Appendix 5 – Southern Bent-wing Bat Roosting Habitat Assessment

biosis

Mount Fyans Wind Farm:

Southern Bent-wing Bat Roosting Habitat Assessment

Prepared for Hydro Tasmania

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Biosis staff involved in this project were:

- Mark Venosta (quality assurance and assistance in the field)
- Sally Mitchell (mapping)

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1. Introduction

1.1 Project background

The Southern Bent-wing Bat (SBWB) *Miniopterus orianae bassanii* has been listed among a group of EPBC and FFG fauna species as potentially occurring within or around the proposed Mount Fyans Wind Farm. Activity of this species has been confirmed in the area during recent acoustic surveys conducted for the project.

In 2019, Biosis was commissioned by Hydro Tasmania to undertake additional assessments of the proposed Mt Fyans Wind Farm study area, for the purposes of describing in greater detail, structures within the landscape that have the potential to host a major roost site for SBWB. Field surveys conducted to inform the roosting habitat assessment were also used to document any evidence of current or past occupation by SBWB.

This report describes the results of the additional surveys, and follows on from earlier reports commissioned by Hydro Tasmania:

- Mount Fyans Wind Farm: Flora and fauna existing conditions, provided to Hydro Tasmania in February 2017
- Mount Fyans Wind Farm: Targeted surveys and impact assessment, provided to Hydro Tasmania in April 2017
- Mount Fyans Southern Bent-wing Bat (SBWB) survey – Supplementary report, provided to Hydro Tasmania in May 2019.

This assessment report was commissioned by Hydro Tasmania to address gaps in the previous surveys and assessments. To fill these gaps, it was necessary to conduct additional survey work, with the objective of providing representative landscape photographs of the surveyed areas, as well as providing documentary evidence of potential roosting habitats with openings greater than 2-3 cm across the wind farm study area.

A targeted assessment of potential SBWB habitat was carried out during September 2013 and the survey findings were included in the report entitled *Mount Fyans Wind Farm: Targeted surveys and impact assessment*. The final version of this report was presented to Hydro Tasmania in April 2017.

This report provides supplementary information clarifying previous assessments with regards to potential SBWB habitat, with a focus on the Mondilibi hill (located on the Down Ampney property). Previous conclusions regarding the potential habitat at the Mondilibi hill 'as not providing suitable cave habitat for a major SBWB roost' have been questioned by the Department of Land, Water, Environment and Planning (DELWP) as part of the preparation of a SBWB assessment for the Mt Fyans Wind Farm project. The 2013 survey of the Mondilibi hill is outlined in *Appendix I Mount Fyans Southern Bent-wing Bat (SBWB) survey* and states that as part of this survey, all small overhangs, openings and observable surface joints were assessed. Further SBWB roost investigation surveys were warranted due to the perception that the prior survey of the Mondilibi hill only focussed on large cavities as well as to assess whether a roost site was present across the remainder of the Mt Fyans site

1.2 Aims

The aim of this investigation was to provide detailed physical evidence and structural information regarding potential major roost sites or past and present occupation of the proposed wind farm study area by SBWB. For the purposes of this survey we focused on six discrete volcanic landscape areas in and around the proposed Mt Fyans Wind Farm to evaluate the presence or absence of historic and/or current occupation by SBWB.

The key objectives of this roosting habitat assessment were to:

- (i) identify any landscape features that 'had the potential to form a major roost site containing tens of individual SBWB, roosting infrequently over multiple years'
- (ii) characterise those landscape features identified in (i)
- (iii) assess each of the landscape features identified in (i) for their suitability as potential SBWB roosting habitat sites.

The current survey has provided an opportunity to re-examine the entire area and gain a more detailed understanding of the nature of any potential roosting habitat for SBWB.

