> <p>This site consisted of a dam and dry creek beds, as well as some riparian vegetation along the western side of the Hume Highway. The overstorey of the site consisted of <i>Eucalyptus melliodora</i>, <i>Eucalyptus camaldulensis</i> and <i>Eucalyptus bridgesiana</i>. With the understorey consisting of <i>Typha sp.</i>, Drain Sedge (<i>Cyperus eragrostis</i>), <i>Juncus sp.</i>, and <i>Phalaris sp.</i> Eastern Sign-bearing Froglets (<i>Crinia parinsignifera</i>), Spotted Marsh Frog (<i>Limnodynastes tasmaniensis</i>), Victorian Tree Frog (<i>Litoria paraewingi</i>) and Common Eastern Froglet (<i>Crinia signifera</i>) were recorded aurally.</p> <p>Potential Sloane's Froglet habitat occurred at Billy Hughes Bridge A, C, D and G. Billy Hughes Bridge A consisted of a dam surrounded by dead grass and weeds. Billy Hughes Bridge C was an ephemeral waterway, culvert and dam with nearby vegetation. Billy Hughes Bridge G consisted of a farm dam with pasture grasses, and Billy Hughes Bridge D was a natural waterway with groundcover and canopy layer vegetation.</p> <p>Billy Hughes Bridge B, D, E, F, H and I did not contain suitable breeding habitat. Billy Hughes Bridge E was a depression no water. Billy Hughes Bridge E was also a depressions with no water, and was situated around exotic pasture grasses and box gum woodland. Billy Hughes Bridge B consisted of a dry ephemeral creek bed. Billy Hughes Bridge H did not contain any</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
		water, and Billy Hughes Bridge I consisted of a very small puddle with still, murky water, unsuitable for breeding habitat.		
5	Table Top	<p>The Northern area of the site contained two dams within private properties with agricultural land use, as well as a culvert under the roadway and train corridor that connected them. Vegetation around this area was sparse with weed species such as <i>Circium</i> sp. present. Potential breeding habitat occurred at Table Top B, D and F. Table Top D and F consisted of farm dams, and non-target frog species were heard calling. Table Top B contained water in the form of muddy puddles.</p> <p>Bibron's Toadlet (<i>Pseudophryne bibronii</i>), Spotted Marsh Frog (<i>Limnodynastes tasmaniensis</i>), Eastern Sign-Bearing Froglet (<i>Crinia parinsignifera</i>) recorded visually and aurally.</p> <p>Table Top A C and E did not contain water, and were predominantly dry pasture areas.</p>	Absent	


Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
6	Culcairn	<p>Culcairn C was considered potential habitat as it contained a small stagnant pool of water that showed signs of previous flooding (flood lines on trees). Pool contained Cumbungi (<i>Typha</i> sp.) that had died off. No frog species were recorded visually or aurally.</p> <p>Not breeding habitat occurred in Culcairn A or Culcairn B. Culcairn A was a small standing pond with a strong sulphuric smell and no frogs. Culcairn B did not contain water.</p>	Absent	
7 & 8	Henty	<p>Site contained concrete culverts, as well as areas with water adjacent to revegetation areas as well as along a vegetated creek line with exotic understorey and a <i>Eucalyptus</i> dominant canopy. No frog species were recorded visually or aurally.</p> <p>Henty A consisted of a culvert with no water, and was unsuitable as breeding habitat. Henty B was considered suitable, as it consisted of a creek line lined with <i>Eucalyptus camaldulensis</i> and other native vegetation. Henty C and D could not be inspected due to access issues, and habitat suitability was assumed.</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
9 & 10	Yerong Creek	<p>Surveys were undertaken at Yerong Creek A, C, D and E. Yerong Creek A and D were dams that were clear of vegetation around the water and surrounded by exotic pastoral grasses. Yerong Creek C was a small standing pool at a culvert, with <i>Juncus</i> sp. being the dominant vegetation. Yerong Creek E was a farm dam surrounded by exotic pasture grasses. Eastern Sign-Bearing Froglet (<i>Crinia parinsignifera</i>) recorded aurally.</p> <p>Yerong Creek B did not contain suitable habitat as it was a large concrete culvert that spanned under the railway corridor as well as the roadway, and a private property dam. The culvert area was dominated with Kikuyu (<i>Cenchrus clandestinus</i>).</p>	Absent	
11	The Rock	<p>Potential breeding habitat present; surveys undertaken.</p> <p>The site consisted of a stagnant drainage line with water underneath the train line at the wester end of the site. This area consisted mostly of exotic grasses, <i>Paspalum</i> sp. and Drain Sedge (<i>Cyperus eragrostis</i>). This connected to a drain that proceeded north, which was vegetated with <i>Typha</i> sp. which led to several larger dams on the other side of the tracks. These dams had a canopy cover consisting of Cootamundra Wattle (<i>Acacia baileyana</i>) and Pepper Tree (<i>Schinus molle</i>). Edges of dams were steep with deep water and Cumbungi (<i>Typha</i> sp.) prevalent. No frog species were recorded visually or aurally.</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
12	Uranquinty	<p>Uranquinty A was predominantly exotic groundcover and some canopy cover in northern edge. Uranquinty B consisted of small pools of water, and frogs were heard calling from the adjacent dam. Uranquinty D and E had small amounts of water. Eastern Sign-bearing Frog (<i>Crinia paringisnifera</i>) was visually and aurally recorded on site. No suitable habitat occurred at Uranquinty C, F and G, as no water was present at those sub-sites.</p> <p>Understorey vegetation at the southern end of the site consisted of exotic grasses, Kikuyu (<i>Cenchrus clandestinus</i>), <i>Phalaris sp.</i> and Drain Sedge (<i>Cyperus eragrostis</i>). Overstorey consisted of River Red-Gum (<i>Eucalyptus camaldulensis</i>). The middle of the site consisted of a drainage line, next to Pearson Street roadside. This area consisted of planted vegetation including Red Ironbark (<i>Eucalyptus sideroxylon</i>), Privet (<i>Ligustrum lucidum</i>), and Bamboo (<i>Bambusa sp.</i>). Understorey consisted of <i>Phalaris sp.</i> and some smaller Cootamundra wattles (<i>Acacia baileyana</i>). The northern portion of the site was vegetated with mostly weed species including; <i>Phalaris sp.</i> with some juvenile Ash (<i>Fraxinus sp.</i>).</p>	Absent	


Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
13	Pearson Street	<p>One part of this site was a large concrete drainage spillway that was filled with concrete slabs and was not suitable as habitat. Other areas; potential breeding habitat present and surveys undertaken.</p> <p>Pearson St E consisted of a dam and eroded drainage line. Pearson St B and D were also drainage lines, with limited to no vegetation. Pearson St A was not suitable as it contained fast flowing water. Pearson St C was potential habitat as it consisted of pools of stagnant water with frogs calling. Pearson St H and F were roads and dry road verges. Pearson St G was not able to be inspected and was assumed suitable.</p> <p>This site contained a dam that was vegetated with <i>Typha sp.</i> with planted overstorey surrounding the water. Understorey consisted of Silky Blue-Grass (<i>Dichanthium sericeum</i>), and exotic grasses (<i>Phalaris sp.</i>, <i>Paspalum sp.</i>). Other areas of the site contained exotic overstorey consisting of Ash species (<i>Fraxinus sp.</i>) with Pampas Grass (<i>Cortaderia sp.</i>) and <i>Typha sp.</i> within the drainage lines.</p> <p>Eastern Sign-bearing Froglet (<i>Crinia parinsignifera</i>) and Common Eastern Froglet (<i>Crinia signifera</i>) were recorded aurally on site.</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
14	Wagga Yard	<p>No available breeding habitat.</p> <p>This site consisted of a gravel pile with no standing water present.</p>	NA	NA
15	Bomen	<p>This site consisted of several farm dams, within private properties and concrete culverts that drain from underneath the railway corridor. Some dams contained stags, as well as some <i>Eucalypts sp.</i> and <i>Juncus sp.</i> near the water's edge. Eastern Sign Bearing Frog (<i>Crinia parinsignifera</i>) recorded aurally on site.</p> <p>Bomen G contained dirty, odorous water which showed signs of chemical contamination and had some reeds, and was considered unsuitable breeding habitat. Bomen F was a dam with muddy water, bare banks, and pasture and swamp vegetation within 2 m of the water. Bomen E could not be accessed, and suitability was assumed. Bomen B consisted of a road and built up area, and was not suitable. Bomen C was a small dam with high water, fringing vegetation and frog activity, and was considered suitable habitat. Bomen D was a small dam with water, muddy banks, and vegetation. Bomen A was a temporary pond with water, and considered potentially suitable habitat.</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
16 & 17	Harefield	<p>The site consisted primarily of culverts that ran under the railway corridor and roadways, with minimal water found in these areas. Some Dams in private property were also surveyed, these areas had minimal riparian vegetation around the banks. Eastern Sign-bearing Froglet (<i>Crinia parinsignifera</i>) and Common Eastern Froglet (<i>Crinia signifera</i>) recorded aurally on site.</p> <p>Harefield D was a farm dam with low water and <i>Juncus</i> sp. on border. Harefield B was not suitable as it did not have water and consisted of gravel. Harefield C was not accessible and highly industrial and suitability was assumed. Harefield G consisted of a dam with water; highly disturbed (light, road noise, little vegetation). Harefield A was considered unsuitable as it has no watercourse or standing water, and no frogs were heard calling. Harefield F was considered suitable as it contained a farm dam and road drains. Harefield E consisted of shallow, temporary water in culverts and drains and was considered to be potentially suitable habitat.</p>	Absent	


Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
18	Kemp Street	<p>No available breeding habitat.</p> <p>This site consisted of concrete drains running through the township of Junee, with no vegetation on either side. Water in these drains was minimal.</p>	NA	
19	Junee Yard	<p>No available breeding habitat.</p> <p>This site consisted of concrete drains running through the township of Junee with no vegetation on either side. Water in these drains was minimal.</p>	NA	


Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
20	Olympic Highway	<p>No available breeding habitat.</p> <p>This site consisted of a drain coming from underneath the Olympic Highway in north Junee, that flowed into a grass reserve depression which continued to another drain. Minimal water was found on site.</p>	NA	
22	Junee 2 Illabo 1	<p>This site contained 2 dams within private property farms along the Olympic Highway between Junee township and Illabo Township. Dams were absent of riparian vegetation with exotic pastural grass surrounding or cropped species.</p> <p>Other areas were made up of concrete and brick culverts, sometimes with still water within, other times dry of any water. These areas were covered in exotic vegetation mostly <i>Phalaris sp.</i> and <i>Paspalum sp.</i>, however some areas contained native Black-anther Flax-lily (<i>Dianella revoluta</i>). Overstorey in these areas were cleared within the rail corridor, yet some <i>Eucalyptus sp.</i> remained within private properties. Eastern Sign-bearing Froglet (<i>Crinia parinsignifera</i>) and Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally on site.</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
		<p>Junee 2 Illabo 1 A was a degraded farm dam and had no suitable vegetation, however, as water was present, it was considered to have suitable habitat. Junee 2 Illabo 1 B was a cropped wheat paddock with no water and no depressions, and was unsuitable. Junee 2 Illabo 1 D consisted of a farm dam with dirty stagnant water and no fringing vegetation and was considered unsuitable. Junee 2 Illabo 1 C had no water and exotic non-aquatic pasture species and was also determined to be unsuitable for breeding habitat.</p>		
23, 24, 25 & 26	Junee 2 Illabo 2	<p>Two private property dams were located on this site, other areas consisted of concrete drainage culverts, underneath the railway line and roadway. These locations had mostly disturbed habitat with exotic grasses being the dominant vegetation found. Some private property dams containing exotic vegetation and cropped vegetation surrounding water edges. Toward the northern end of the site within private property, there were some native trees within proximity to the water, these species were Blakely's Red Gum (<i>Eucalyptus blakelyi</i>) and Yellow Box (<i>Eucalyptus melliodora</i>), <i>Juncus sp.</i> Eastern Sign-bearing Froglet (<i>Crinia parinsignifera</i>) and Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally on site.</p> <p>Junee 2 Illabo 2 A was a culvert with temporary water and limited native vegetation, therefore, was considered not suitable. Junee 2 Illabo 2 B consisted of a drainage area with puddles of</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
		<p>water and vegetation and was considered suitable habitat. Junee 2 Illabo 2 C consisted of rail and road culverts no vegetation, therefore, was unsuitable. Junee 2 Illabo 2 D was a farm dam with water, and was considered suitable habitat. Junee 2 Illabo 2 E consisted of culverts, muddy puddles and wet depressions in paddocks. Junee 2 Illabo 2 F consisted of cropped and pasture paddocks with no water, farm dam no vegetation. Junee 2 Illabo 2 G consisted of cropped and pasture paddocks with no water, farm dam no vegetation. Junee 2 Illabo 2 J contained puddles in vegetated drain beside rail track with frogs calling, therefore, potential suitable habitat. Junee 2 Illabo 2 H consisted of a road and cropped and pasture paddocks with no water. Junee 2 Illabo 2 I contained cropped and pasture paddocks with no water.</p>		

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
26, 27, 28, & 29	Junee 2 Illabo 3	<p>This site also contains public properties and concrete culverts along the Olympic Highway, these sites contained mostly exotic grasses <i>Phalaris sp.</i> and <i>Paspalum sp.</i> Private properties within this site consisted of a long-vegetated drainage line that connected to a concrete culvert within the railway corridor. This patch of habitat contained <i>Juncus sp.</i> around areas of water. This area also contained some native upper storey such as Yellow Box (<i>Eucalyptus melliodora</i>). Eastern Sign Bearing (<i>Crinia parinsignifera</i>) and Bibron's Froglet (<i>Pseudophryne bibronii</i>) and Suddell's Frog (<i>Neobatrachus sudelli</i>) were recorded aurally on site.</p> <p>Junee 2 Illabo 3 A contained water and fringing vegetation, with some canopy trees. Junee 2 Illabo 3 B did not contain water, therefore, was unsuitable for the target species. Junee 2 Illabo 3 D was a grassy overflow area that was temporarily inundated. Junee 2 Illabo 3 E was a farm dam with fringing vegetation. Junee 2 Illabo 3 F consisted of farms dams and adjoining creek with fringing vegetation (pasture grass and <i>Juncus sp.</i>). Junee 2 Illabo 3 C was a rail culvert with some water and minimal vegetation.</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
30, 31 & 32	Junee 2 Illabo 4	<p>Depression with exotic grass and no water not suitable habitat. Other areas are potential breeding habitat present; surveys undertaken. Sites along this section consist of private property dams with exotic vegetation surrounding, as well as drainage lines close to the southern borders of the Illabo township. Some private property dams and large water ways that flowed along the railway corridor could not be accessed. Eastern Sign Bearing (<i>Crinia parinsignifera</i>) and Bibron's Froglet (<i>Pseudophryne bibronii</i>) were recorded aurally on site.</p> <p>Junee 2 Illabo 4 A consisted of a farm dam, and was considered to be marginal habitat due to lack of vegetation. Junee 2 Illabo 4 B contained railway culverts with a concrete floor no vegetation. Junee 2 Illabo 4 C was a vegetated drain and farm dam with frogs calling. Junee 2 Illabo 4 I contained a Box Gum Woodland but no water. Junee 2 Illabo 4 D consisted of a farm dam with no vegetation near the water and exotic groundcover vegetation. Junee 2 Illabo 4 E consisted of muddy puddles and a vegetated culvert. Junee 2 Illabo 4 F consisted of culverts with stagnant water and without vegetation. Junee 2 Illabo 4 H was an overgrown ephemeral drainage line. Some areas of this sub-site were inaccessible. Junee 2 Illabo 4 G consisted of a road. Junee 2 Illabo 4 J contained small ephemeral puddles with exotic pasture species. Junee 2 Illabo 4 K contained inaccessible dams and vegetated drainage lines between.</p>	Absent	

Map ID	Site	Habitat assessment	<i>C. sloanei</i> presence	Site photo
		<p>Suitability was assumed and the area was surveyed from multiple points along the fence line, where frog calls were audible and multiple common frog species were recorded. Junee 2 Illabo 4 L consisted of stagnant water in pasture. Dams were inaccessible but appeared unsuitable (no vegetation).</p>		
33 & 34	Junee 2 Illabo 5	<p>This site contained some private property dams, one such dam was surrounded by planted Pine trees (<i>Pinus sp.</i>) with an exotic understory made up of <i>Phalaris sp.</i> up until the banks which were sandy and clear. A vegetated drain ran the length of one side of this dam mainly <i>Phalaris sp.</i> with some <i>Juncus sp.</i> in areas with water. Eastern Sign Bearing (<i>Crinia parinsignifera</i>) and Bibron's Froglet (<i>Pseudophryne bibronii</i>) were recorded aurally on site.</p> <p>Junee 2 Illabo 5 A, B, C, D, F and H consisted of areas without water, therefore, were unsuitable for breeding habitat. Junee 2 Illabo 5 E consisted of a dam no vegetation, vegetated drainage lines, wet paddocks and culverts. Junee 2 Illabo 5 G was a drainage line with some water present. Junee 2 Illabo 5 J has water present in patches and native dominated vegetation, but no aquatic vegetation. Junee 2 Illabo 5 I was a farm dam with no vegetation. It was surrounded by dry grassy groundcover and the rail corridor and determined to be unsuitable habitat.</p>	Absent	

5. Conclusion

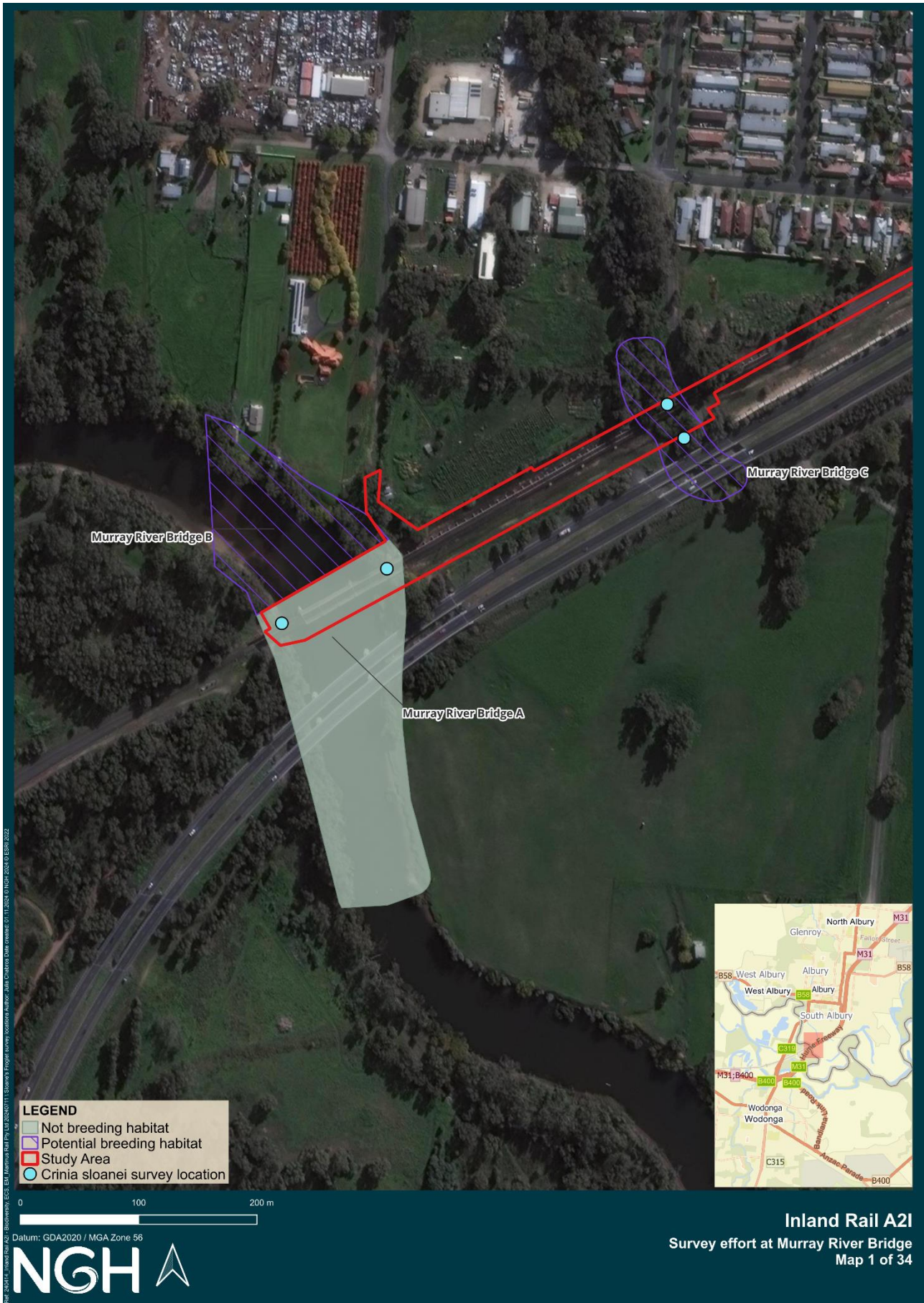
In summary, the survey effort for the Albury to Illabo (A2I) section of Inland Rail was completed in accordance with Condition E25 of the CoA and the *NSW Survey Guide for Threatened Frogs* (DPIE, 2020). Identified limitations such as site conditions and access did not reduce the efficacy of surveys. Surveys were conducted during the appropriate survey window during July – August, as per the CoA and the guidelines with the appropriate number of replicates (four). The target species, Sloane's Froglet (*Crinia sloanei*), was not detected aurally or visually at any site.