2. Methods

2.1 Survey field personnel

An external consultant and two Biosis consultants with previous fieldwork experience at the site, have been engaged by Hydro Tasmania to conduct the fieldwork and prepare reporting associated with the SBWB roosting habitat assessment:

- Gavin Thomas (Independant Consultant Zoologist) has previously conducted surveys at known major roost sites for SBWB in south western Victoria, and has had the opportunity to review, in detail, the characteristics of known major roost sites. He has also worked with experts in the field who have also spent many years assessing and identifying caves in south western Victoria known to be occupied by SBWB, including Byaduk Caves. Gavin has also observed and documented indirect evidence of roosting SBWB within south western Victoria.
- Matthew Gibson (Senior Consultant Ecologist, Biosis) and Mark Venosta (Senior Consultant Zoologist, Biosis) have researched and surveyed microbats within western Victoria for 30 years. This research has included acoustic surveys and trapping surveys in a range of habitat types, including surveys for SBWB in relation to several wind farm projects within the Victorian Volcanic Plain. Matt and Mark are very familiar with the Mount Fyans Wind Farm study area and surrounding areas, having been involved in a range of studies over the last five years, including having assisted with and conducted surveys of SBWB roost sites and potential roost sites. This included assisting expert geomorphologist and speleologist surveying potential SBWB roosts as well as conducting acoustic and thermal counts of SBWB at roost sites and potential roost sites.

2.2 Survey locations

For the purposes of this investigation six discrete volcanic landscape features were identified within and surrounding the Mt Fyans Wind Farm study area to assess their suitability to host potential major roost sites. The features and their locations shown in Figure 1 and summarised below:

- **Salt Creek lava flows.**
  Salt Creek adjoins the western perimeter of the site. It consists of a deep incised gorge with the most recent lava flow creating a broken and discontinuous escarpment containing a number of vertical blocks of basalt.
- **Stradbroke property stony rises.**
  The northern most area of the Mt Fyans site south of Woorndoo-Dundonnell road.
  This area is characterised by low stony rises containing channels, depressions and ridges formed by the newer lava flows from the Mt Fyans volcanic eruption point. This area was found to contain a higher level of biodiversity and heritage value compared to the rest of the site.
- **Mt Fyans Lane -Stradbroke property.**
  Area of proposed wind farm development west of the beginning of Mt Fyans Lane off Dundonnell-Mortlake Road. The area is characterised by stony rises containing hummocks, channels, depressions and ridges typical of the newer lava flow. This area extends south to Woorndoo-Darlington Road after which the point the landscape has been heavily modified to support intensive cropping and livestock grazing.

- **Mondilibi Hill composite volcano** (previously referred to as 'Mondilibi cone').
  Located 1.5km east of Salt Creek in the Western portion of the development area. A distinct scoria cone around 40 – 45m higher than the surrounding landscape that served as an eruption point approximately 1 million years ago. The geomorphological features are heavily documented in Appendix I.
- **Mt Fyans Wildlife Reserve.**
  The small reserve is approximately 10km north of the Mt Fyans Development Area and adjacent to Darlington-Nerrin road. It represents the Mt Fyans volcanic centre and has historically been used as a quarry.
- **Mondilibi lava flow.**
  An elevated, relatively low-relief, weathered lava flow that is located approximately 700m to the south west of the Mondilibi Hill and extends approximately 800m in a south westerly direction.

The assessment also included man-made structures, including bridges and culverts, and a brief examination of hollow bearing River Red-gum trees in the south-western portion of the study area.

There are several lava tube caves in south western Victoria, some of which are known to support roosting and overwintering SBWBs. Weathered basalt from lava flows may also contains cracks and crevices that may be used as roost sites. The above-listed landscape features within and surrounding the proposed Mount Fyans Wind Farm were selected based on knowledge from previous assessments, coupled with an in-depth knowledge of the geology and geomorphology of the study area.

2.3 Habitat assessment

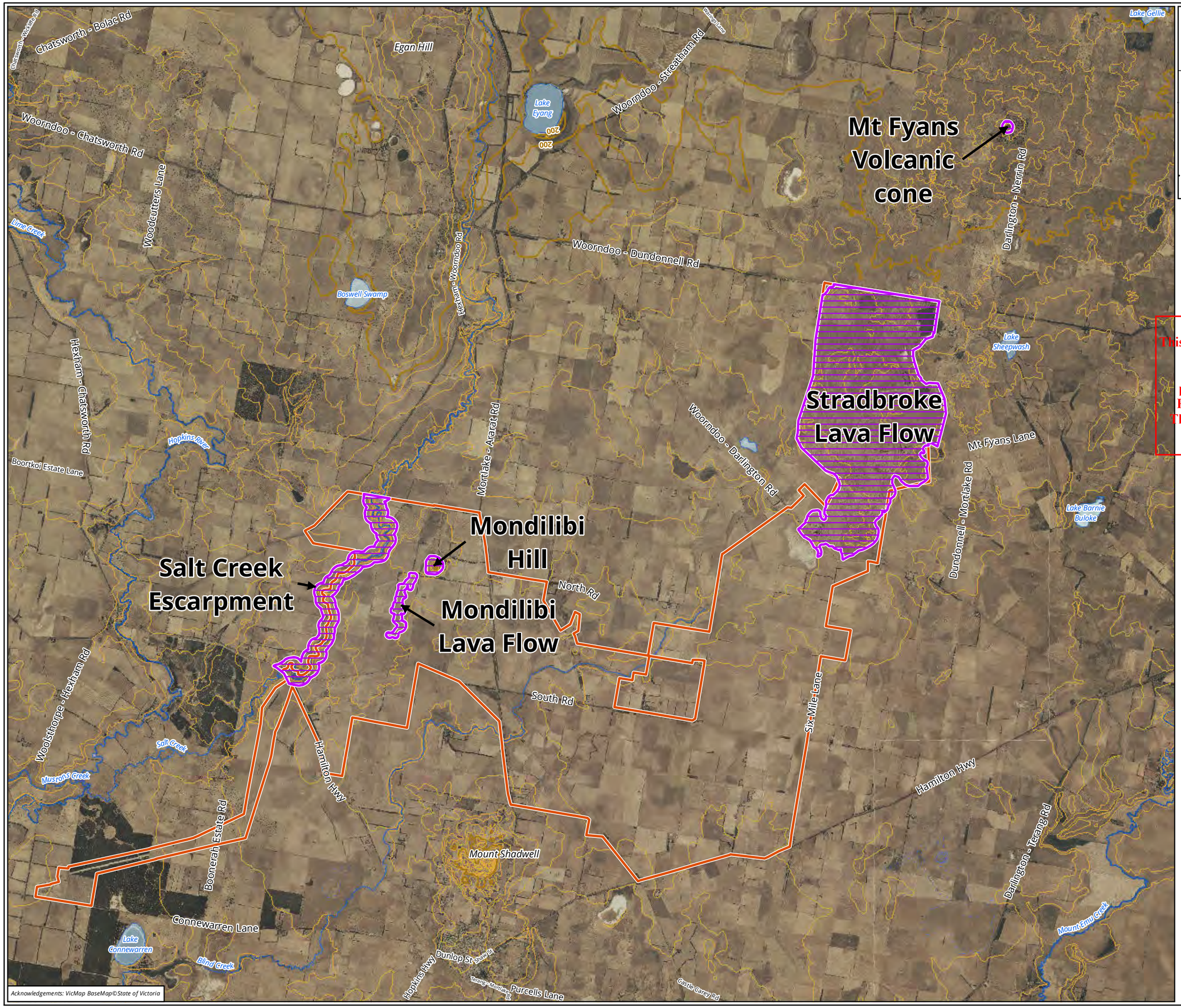
All cracks, fissures, lava caves, cave complexes and overhangs within the six discrete landscape features were systematically searched by the field survey personnel on over the following dates:

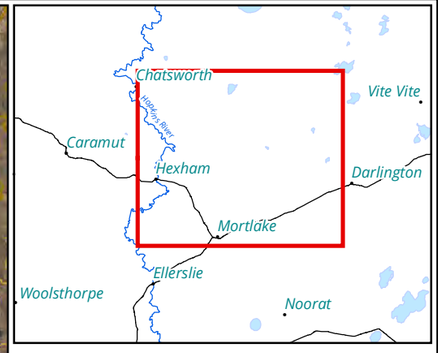
- 22-24 October 2019 – Mondilibi hill, Mondilibi lava flow, large trees and man-made structures
- 4-8 November 2019 – Mondilibi Hill, Salt Creek escarpment, Stradbroke stony rises
- 4-5 December 2019 – Salt Creek escarpment

All potential roosting habitat sites at each location were examined by visual inspection, and where feasible, going underground to look for evidence of bats, including new or old guano, skeletal remains, and any other evidence suggesting occupation by the SBWB.

Where underground inspections were possible, an assessment of the internal structure of the cavities was also made to identify any internal architecture consistent with that observed in other caves known to host major roost sites. The inside of each of these cavities was examined with a high-powered LED torch to check for current or historical use by SBWB. Cavities that were not physically accessible were visually inspected using a video burrow scope. Extensive images of individual openings were recorded and geo-tagged using a camera with a built-in GPS.