Based on survey results, a Sloane's Froglet Management Plan is not required as the species does not occur in the project area. Condition E25 of the CoA has been satisfied and there is no further survey or other work required for Sloane's Froglet to fulfill this condition.

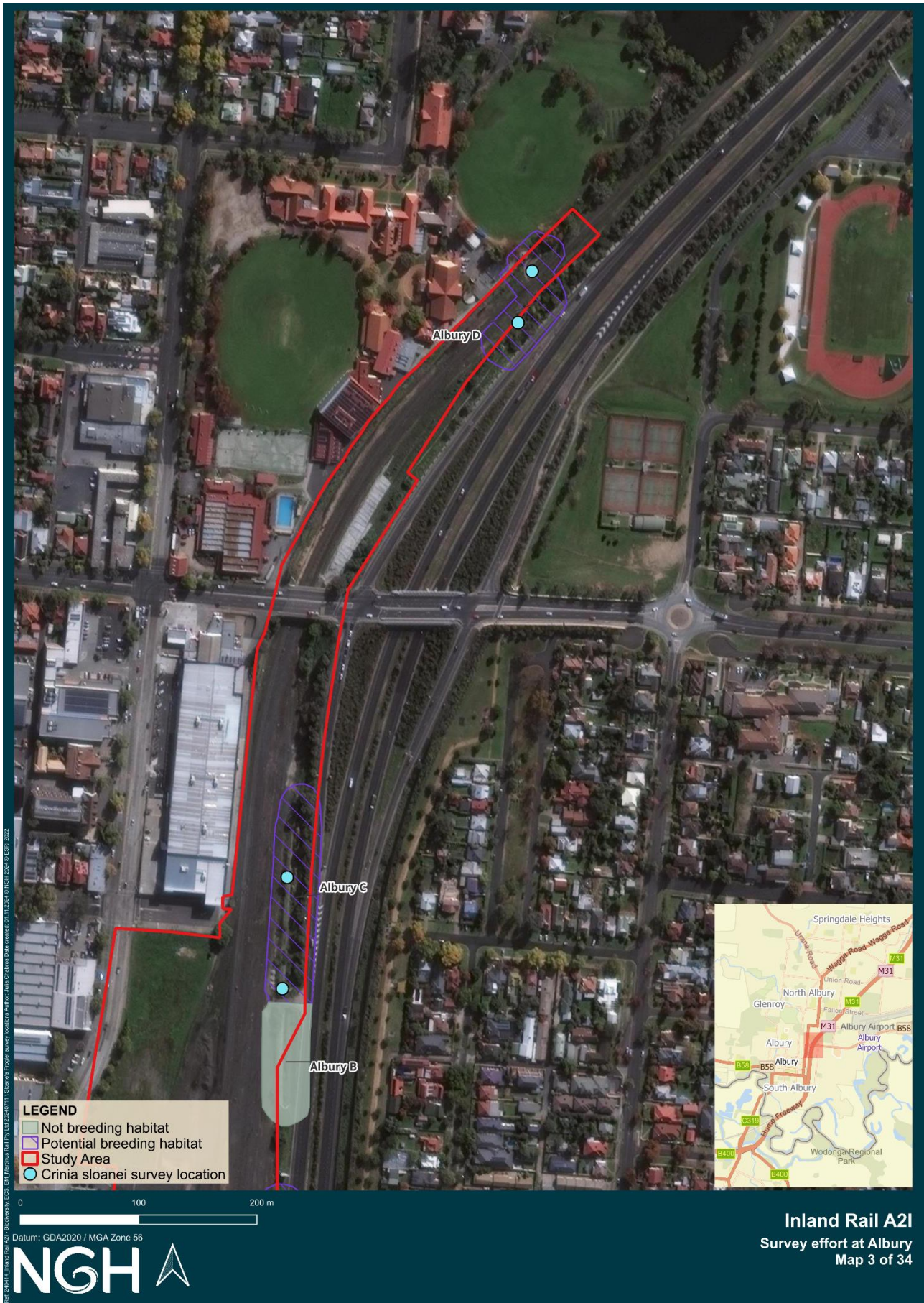
6. References

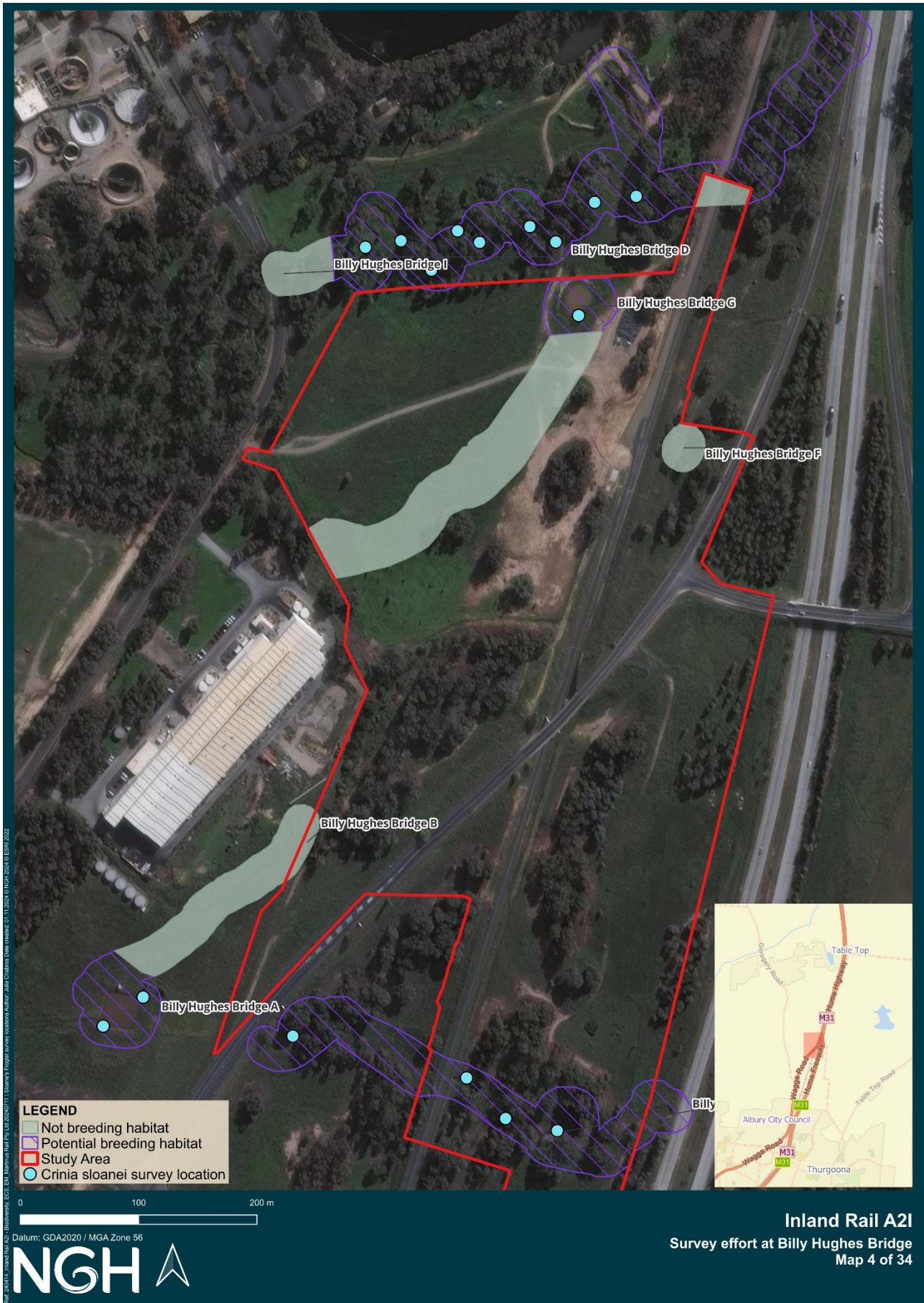
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Appendix A Survey effort atlas maps













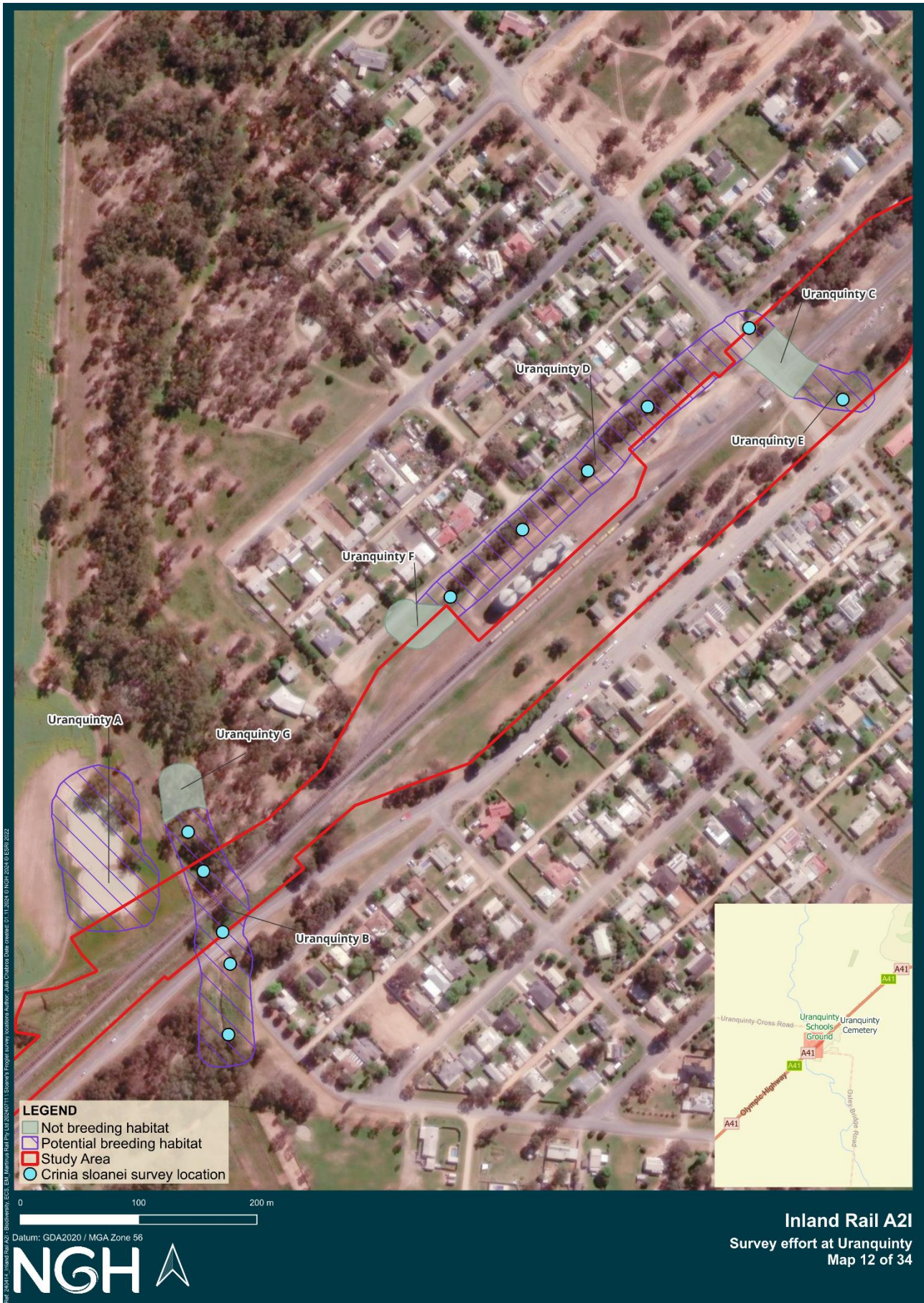








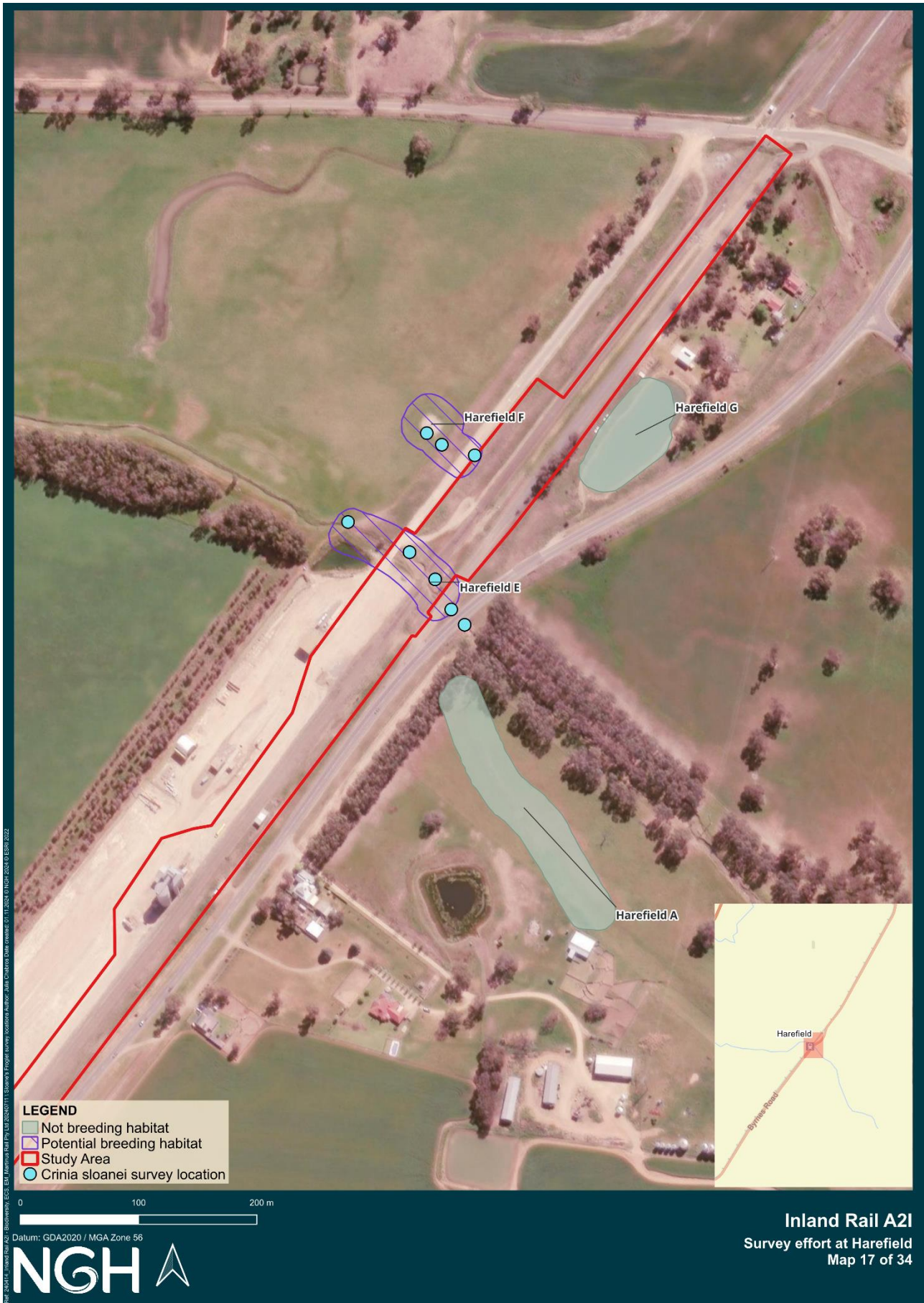








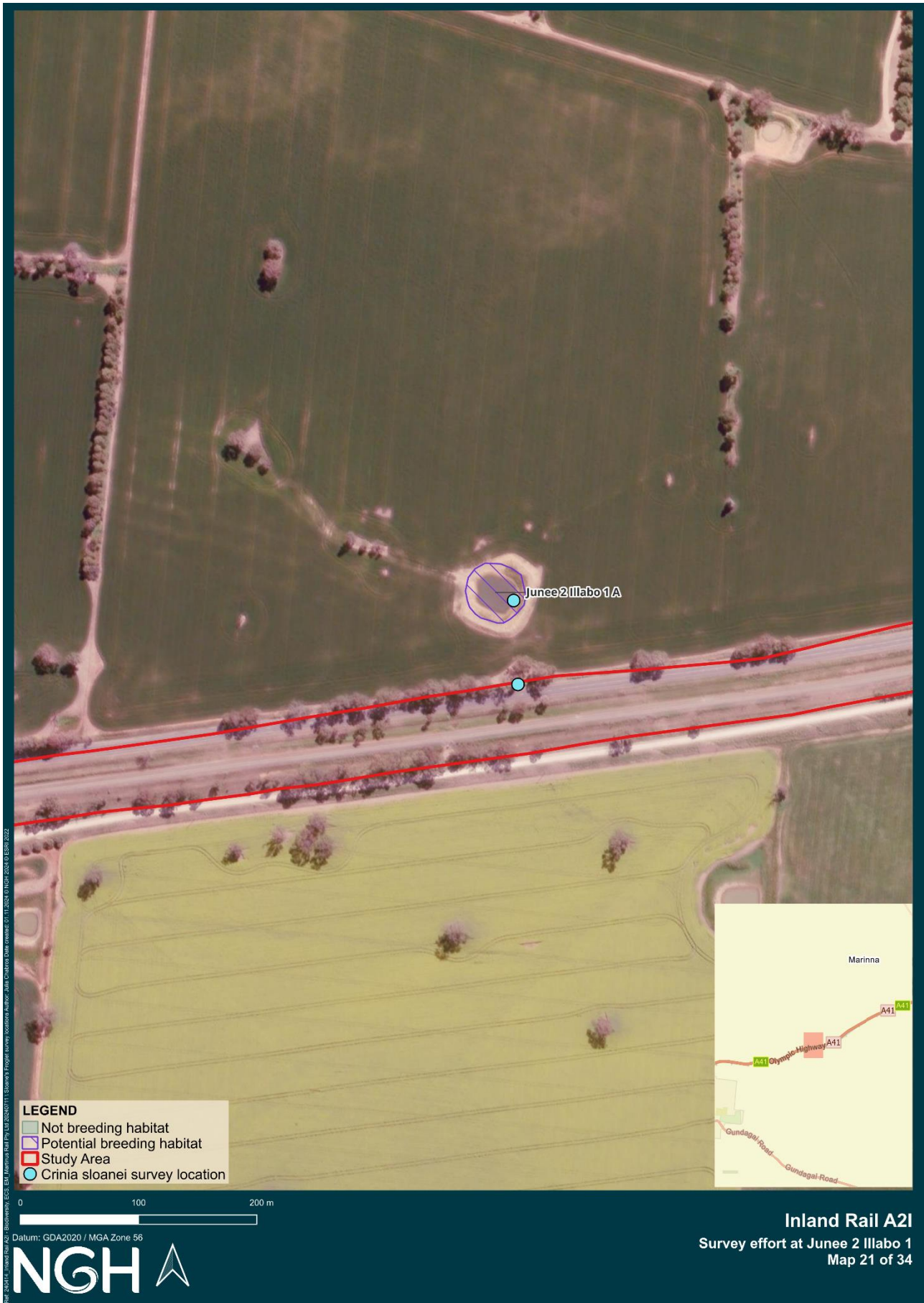




















Inland Rail A21
Survey effort at Junee 2 Illabo 2
Map 25 of 34



RP/24014 - Inland Rail A21 - Sloane's Froglet Survey - Position Author: JMB, Checked Date: none, 01/11/2024, Project Name: Sloane's Froglet Survey, Position Author: JMB, Checked Date: none, 01/11/2024, Project Name: Sloane's Froglet Survey

LEGEND

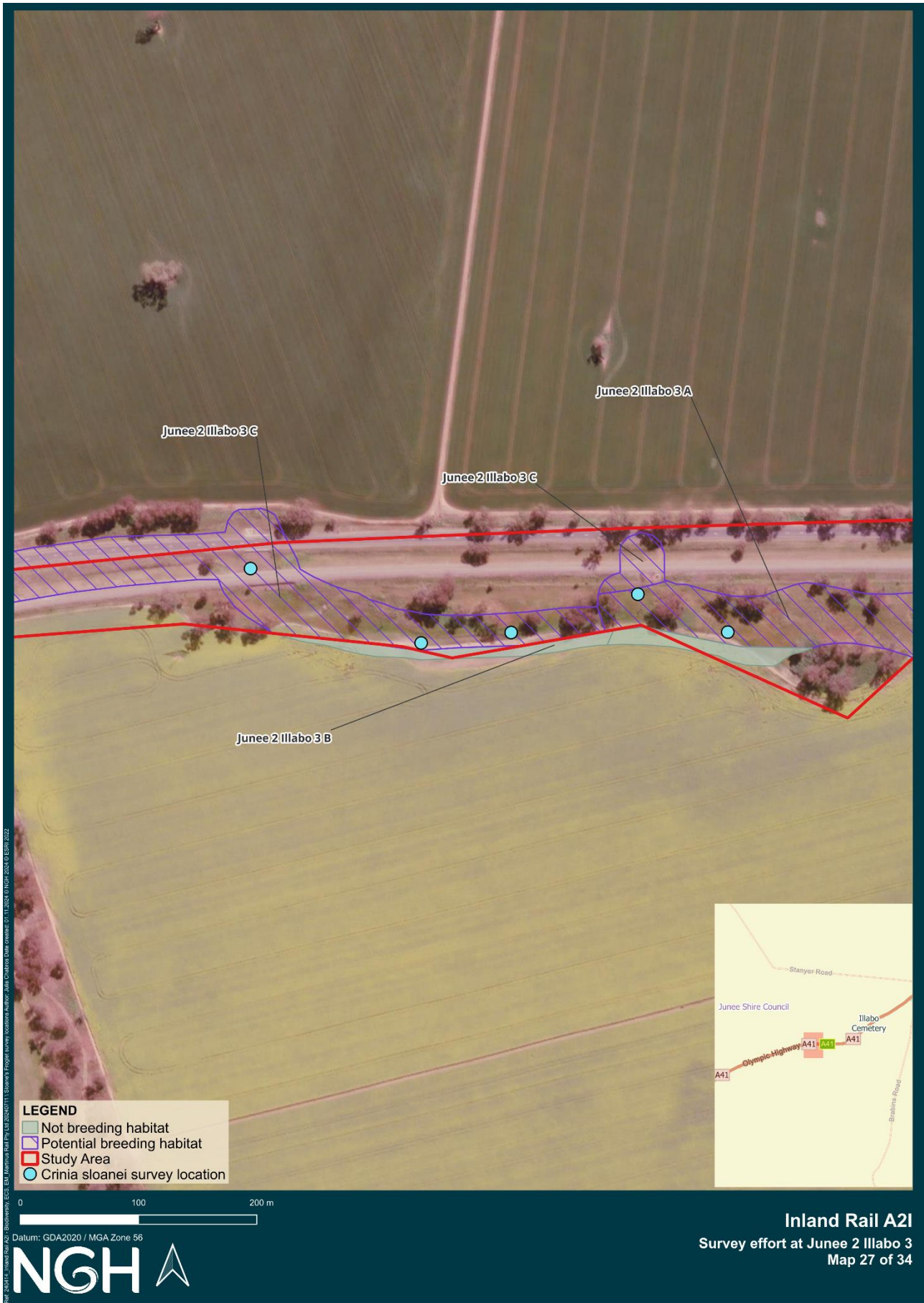
- Not breeding habitat
- Potential breeding habitat
- Study Area
- Crinia sloanei survey location