All potential roosting habitat sites were characterised in terms of their location in the landscape, size and shape, as well as the type of cavity. For the purposes of consistency, several terms have been assigned to the different types of cavities observed (Table 1).





Legend

- Mt Fyans Windfarm
- Area of ground survey for Southern Bent Wing Bat habitat

Figure 1 Areas surveyed for Southern Bent Wing Bat Habitat

0 1 2 3 4 5 N

Kilometers

Scale: 1:100,000 @ A3

Coordinate System: GDA 1994 MGA Zone 54

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Matter: 33173,
Date: 10 September 2020,
Checked by: MG, Drawn by: SKM, Last edited by: smitchell
Location: P:\33100s\33173\Mapping\33173_F1_SBWB_Search_areas.mxd

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Table 1 Description of the types of openings assigned to potential SBWB roosting habitat sites discussed in this report

Type of opening	Description
Horizontal tube	A tunnel at the interface of an overlying lava flow and underlying regolith
Non-solution cavity	An open cavity contained within basalt, likely formed during the lava cooling process
Fissure	An expanded vertical crack or joint resulting in a cavity between two adjacent basalt blocks
Fissure with non-solution architecture	An expanded vertical crack or joint resulting in a cavity between two adjacent basalt blocks, with an interior surface showing relict drips and a congealed lava surface
Fissure and open cavity	An expanded vertical crack or joint between two adjacent basalt blocks with a vaulted or rounded ceiling
Fumarole and tube with backfilled basalt floor	A fumarole in basalt connected to a horizontal lava lube with a floor of backfilled lava
Burrow	An excavated inclined hole or tunnel in soil; typical of an animal burrow

It was recognised that SBWB individuals may roost sporadically across the landscape in features such as caves and manmade structures. Small numbers of SBWB may sporadically roost within and around the proposed Mount Fyans Wind Farm across any given year.

The objective of this assessment, however, was to identify sites that had the potential to form a significant roost site containing tens of individuals roosting sporadically over multiple years. The original targeted survey was refined to focus this targeted survey on structures with openings greater than 2-3 cms that were considered to have the potential as a roost site. While it is accepted that there is a very low likelihood of directly observing the presence of bats within roost sites, significant roosts used periodically are likely to be identifiable through direct evidence of historical occupation, including guano and/or skeletal remains, especially as SBWB will use a significant roost site year after year.

2.4 Review of SBWB significant roost sites

Based on work by previous authors we recognise that bats can use a range of entrances, some of which may be too small for humans to access. Small numbers of SWBW may also be able to roost in narrow crevices. We have made every attempt to fully investigate and characterise all cavities/crevices greater that 2-3 cm in width within and surrounding the proposed Mt Fyans Wind Farm. We have not simply relied upon the outward appearance of a cavity/crevice opening to access the presence of a significant roost site or roosting habitat.

2.5 Permits

Biosis undertakes flora and fauna assessments under the following permits and approvals:

- Research Permit/Management Authorisation and Permit to Take/Keep Protected Flora & Protected Fish issued by DELWP under the Victorian *Wildlife Act 1975*, *Flora and Fauna Guarantee Act 1988* (FFG Act), *National Parks Act 1975* and *Crown Land (Reserves) Act 1978* (Permit Number 10008711)
- Permit to catch and release fish issued by the Victorian Fisheries Authority under the Victorian *Fisheries Act 1995* (Permit Number RP 1220, Personal File Number 13041)
- Approvals 30.17 and 19.18 issued by the Wildlife and Small Institutions Animal Ethics Committee of the Victorian Government Department of Economic Development, Jobs, Transport and Resources (DEDJTR)
- Scientific Procedures Fieldwork Licence issued by DEDJTR's Wildlife and Small Institutions Animal Ethics Committee (Licence Number 20020).

3. Results and discussion

3.1 Salt Creek lava flows

The uppermost lava flows exposed along Salt Creek are the result of eruptions of fluid lava from the nearby Mondilibi hill composite volcano. Lava spread out over much of the surrounding landscape and infilled former drainage lines. The current course of Salt Creek has incised a meandering channel into this former undulating volcanic plain. Remnants of these most recent lava flows now form a broken and discontinuous escarpment along the current course of Salt Creek generally reach a maximum thickness of between three to four metres (Photo 1).