0 100 200 m

Datum: GDA2020 / MGA Zone 56



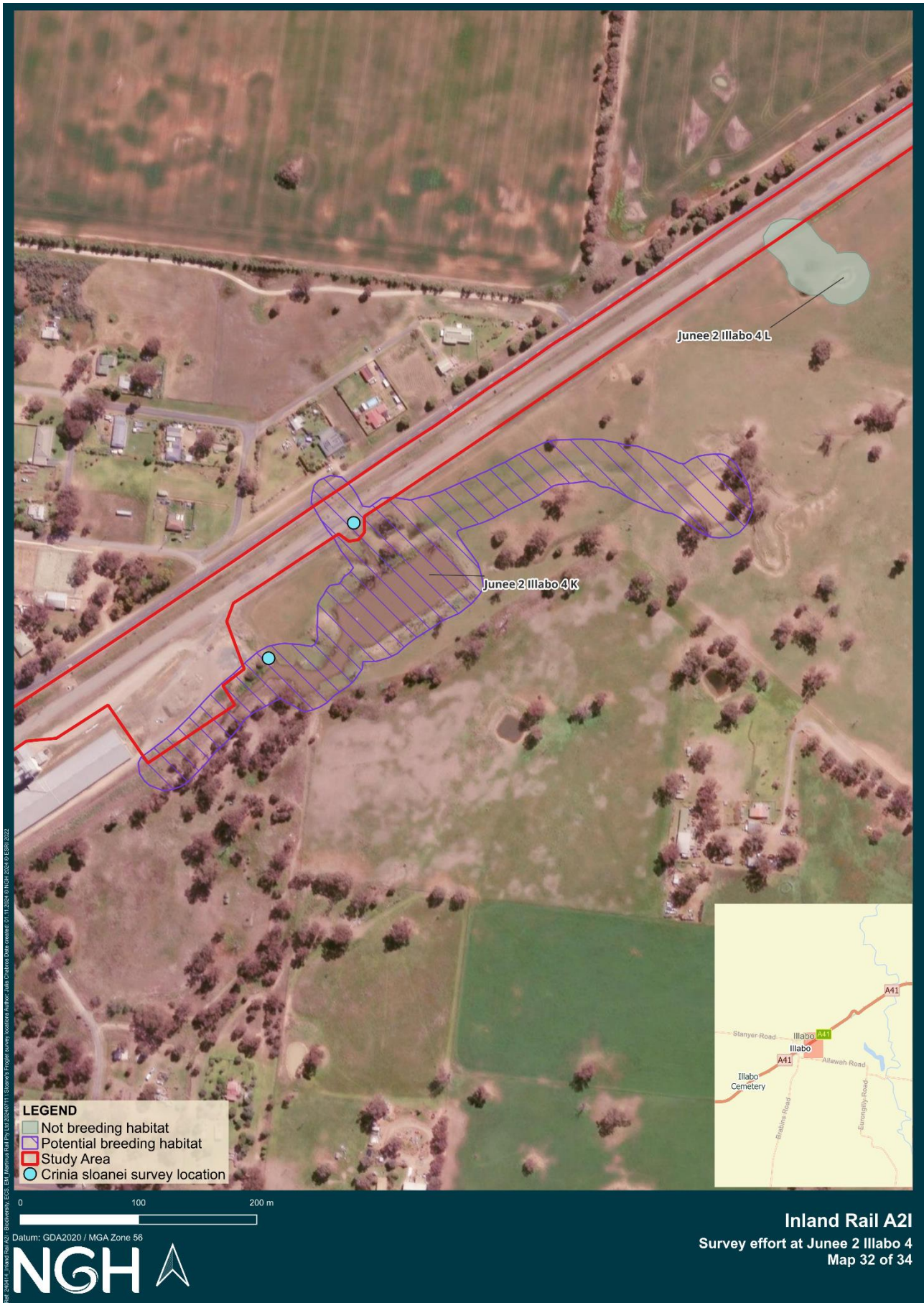
Inland Rail A21
 Survey effort at Junee 2 Illabo 2
 Map 26 of 34

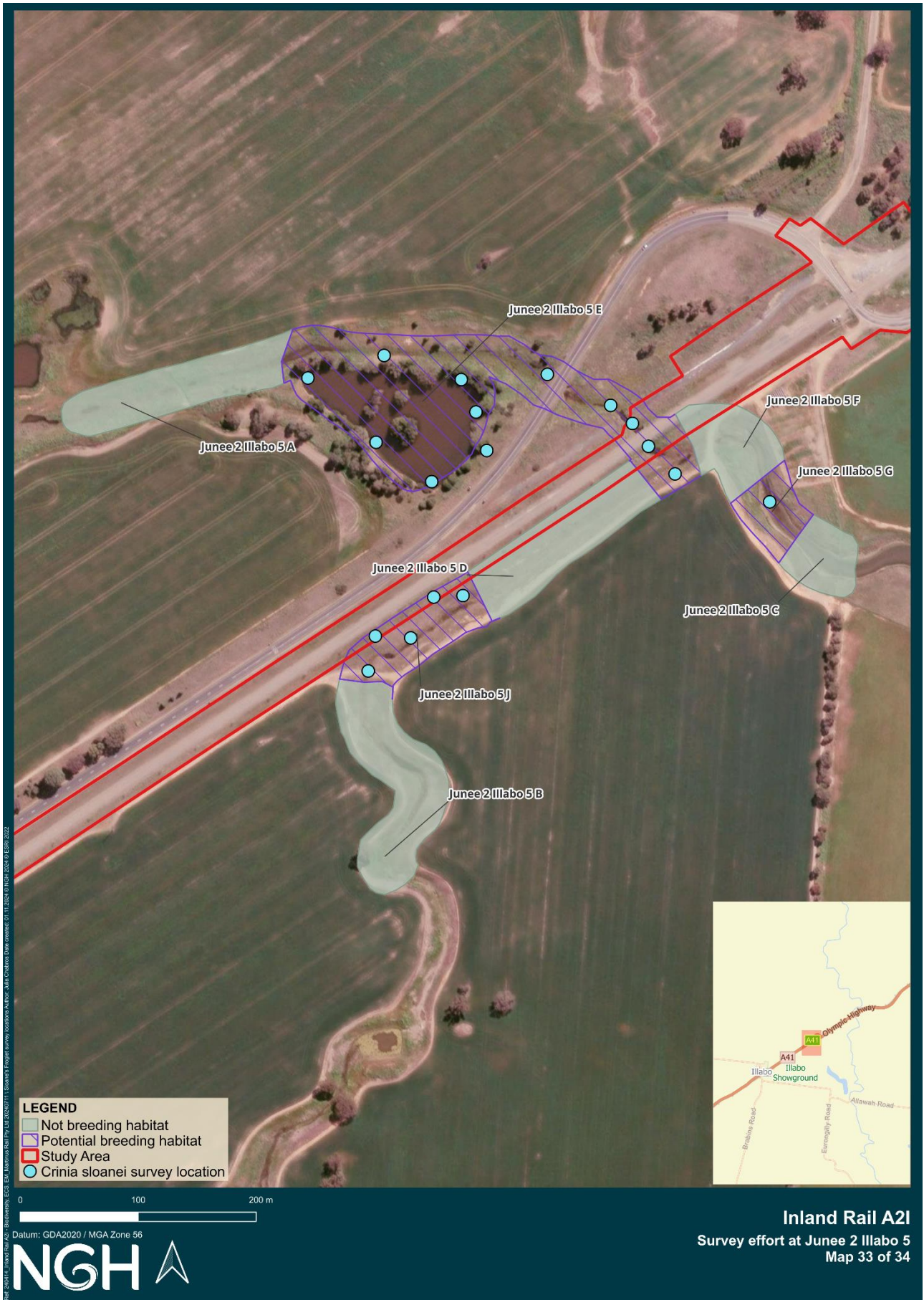














Appendix B Raw habitat assessment data

Map ID	Site	Result	Site sub-name	Comment
2	Albury	Potential breeding habitat	Albury A	Slow flowing low level in concrete drain, vegetation along banks
2	Albury	Not breeding habitat	Albury B	Concrete drain, no water present
2	Albury	Potential breeding habitat	Albury C	Slow moving water in deep concrete drain, algae present. Marginal
3	Albury	Potential breeding habitat	Albury D	Wide concrete drain, shallow flowing or still water, some vegetation nearby
4	Billy Hughes Bridge	Potential breeding habitat	Billy Hughes Bridge A	Dam surrounded by dead grass and weeds
4	Billy Hughes Bridge	Not breeding habitat	Billy Hughes Bridge B	Dry ephemeral creek bed
4	Billy Hughes Bridge	Potential breeding habitat	Billy Hughes Bridge C	Ephemeral waterway, culvert and dam with nearby vegetation
4	Billy Hughes Bridge	Potential breeding habitat	Billy Hughes Bridge D	Natural waterway with vegetation
4	Billy Hughes Bridge	Not breeding habitat	Billy Hughes Bridge E	Depressions with no water, exotic pasture grasses and box gum woodland
4	Billy Hughes Bridge	Not breeding habitat	Billy Hughes Bridge F	Depression no water
4	Billy Huges Bridge	Potential breeding habitat	Billy Hughes Bridge G	Farm dam with pasture grasses
4	Billy Hughes Bridge	Not breeding habitat	Billy Hughes Bridge H	No habitat present
4	Billy Hughes Bridge	Not breeding habitat	Billy Hughes Bridge I	Tiny puddle with still murky water, unlikely to be suitable
15	Bomen	Potential breeding habitat	Bomen A	Temporary pond
15	Bomen	Not breeding habitat	Bomen B	Road and built up area
15	Bomen	Potential breeding habitat	Bomen C	Small dam with high water, fringing vegetation and frog activity

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15	Bomen	Potential breeding habitat	Bomen D	Small full dam, muddy banks, vegetation
15	Bomen	Potential breeding habitat	Bomen E	Not accessed, suitability assumed
15	Bomen	Potential breeding habitat	Bomen F	Muddy water, bank bare, pasture and swamp veg within 2m of water
15	Bomen	Not breeding habitat	Bomen G	Dirty, odorous water, no frogs, some reeds
6	Culcairn	Not breeding habitat	Culcairn A	Small standing pond, stagnant, strong sulphuric smell. No frogs
6	Culcairn	Not breeding habitat	Culcairn B	Dry area
6	Culcairn	Potential breeding habitat	Culcairn C	Large pond with surrounding vegetation
17	Harefield	Not breeding habitat	Harefield A	No watercourse or body. No frogs present.
16	Harefield	Not breeding habitat	Harefield B	Gravel and industrial, no water
16	Harefield	Potential breeding habitat	Harefield C	Not accessible, highly industrial, suitability assumed
16	Harefield	Potential breeding habitat	Harefield D	Farm dam, low water, Juncus sp. on border
17	Harefield	Potential breeding habitat	Harefield E	Shallow temporary water in culverts and drains
17	Harefield	Potential breeding habitat	Harefield F	Part not accessible but surveyed from distance. Habitat farm dam and road drains
17	Harefield	Not breeding habitat	Harefield G	Dam with water; highly disturbed (light, road noise, little vegetation)
7	Henty	Not breeding habitat	Henty A	Culvert no water, unsuitable habitat
8	Henty	Potential breeding habitat	Henty B	Creek line lined with River Red Gum and other native vegetation
8	Henty	Potential breeding habitat	Henty C	Not inspected, suitability assumed
7	Henty	Potential breeding habitat	Henty D	Not inspected, suitability assumed
21	June 2 Illabo 1	Potential breeding habitat	June 2 Illabo 1 A	Degraded farm dam, no suitable vegetation, water present
22	June 2 Illabo 1	Not breeding habitat	June 2 Illabo 1 B	Cropped wheat paddock, no water, no depressions

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22	Junee 2 Illabo 1	Not breeding habitat	Junee 2 Illabo 1 C	No water, exotic non-aquatic pasture species
22	Junee 2 Illabo 1	Not breeding habitat	Junee 2 Illabo 1 D	Farm dam, dirty stagnant water, no fringing vegetation
23	Junee 2 Illabo 2	Not breeding habitat	Junee 2 Illabo 2 A	Culvert with temporary water, limited native vegetation, not suitable
23	Junee 2 Illabo 2	Potential breeding habitat	Junee 2 Illabo 2 B	Drainage area with puddles of water and vegetation
23	Junee 2 Illabo 2	Not breeding habitat	Junee 2 Illabo 2 C	Rail/road culverts no vegetation
23	Junee 2 Illabo 2	Potential breeding habitat	Junee 2 Illabo 2 D	Farm dam
24	Junee 2 Illabo 2	Potential breeding habitat	Junee 2 Illabo 2 E	Culverts, muddy puddles and wet depressions in paddocks
25	Junee 2 Illabo 2	Not breeding habitat	Junee 2 Illabo 2 F	Cropped and pasture paddocks with no water, farm dam no vegetation
25	Junee 2 Illabo 2	Potential breeding habitat	Junee 2 Illabo 2 G	Cropped and pasture paddocks with no water, farm dam no vegetation
26	Junee 2 Illabo 2	Not breeding habitat	Junee 2 Illabo 2 H	Road, cropped and pasture paddocks with no water
25 & 26	Junee 2 Illabo 2	Not breeding habitat	Junee 2 Illabo 2 I	Cropped and pasture paddocks with no water, farm dam no vegetation
26	Junee 2 Illabo 2	Potential breeding habitat	Junee 2 Illabo 2 J	Puddles in vegetated drain beside rail track with frogs calling
27	Junee 2 Illabo 3	Potential breeding habitat	Junee 2 Illabo 3 A	Excellent quality habitat
27	Junee 2 Illabo 3	Not breeding habitat	Junee 2 Illabo 3 B	Dry
26 & 27	Junee 2 Illabo 3	Potential breeding habitat	Junee 2 Illabo 3 C	Rail culvert some water, minimal habitat, culverts and puddles with some vegetation
28	Junee 2 Illabo 3	Potential breeding habitat	Junee 2 Illabo 3 D	Grassy overflow area temporarily inundated
29	Junee 2 Illabo 3	Potential breeding habitat	Junee 2 Illabo 3 E	Farm dam with fringing vegetation
29	Junee 2 Illabo 3	Potential breeding habitat	Junee 2 Illabo 3 F	Farms dams and adjoining creek with fringing vegetation (pasture grass and Juncus sp.)
30	Junee 2 Illabo 4	Potential breeding habitat	Junee 2 Illabo 4 A	Farm dam, marginal habitat due to lack of vegetation
30	Junee 2 Illabo 4	Not breeding habitat	Junee 2 Illabo 4 B	Railway culverts, concrete floor no vegetation

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30	Junee 2 Illabo 4	Potential breeding habitat	Junee 2 Illabo 4 C	Vegetated drain and farm dam with frogs calling
31	Junee 2 Illabo 4	Potential breeding habitat	Junee 2 Illabo 4 D	Farm dam with no vegetation near water. Thistles around top
31	Junee 2 Illabo 4	Potential breeding habitat	Junee 2 Illabo 4 E	Muddy puddles and vegetated culvert
31	Junee 2 Illabo 4	Not breeding habitat	Junee 2 Illabo 4 F	Non vegetated culverts with stagnant water
31	Junee 2 Illabo 4	Not breeding habitat	Junee 2 Illabo 4 G	Road
31	Junee 2 Illabo 4	Potential breeding habitat	Junee 2 Illabo 4 H	Overgrown ephemeral drainage line. Some areas inaccessible. Marginal habitat
31	Junee 2 Illabo 4	Not breeding habitat	Junee 2 Illabo 4 I	Box Gum Woodland no water
31	Junee 2 Illabo 4	Potential breeding habitat	Junee 2 Illabo 4 J	Small ephemeral puddles with exotic pasture species. Marginal
32	Junee 2 Illabo 4	Potential breeding habitat	Junee 2 Illabo 4 K	Dams inaccessible. Vegetated drainage lines between. Suitability assumed.
32	Junee 2 Illabo 4	Not breeding habitat	Junee 2 Illabo 4 L	Lying water in pasture. Dams inaccessible but appear unsuitable (no vegetation)
33	Junee 2 Illabo 5	Not breeding habitat	Junee 2 Illabo 5 A	Not water or habitat present
33	Junee 2 Illabo 5	Not breeding habitat	Junee 2 Illabo 5 B	Channel with no water, not suitable
33	Junee 2 Illabo 5	Not breeding habitat	Junee 2 Illabo 5 C	Dry channel not suitable
33	Junee 2 Illabo 5	Not breeding habitat	Junee 2 Illabo 5 D	Habitat not viable for frogs
33	Junee 2 Illabo 5	Potential breeding habitat	Junee 2 Illabo 5 E	Diverse potential habitat. Dam no vegetation; vegetated drainage lines, wet paddocks & culverts
33	Junee 2 Illabo 5	Not breeding habitat	Junee 2 Illabo 5 F	Unsuitable for frogs
33	Junee 2 Illabo 5	Potential breeding habitat	Junee 2 Illabo 5 G	Quality habitat present
34	Junee 2 Illabo 5	Not breeding habitat	Junee 2 Illabo 5 H	Dry grassy groundcover and rail corridor
34	Junee 2 Illabo 5	Not breeding habitat	Junee 2 Illabo 5 I	Farm dam with no vegetation; surrounding dry grassy groundcover and

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				rail corridor
33	Junee 2 Illabo 5	Potential breeding habitat	Junee 2 Illabo 5 J	Water present in patches, native dominated vegetation but no aquatic vegetation.
19	Junee Yard	Not breeding habitat	Junee Yard A	No water present
18	Kemp Street	Not breeding habitat	Kemp Street A	No water present
1	Murray River Bridge	Not breeding habitat	Murray River Bridge A	Fast flowing water, strong current. Assume unsuitability south - little riparian veg; flow faster
1	Murray River Bridge	Potential breeding habitat	Murray River Bridge B	Slow moving water present near bank. Assume suitability beyond.
1	Murray River Bridge	Potential breeding habitat	Murray River Bridge C	Strings of ponds, overgrown vegetation. Traffic noise loud.
20	Olympic Hwy	Not breeding habitat	Olympic Hwy A	No water present
13	Pearson Street	Not breeding habitat	Pearson St A	Fast flowing water; unsuitable
13	Pearson Street	Not breeding habitat	Pearson St B	Drain line, no frogs over 3 nights
13	Pearson Street	Potential breeding habitat	Pearson St C	Pools of stagnant water with frogs calling
13	Pearson Street	Not breeding habitat	Pearson St D	Drainage line, limited to no vegetation, no frogs 3 nights
13	Pearson Street	Potential breeding habitat	Pearson St E	Dam and eroded drainage line
13	Pearson Street	Not breeding habitat	Pearson St F	Road
13	Pearson Street	Potential breeding habitat	Pearson St G	Unable to inspect, assume suitable
13	Pearson Street	Not breeding habitat	Pearson St H	Road and dry verge
14	Wagga Yard	Not breeding habitat	Wagga Yard A	Gravel pile, no water, no suitable habitat
5	Table Top	Not breeding habitat	Table Top A	No riparian vegetation
5	Table Top	Potential breeding habitat	Table Top B	Muddy puddles
5	Table Top	Not breeding habitat	Table Top C	Dry habitat