The most recent lava flows overlay much older and highly weathered flows that have decomposed to form a soil horizon. The most recent lava flows exhibit numerous short and narrow vertical joints creating a system of broken blocks of basalt. The joints generally extend through the full depth of the basalt in the most recent flows. All joints are generally very narrow and less than one centimetre in width. Weathering along the leading edge of the escarpment has produced some larger cracks. In some instances, blocks of basalt have 'calved' off the escarpment edge creating a scree of large blocks sitting on the underlying soil surface. The underlying older lava flows have completely decomposed and now form a weathered regolith extending down to the current course of Salt Creek.

Photo 1 Salt Creek lava flow

No significant roost sites were identified during the Salt Creek lava flows survey, and no evidence of past or present occupation by SBWB was evident in any of the cavity types observed. The results of the survey are outlined in Table 2. Photographs of individual features are provided in Appendix 1.

Table 2 Salt creek lava flows

Location ID	Cavity type	Lateral x horizontal x vertical extent (cm)	Notes
Salt Creek 1	Fissure	15 x 20 x 10	Small fissure with soil floor. Very limited extent. No evidence of bats.
Salt Creek 2	Horizontal tube	10 x 150 x 12	Soil lined tube. No evidence of bat roosting or historic use.
Salt Creek 3	Horizontal tube	30 x 70 x 7	No evidence of bat roosting or historic use upon inspection with burrow scope.
Salt Creek 4	Burrow	30 x 130 x 20	Burrow within soil horizon. Entry choked with grass when inspected. No evidence of bat roosting or historic use upon inspection with burrow scope.
Salt Creek 5	Burrow	30 x 130 x 25	Burrow under boulders. Entry choked with grass when inspected. No evidence of bat roosting or historic use upon inspection with burrow scope.
Salt Creek 6	Burrow	20 x 185 x 33	Burrow under boulders. No evidence of bat roosting or historic use upon inspection with burrow scope

The geological setting of the area does not in our assessment provide the necessary topographical relief to support the formation of non-solution cavities suitable to provide a potential significant roost site for SBWB. No cavities, overhangs, cracks, or fissures greater than three centimetres were observed. Further survey is not considered warranted.

3.2 Stradbroke property stony rises

This area of the proposed Mount Fyans Wind Farm is located directly south of Woorndoo – Dundonnell Road within the My Fyans Wind Farm study area boundary. The lava flows are considered to have been formed as a result of eruptions from the nearby Mt Fyans volcanic eruption point. The area is characterised by low stony rises containing channels, depressions and ridges. The area also contains several significant wetlands that have been the focus of previous targeted surveys for the proposed Mt Fyans Wind Farm. Rocky foreshore habitat has previously been examined in detail as potential habitat for a range of other threatened species.

The blocky vesicular basalt outcropping along the foreshore of these wetlands showed the greatest amount of relief compared to similar surrounding areas of the proposed wind farm. This survey focused on these areas. The basalt within these lava flows has become weathered at the surface and have broken into a series of irregular blocks (Photo 2). After an extensive survey effort, no cavities were recorded that could be considered potential roosting habitat for SBWB. No evidence of any sub-surface water conduits were evident in any of the areas surveyed.

The geological setting of the area does not in our assessment provide the necessary topographical relief to support the formation of non-solution cavities suitable to provide a potential major roost site for SBWB. No cavities, overhangs, cracks, or fissures greater than three centimetres were observed during the current survey. Further survey is not considered warranted.

Photo 2 Stradbroke Property stony rises

3.3 Mt Fyans Lane

This area of the proposed Mount Fyans Wind Farm west from the eastern end of Mt Fyans Lane is characterised by low stony rises, containing hummocks, channels, depressions and ridges and is typical of much of the newer volcanic country surrounding the proposed wind farm (Photo 3). The stony ridges generally have a maximum relief of between five and ten metres above the undulating plain. The basalt within these lava flows has become weathered at the surface and have broken into a series of irregular blocks. After an extensive survey effort, no cavities were recorded that could be considered potential roosting habitat for SBWB. The geological setting of the area does not in our assessment provide the necessary topographical relief to support the formation of non-solution cavities suitable to provide a potential major roost site for SBWB. No cavities, overhangs, cracks, or fissures greater than three centimetres were observed during the current survey. Further survey is not considered warranted.