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5	Table Top	Potential breeding habitat	Table Top D	Farm dam, access limited, suitability assumed
5	Table Top	Not breeding habitat	Table Top E	Dry pasture
5	Table Top	Potential breeding habitat	Table Top F	Farm dam, lots of frogs heard
11	The Rock	Potential breeding habitat	The Rock A	Dams with water, connected by channels. Groundcover vegetation growing up to water's edge.
12	Uranquinty	Potential breeding habitat	Uranquinty A	Predominantly exotic groundcover and some canopy cover in northern edge.
12	Uranquinty	Potential breeding habitat	Uranquinty B	Small pools of water, can hear frogs at adjacent dam also
12	Uranquinty	Not breeding habitat	Uranquinty C	No water present
12	Uranquinty	Potential breeding habitat	Uranquinty D	Small volume of water
12	Uranquinty	Potential breeding habitat	Uranquinty E	Small volume of water
12	Uranquinty	Not breeding habitat	Uranquinty F	Dry
12	Uranquinty	Not breeding habitat	Uranquinty G	Dry
9	Yerong Ck	Potential breeding habitat	Yerong Ck A	Dam with heavy stock use and bare edges. Marginal
9	Yerong Ck	Not breeding habitat	Yerong Ck B	Dry river bed and dry concrete culverts
9	Yerong Ck	Potential breeding habitat	Yerong Ck C	Small standing pool at culvert, Juncus sp. surrounding
9	Yerong Ck	Not breeding habitat	Yerong Ck D	Dried dam, no habitat
10	Yerong Ck	Potential breeding habitat	Yerong Ck E	Farm dam

Appendix C Survey memos

240414 Inland Rail Sloane's Froglet surveys. - Survey Memo 15/7/24-19/07/24

By Julia Chabros, written on 02/08/2024

Fieldwork team

- Michael Cleland (Ecologist)
- Julia Chabros (Graduate Ecologist)

Fieldwork dates

- 15/7/24-19/07/24

Fieldwork scope

- To conduct targeted surveys for Sloane's Froglet across three survey sites.:
 - Albury Yard
 - Billy Hughes Bridge
 - Table Top

Fieldwork Methodology

- The following methodology was conducted every 50 metres of confirmed potential habitat:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone. Each site was surveyed for 4 nights. Areas that did not contain water were marked as "no suitable habitat" and were not re-surveyed.

Survey Results

Site	Results	Sloane's Froglet Presence	Other frog species recorded
Albury Yard	All areas surveyed. Lots of light and noise pollution, concrete drains and exotic veg.	Absent	Nil

Billy Hughes Bridge	The dam in the north and the waterway+dam in the south had lots of frogs (Eastern sign bearing and Common Eastern Froglets only).	<i>Absent</i>	Eastern sign bearing and Common Eastern froglets in the NW dam and southern dam and waterway
Table Top	<p>The dam was not accessible or visible due to a fence. Surveys were taken from the road. No frogs were heard calling.</p> <p>The culvert has a small puddle of water only, but one Eastern Sign Bearing froglet was heard calling on the last survey night.</p>	<i>Absent</i>	One Eastern Sign bearing froglet on the last day calling from the culvert

Incidental pest animal species found on sites: Nil

Incidental species found on sites: Nil

Follow Up

All sites were surveyed 4 times, and do not need to be re-visited.

240414 Inland Rail Sloane’s Froglet surveys Field Memo 22/7/24-27/7/24

Fieldwork scope

- To conduct targeted surveys for Sloane’s Froglet across four survey sites.:
 - Murray River Bridge
 - Culcairn
 - Henty
 - Yerong Creek

Yerong Creek was not surveyed after the first night as time constraints did not allow it. It is to be surveyed in later surveys.

Fieldwork Methodology

- Stella O’Dwyer and Evan Creek to attend sites listed above and conduct:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone.

Survey Results

Date	Site	Results	Sloane’s Froglet Presence
22/07/24	Murray River Bridge	<i>Hatched blue areas mapped within project area.</i> <i>Eastern sign-bearing frog (Crinia parasnifera) recorded aurally.</i>	<i>Absent</i>
22/07/24	Culcairn	<i>Hatched blue areas mapped within project area.</i> <i>Eastern sign-bearing frog (Crinia parasnifera) recorded aurally.</i>	<i>Absent</i>

Date	Site	Results	Sloane's Froglet Presence
22/07/24	Henty	<p><i>Hatched blue areas mapped within project area.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent
22/07/24	Yerong Creek	<p><i>Hatched blue areas mapped within project area.</i></p>	Absent
23/07/24	Murray River Bridge	<p><i>Hatched blue areas mapped within project area</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent
23/07/24	Culcairn	<p><i>Hatched blue areas mapped within project area.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent
23/07/24	Henty	<p><i>Hatched blue areas mapped outside of the project area.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent
24/07/24	Murray River Bridge	<p><i>Hatched blue areas mapped within project area.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent
24/07/24	Culcairn	<p><i>Hatched blue areas mapped within project area.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent

Date	Site	Results	Sloane's Froglet Presence
24/07/24	Henty	<p>Hatched blue areas mapped outside of the project area.</p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. 1 recorded visually.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
25/07/24	Murray River Bridge	<p>Hatched blue areas mapped within project area.</p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally and visually</p>	Absent
25/07/24	Culcairn	<p>Hatched blue areas mapped within project area.</p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent
25/07/24	Henty	<p>Hatched blue areas mapped outside of the project area.</p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent

Incidental pest species found on sites: Nil

Incidental species found on sites:

- Pacific Black Duck (*Anas superciliosa*): Murray River bridge

Follow Up

Vegetation photos were taken on the 23/07/24 (Murray River bridge south side), 24/07/24 (Murray River bridge north side) and on 25/07/24 (Culcairn and Henty).

All sites were surveyed only within the project area for surveys on 22/07/24. Areas outside the project area were surveyed for only 3 nights (may require an additional night survey).

240414 Inland Rail Sloane's Froglet surveys Field Memo 22/7/24-27/7/24

Fieldwork scope

- To conduct targeted surveys for Sloane's Froglet across three survey sites.:
 - The Rock
 - Uranquinty
 - Pearson Street– Wagga Wagga

Fieldwork Methodology

- Maddie Robertson and Justin Solomons to attend sites listed above and conduct:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone.

Survey Results

Date	Site	Results	Sloane's Froglet Presence
22/07/24	The Rock	<p><i>Hatched blue areas mapped within project area.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
22/07/24	Uranquinty	<p><i>Hatched blue areas mapped within project area.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent
22/07/24	Pearson Street	<i>Hatched blue areas mapped</i>	Absent

Date	Site	Results	Sloane's Froglet Presence
		<p><i>within project area.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	
23/07/24	The Rock	<p><i>All accessible hatched blue areas mapped (including outside project area).</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
23/07/24	Uranquinty	<p><i>All accessible hatched blue areas mapped (including outside project area).</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. 1 individual visually recorded.</p>	Absent
23/07/24	Pearson Street	<p><i>All accessible hatched blue areas mapped (including outside project area).</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
24/07/24	The Rock	<p><i>All accessible hatched blue areas mapped (including outside project area).</i></p>	Absent

Date	Site	Results	Sloane's Froglet Presence
		<p>Eastern sign-bearing frog (<i>Crinia parasignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	
24/07/24	Uranquinty	<p>All accessible hatched blue areas mapped (including outside project area).</p> <p>Eastern sign-bearing frog (<i>Crinia parasignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
24/07/24	Pearson Street	<p>All accessible hatched blue areas mapped (including outside project area).</p> <p>Eastern sign-bearing frog (<i>Crinia parasignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
25/07/24	The Rock	<p>All accessible hatched blue areas mapped (including outside project area).</p> <p>Eastern sign-bearing frog (<i>Crinia parasignifera</i>) recorded aurally. 1 recorded visually.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
25/07/24	Uranquinty	<p>All accessible hatched blue areas mapped (including outside project area).</p>	Absent

Date	Site	Results	Sloane's Froglet Presence
		Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	
25/07/24	Pearson Street	All accessible hatched blue areas mapped (including outside project area). Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	Absent

Incidental pest species found on sites: Nil

Incidental species found on sites:

- Unidentified Owl : Pearson Street
- Unidentified fish, maybe carp : Pearson Street
- Pacific Black Duck (*Anas superciliosa*): The Rock

Follow Up

Vegetation photos were planned to be taken on the afternoon of the final day of surveys. However, the PO for team 2 was changed with late notice and work commenced an hour after the planned start time. Vegetation photos were completed at the southern end of the Uranquinty site. After these were taken, there was not enough daylight to take quality photos.

All sites were surveyed only within the project area for surveys on 22/07/24. Therefore, some sites were surveyed for only 3 nights (may require an additional night survey).

240414 Inland Rail Sloane's Froglet surveys Field Memo 29/7/24-01/08/24

By Julia Chabros, written on 02/08/2024

Fieldwork team 1

- Jonny Sweeney (Senior Ecologist)
- Julia Chabros (Graduate Ecologist)

Fieldwork dates

- 29/7/24-01/08/24

Fieldwork scope

- To conduct targeted surveys for Sloane's Froglet across three survey sites.:
 - Yerong Creek
 - Bomen
 - Harefield

Fieldwork Methodology

- The following methodology was conducted every 50 metres of mapped potential habitat:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone. Each site was surveyed for 4 nights. Areas that did not contain water were marked as “no suitable habitat” and were not re-surveyed.

Survey Results

Site	Results	Sloane's Froglet Presence	Other frog species recorded
Yerong Creek	The northernmost dam was surveyed from the road due to fence blocking access. The middle dam did not contain habitat and was excluded from surveys.	<i>Absent</i>	<i>No frogs calling.</i>

Site	Results	Sloane's Froglet Presence	Other frog species recorded
	<p>The southern long patch was surveyed in a culvert from both sides of the road. In the western area of that patch, a fence blocked access further. To the east, no habitat was present and no surveys were required. Even more east was not accessible due to a fence, so it is uncertain whether there is habitat or not.</p>		
Bomen	<p>NE dam likely contains polluted water from adjacent industrial plant.</p> <p>NW was not accessible.</p> <p>Central dam was not accessible or visible due to fence, but lots of non-target frogs (Eastern sign bearing froglets) were calling.</p> <p>No frogs calling and barely any water in the culverts.</p> <p>Lots of eastern sign bearing froglets calling, but dam not accessible due to fence. It appeared to have lots of wetland veg.</p>	<i>Absent</i>	<i>Eastern sign bearing froglets calling from the central and southern dams.</i>
Harefield	<p>The northernmost dam, between Byrnes road and Junee Harefield Road, was accessible and traversed around on foot.</p> <p>The smaller dam to the west was not accessible due to a fence.</p>	<i>Absent</i>	<i>Eastern sign bearing froglets calling from the northernmost dam only.</i>

Site	Results	Sloane's Froglet Presence	Other frog species recorded
	<p>The culvert running under Junee Harefield road and the train tracks was accessible but contained only small patches/puddles of water.</p> <p>The long linear survey area SE of Junee Harefield road was not accessible due to a fence. From the fence line, it looked like the paddock did not contain habitat so it was not surveyed from the road.</p> <p>The large, L-shaped survey area further south did not contain suitable habitat where we could see, but parts of it were not accessible.</p> <p>The southernmost dam was surveyed from the road, from behind a fence.</p>		

Incidental pest animal species found on sites: Nil

Incidental species found on sites: Nil

Follow Up

All sites were surveyed 4 times, and do not need to be re-visited.