Photo 3 Mt Fyans Lane stony rises

3.4 Mondilibi Hill composite volcano

Mondilibi Hill is a distinctive composite volcano situated 11 km north of the Mortlake township, on the eastern side of the deeply incised valley of Salt Creek. The summit elevation of ~198m above sea-level is 40-45 m higher than the surrounding undulating plain. The structure of Mondilibi Hill indicates a few discrete phases of volcanism including fluid, pyroclastic and intrusive lava phases. This has been discussed in detail by Rosengren (2019).

The different phases of volcanism have resulted in several distinct landscape features including a lava plug and lava disc. Weathering and deformation of these features have produced outcrops containing a range of cracks, cavities and fissures. The geologic and environmental history of these landscape features has provided a focus for the current survey as they have the highest likelihood of containing potential habitat for a major roost site for SBWB.

Photo 4 View of Mondilibi Hill (note harp trap placed next to volcanic plug below summit)

Photo 5 Mondilibi Hill quarry face; loose and consolidated scoria observable in the face

Photo 6 Typical overhang at Mondilibi Hill

Six locations were identified as warranting detailed investigation (Table 3). Photographs of individual features are provided in Appendix 1. These locations were found to be narrow fissures with little lateral, horizontal or vertical extent and were therefore not considered to provide suitable major roost sites for SBWB. Two of the six fissures (Location ID Mondilibi Hill 3 and 5) were slightly larger and allowed access through a narrow opening at ground level. Both were entered and examined at length for evidence of occupation by SBWB. No evidence of bats or bat occupation was found at either of these locations.

The southern slope of the lava disc (Location ID Mondilibi Hill 6) was re-investigated as a cavity was discovered during the survey carried out by Biosis in 2013. This location was examined in detail and no evidence of occupation by SBWB was observed, confirming the findings from the previous survey.

Table 3 Mondilibi Hill composite volcano

Location ID	Cavity type	Lateral x horizontal x vertical extent (cm)	Notes
Mondilibi Hill 1	Non-solution cavity	20 x 60 x 23	No evidence of bat roosting or historic use by SBWB.
Mondilibi Hill 2	Fissure	25 x 220 x 60	No evidence of bat roosting or historic use by SBWB.
Mondilibi Hill 3	Fissure with non-solution architecture	55 x 460 x 120	Upper and lower portals. Fissure entered through upper portal. No evidence of bat roosting or historic use. Ropey and drip texture on walls. No domed structure in ceiling. No evidence of bat roosting or historic use by SBWB.
Mondilibi Hill 4	Fissure and open cavity	50 x 170 x 40	Vertical fissure entered from under an overhang. Ropey texture on walls. No evidence of bat roosting or historic use by SBWB.
Mondilibi Hill 5	Fissure and open cavity	70 x 520 x 180	Three openings. Arched lower opening with ropey texture on internal walls. No dome in roof, fissure pinched out to a narrow point. No evidence of bat roosting or historic use by SBWB.
Mondilibi Hill 6	Burrow	26 x 110 x 20	Burrow pinched out to a point to upon inspection with burrow scope. Entry choked with grass when inspected. No fauna activity. No evidence of bats or historic use by SBWB.

The results from the current and previous surveys confirm that Mondilibi Hill does not provide habitat for a significant roost site. Every attempt has been made to investigate all possible cavities and while there is a potential that some entrances may be unobservable, we believe we have fully characterised any cavity likely to provide potential significant roost habitat for SBWB.

3.5 Mt Fyans Wildlife Reserve

The Mt Fyans Wildlife Reserve encapsulates the Mt Fyans volcanic centre. Mt Fyans Wildlife Reserve is approximately 27 kilometres north-east of Mortlake and is adjacent to the Darlington-Nerrin Road. The volcanic centre sits on the western edge of the reserve. Historically the site has been used for the quarrying of scoria products and much of the centre of the cone has been removed (Photo 7). The complex geology of the area has been described in detail by Grimes (2006).

A former quarrying operation has exposed a number of basalt domes and pillars previously surrounded by scoria within the cone. At several locations the pillars show evidence of high temperature alteration by steam. Quarrying and removal of some of the basalt within the quarry indicated that some of the pillars contained extinct fumaroles, active during a period of volcanism.

One of the basalt domes has been broken open revealing a small portal (Photo 8). This portal provided access to a small lava tube. The tube was entered through the portal opening and a detailed examination of the

interior looking for evidence of occupation by SBWB. No occupation by SBWB was observed and no evidence of bats was seen including skeletal remains or guano. We conducted a detailed examination of the site both inside and outside the quarry area and no further openings were observed that warranted further investigation. The findings of the current survey are consistent with those found during the survey undertaken in 2013 and Grimes (2006).