240414 Inland Rail Sloane's Froglet surveys Field Memo 29/7/24-01/8/24

Memo completed by **Justin Solomons** 26/07/24

Fieldwork scope

- To conduct targeted surveys for Sloane's Froglet across three survey sites.:
 - Junee Yard
 - Olympic Highway
 - Kemp Street
 - Junee 2 Illabo 1
 - Junee 2 Illabo 2
 - Junee 2 Illabo 3

Fieldwork Methodology

- Stella O'Dwyer and Justin Solomons to attend sites listed above and conducted:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone.

Survey Results

Date	Site	Results	Sloane's Froglet Presence
29/07/24	Junee Yard	Ruled out site as appropriate habitat for Frogs.	<i>Absent</i>
29/07/24	Olympic Highway	Ruled out site as appropriate habitat for Frogs.	<i>Absent</i>
29/07/24	Kemp Street	Ruled out site as appropriate habitat for Frogs.	<i>Absent</i>
29/07/24	The Rock (week 2 site)	<i>Follow up from missed survey effort from week 2</i> Eastern sign-bearing frog	<i>Absent</i>

Date	Site	Results	Sloane's Froglet Presence
		<i>(Crinia parsignifera)</i> recorded aurally.	
29/07/24	Uranquinty (week 2 site)	<p><i>Follow up from missed survey effort from week 2</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p>	Absent
30/07/24	Junee 2 Illabo 1	<p><i>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
30/07/24	Junee 2 Illabo 2	<p><i>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent

Date	Site	Results	Sloane's Froglet Presence
30/07/24	Junee 2 Illabo 3	<p><i>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
30/07/24	Pearson Street (Week 2 site)	<p><i>Follow up from missed survey effort from week 2</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
31/07/24	Junee 2 Illabo 1	<p><i>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent

Date	Site	Results	Sloane's Froglet Presence
31/07/24	Junee 2 Illabo 2	<p><i>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
31/07/24	Junee 2 Illabo 3	<p><i>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</i></p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
01/08/24	Junee 2 Illabo 1	<p><i>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</i></p> <p>Eastern sign-bearing frog</p>	Absent

Date	Site	Results	Sloane's Froglet Presence
		<p><i>(Crinia parsignifera)</i> recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	
01/08/24	Junee 2 Illabo 2	<p>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent
01/08/24	Junee 2 Illabo 3	<p>All accessible hatched blue areas mapped (including outside project area). Some areas were not possible to access as they were inside private property. These sites were surveyed with Call-playback at fence line.</p> <p>Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally.</p> <p>Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.</p>	Absent

Incidental pest species found on sites: Nil

Incidental species found on sites:

- Unidentified Owl: Junee 2 Illabo 2

Follow Up

Vegetation photos were taken across all sites and follow up vegetation photos for Uranquinty and Pearson Street were also taken.

One survey point at the Eastern end of the Junee 2 Illabo sites was missed on night 3 of surveys.

240414 Inland Rail Sloane’s Froglet surveys Field Memo 05/08/24-09/08/24

Memo completed by **Justin Solomons** 08/08/24

Fieldwork scope

- To conduct targeted surveys for Sloane’s Froglet across three survey sites.:
 - Junee 2 Illabo 1 (one additional night survey)
 - Junee 2 Illabo 2 (one additional night survey)
 - Junee 2 Illabo 3 (one additional night survey)
 - Henty (one additional night survey)

Fieldwork Methodology

- Jonny Sweeney and Justin Solomons to attend sites listed above and conducted:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone.

Survey Results

Date	Site	Results	Sloane’s Froglet Presence
05/08/24	Junee 2 Illabo 1	One additional night survey picked up from week 3 Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron’s Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	<i>Absent</i>
05/08/24	Junee to Illabo 2	One additional night survey picked up from week 3 Eastern sign-bearing frog (<i>Crinia parsignifera</i>)	<i>Absent</i>

Date	Site	Results	Sloane's Froglet Presence
		recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	
05/08/24	Junee to Illabo 3	One additional night survey picked up from week 3 Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	<i>Absent</i>
05/08/24	Junee to Illabo 4	Assisted team 2 with southern sites	<i>Absent</i>
06/08/24	Junee to Illabo 4 Day time obs	Day obs	<i>Absent</i>
06/08/24	Henty	One additional night survey picked up from week 2	<i>Absent</i>
07/08/24	Junee 2 Illabo 1-3 Day time obs	Fieldwork plans changed due to lack of permission to enter private properties.	<i>Absent</i>
08/08/24	Demobilisation	Demobilised as land access was not organised and only two sites were available for night time surveys.	

Incidental pest species found on sites: Nil

Incidental species found on sites: Nil

Follow Up

Day time observations and night surveys may be required in private property areas that have adequate habitat within Junee to Illabo 1-3.

240414 Inland Rail Sloane's Froglet surveys Field Memo 05/08/24-08/08/24

By Julia Chabros, written on 12/08/2024

Fieldwork team 2

- Michael Cleland (Ecologist)
- Julia Chabros (Graduate Ecologist)

Fieldwork dates

- 05/08/24-08/08/24

Fieldwork scope

- To conduct targeted surveys for Sloane's Froglet across three survey sites:
 - Junee to Illabo 4
 - Junee to Illabo 5

Fieldwork Methodology

- The following methodology was conducted every 50 metres of mapped potential habitat:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone. Each site was surveyed for 4 nights. Areas that did not contain water were marked as "no suitable habitat" and were not re-surveyed, but were photographed during daytime habitat assessments.

Survey Results

Site	Results	Sloane’s Froglet Presence	Other frog species recorded
Junee to Illabo 4	<p>All 5 dams were accessed from the road only – not accessible due to fences.</p> <p>Sections of the long polygons were ruled out as “no available habitat”.</p> <p>The largest dam had a high abundance of common frog species, as well as native veg and trees surrounding it.</p>	<i>Absent</i>	<i>Eastern Sign Bearing and Common Eastern Froglets calling.</i>
Junee to Illabo 5	<p>The NE site was not suitable habitat.</p> <p>The central site (a small dam) was surveyed from the road, and not accessible due to a fence.</p> <p>The large survey area, SW in Junee to Illabo 5: southern side of the tracks was surveyed in full. Some areas were marked as not suitable habitat. The northern side of the tracks was not fully accessible due to a fence. Surveys were conducted on one side of the dam only (but ~20 metres from the edge), and following the drainage line.</p>	<i>Absent</i>	<i>Eastern sign bearing froglets calling from the central and southern dams.</i>

Incidental pest animal species found on sites: Nil

Incidental species found on sites: Nil

Follow Up

All accessible sites were surveyed 4 times and do not need to be re-visited.

240414 Inland Rail Sloane's Froglet surveys Field Memo 19/08/24-22/08/24

By Julia Chabros, written on 29/08/2024

Fieldwork team 2

- Marcus Hoskin (Ecologist)
- Julia Chabros (Graduate Ecologist)

Fieldwork dates

- 19/08/24-22/08/24

Fieldwork scope

- To conduct targeted surveys for Sloane's Froglet across three survey sites, in places previously not accessible due to private property boundaries:
 - Yerong Creek
 - The Rock
 - Bomen (1 night by Team 1 and 3 nights by Team 2)
- Plus one night of surveys at the following sites:
 - Table Top
 - Henty

Fieldwork Methodology

- The following methodology was conducted every 50 metres of mapped potential habitat:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone. Each site was surveyed for 4 nights, except for Table Top and Henty, where 3 nights were already surveyed in the previous week and only one survey per site was required. Bomen was surveyed once by Team 1 and three times by Team 2. Areas that did not contain water were marked as "no suitable habitat" and were not re-surveyed, but were photographed during daytime habitat assessments.

Survey Results

Site	Results	Sloane's Froglet Presence	Other frog species recorded
Yerong Creek	All dams had water in them. Many common species calling from the southernmost dam.	<i>Absent</i>	<i>Eastern Sign Bearing Froglets and Bibron's Toadlets calling.</i>
The Rock	Lots of common frogs calling, particularly from the stream that led away from the dams and was just outside of the survey area. Lots of veg on the banks of the dams, including cumbungi and juncus. Waterbirds, such as white-faced heron and ducks were observed during day obs.	<i>Absent</i>	<i>Eastern sign bearing froglets, Bibron's toadlets and Spotted Marsh Frogs,</i>
Bomen	Common frogs calling and observed. One of the dams had dirty water covered in scum and a bad smell, and this was excluded from the surveys (no frogs calling from this one).	<i>Absent</i>	
Table Top	Common species recorded, 4/4 survey nights are now completed. Crayfish observed in the water, indicating good water quality.	<i>Absent</i>	
Henty	Common species recorded, 4/4 survey nights are now completed.	<i>Absent</i>	

Incidental pest animal species found on sites: Nil

Incidental species found on sites: Nil

Follow Up

4 survey nights and day observations have now been completed at all sites.

240414 Inland Rail Sloane's Froglet surveys Field Memo 19/08/24-22/08/24

Memo completed by **Justin Solomons** 23/08/24

Fieldwork scope

- To conduct targeted surveys for Sloane's Froglet across three survey sites.:
 - Junee 2 Illabo 3 Private property areas
 - Junee 2 Illabo 4 Private property areas
 - Junee 2 Illabo 5 Private property areas
 - Junee 2 Illabo 2 (pick up from team 2)

Fieldwork Methodology

- Jonny Sweeney and Justin Solomons to attend sites listed above and conducted:
 - Active listening (5 minutes)
 - Call playback (2 minutes)
 - Active listening (2 minutes)
 - Active searching (5 minutes)

*Where acceptable habitat is available**

This methodology was applied in areas of habitat that contained water (standing / flowing) and vegetation within the ephemeral zone.

Survey Results

Date	Site	Results	Sloane's Froglet Presence
19/08/24	Junee 2 Illabo 3 - 5	Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	Absent
20/08/24	Junee to Illabo 3-5 Day obs	Day obs Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	Absent

Date	Site	Results	Sloane's Froglet Presence
21/08/24	Junee to Illabo 2	Assisted Team 2 with J2I – 2 Northern sites Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	Absent
21/08/24	Junee 2 Illabo 3-5 Day time obs	Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	Absent
22/08/24	Junee to Illabo 2	Assisted Team 2 with J2I – 2 Northern sites Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally.	Absent
22/08/24	Junee to Illabo 3-5	Eastern sign-bearing frog (<i>Crinia parsignifera</i>) recorded aurally. Bibron's Froglet (<i>Pseudophryne bibronii</i>) recorded aurally. Sudell's Frog (<i>Neobatrachus sudelli</i>) recorded aurally.	Absent
23/08/24	Demobilisation	Demobilised back home	

Methods & Results Report

Inland Rail A21 Sloane's Froglet Surveys

Incidental pest species found on sites: Nil

Incidental species found on sites: Nil

Follow Up

Nil

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