Photo 7 Mt Fyans Wildlife Reserve quarry

Photo 8 Mt Fyans Wildlife Reserve; portal opening to basalt lava tube

No significant roost sites were identified during the assessment and no evidence of past or present occupation by SBWB was evident in any of the cavity observed. The results of the survey are outlined in Table 4. Additional photographs of these feature are provided in Appendix 1.

Table 4 Mt Fyans Wildlife Reserve

Location ID	Cavity type	Lateral, horizontal, and vertical extent (m)	Notes
Mt Fyans 1	Fumarole tube with backfilled basalt floor.	1.4 x 10.0 x 1.6 (portal opening 55 x 40 cm)	Portal entry at ground level. Simple horizontal tube pinching out at both ends. Non solution architecture within tube. No evidence of bat occupation. No guano. No water in tube.

3.6 Mondilibi lava flow

The Mondilibi lava flow is a relatively low-relief, weathered lava flow that extends in a south westerly direction from the Mondilibi Hill, within the Down Ampney property. This area was inspected on foot and from a vehicle. The area supports improved pasture (Photo 9), with some exposed surface rock, but the majority of surface rock has been collected into large piles (Photo 10).

Photo 9 Lava flow south of Mondilibi hill, Down Ampney property

Photo 10 Basalt rock pile, lava flow south of Mondilibi hill, Down Ampney property

Piles of rock (Photo 10) exhibited some small crevasses due to gaps between larger rocks, and there were some instances of rabbits burrowing into the soil between rocks. There were no signs, however, that these rock piles have been placed over larger underground openings that may still be open from above.

No other signs of openings into underground structures were observed in the area.

3.7 Trees, bridges and culverts

SBWB may also have potential to roost temporarily in man-made structures, including bridges and culverts. Larger examples of these structures were inspected within the study area. Photo 11 shows the bridge on South Road, over Blind Creek, approximately 500m to the east of Mortlake-Ararat Road. The photograph of the underside of the structure (Photo 12) shows deep cracks between sections of concrete. No signs of current or recent usage by bats was observed.

Photo 11 Bridge over Blind Creek on South Road

Photo 12 Underside of bridge over Blind Creek on South Road

The south-western section of the study area, near the proposed transmission line, contains a number of large paddock trees. These River Red-gum *Eucalyptus camaldulensis* trees, including live and dead trees, support a range of tree cavities, including basal hollows and hollows throughout the tree canopy. Where possible, these hollows were inspected with a Sea Snake viewing device. No signs of occupation by bats were noted, although only a small portion of the hollows present could be reached. It is likely that these trees are used by other microbat species, but it is considered unlikely that they would provide temporary roosts for SBWB, as they are not known to roost in trees. Photos 13 and 15 provide examples of typical trees inspected.

Photo 13 Large dead River Red-gum supporting multiple hollows

Photo 14 Large live River Red-gum with cavities in the main trunk

Photo 15 Large live River Red-gum

4. Conclusion

The results from this assessment have provided further evidence regarding the potential of the Mt Fyans Wind Farm study area to host a significant roost site for SBWB. Detailed observations were made across six discrete landscape areas/features within and outside of the current Mt Fyans Wind Farm study area. Based upon these observational findings, it can be concluded that none of the landscape features contain any evidence to indicate the presence of SBWB, nor do they indicate current or historical use as a significant SBWB roost. Furthermore, none of the cavities inspected during this survey could be considered as suitable habitat for a significant SBWB roosting site. It should be noted, however, that SBWB individuals may, on occasion, temporarily use some of the cavities or manmade structures such as bridges or culverts while foraging in the area.

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Appendix 1 – Photos of specific landscape features

Salt Creek 1

Salt Creek 1

Salt Creek 2

Salt Creek 3

Salt Creek 4

Salt Creek 5

Salt Creek 6

Mondilibi Hill 1

Mondilibi Hill 2

Mondilibi Hill 3

Mondilibi Hill 3

Mondilibi Hill 3

Mondilibi Hill 3

Mondilibi Hill 4

Mondilibi Hill 4

Mondilibi Hill 5

Mondilibi Hill 5

Mondilibi Hill 5

Mondilibi Hill 6

Mount Fyans 1 – inside the lava tube

Mount Fyans 1 – inside the lava tube

Mount Fyans 1 - opening