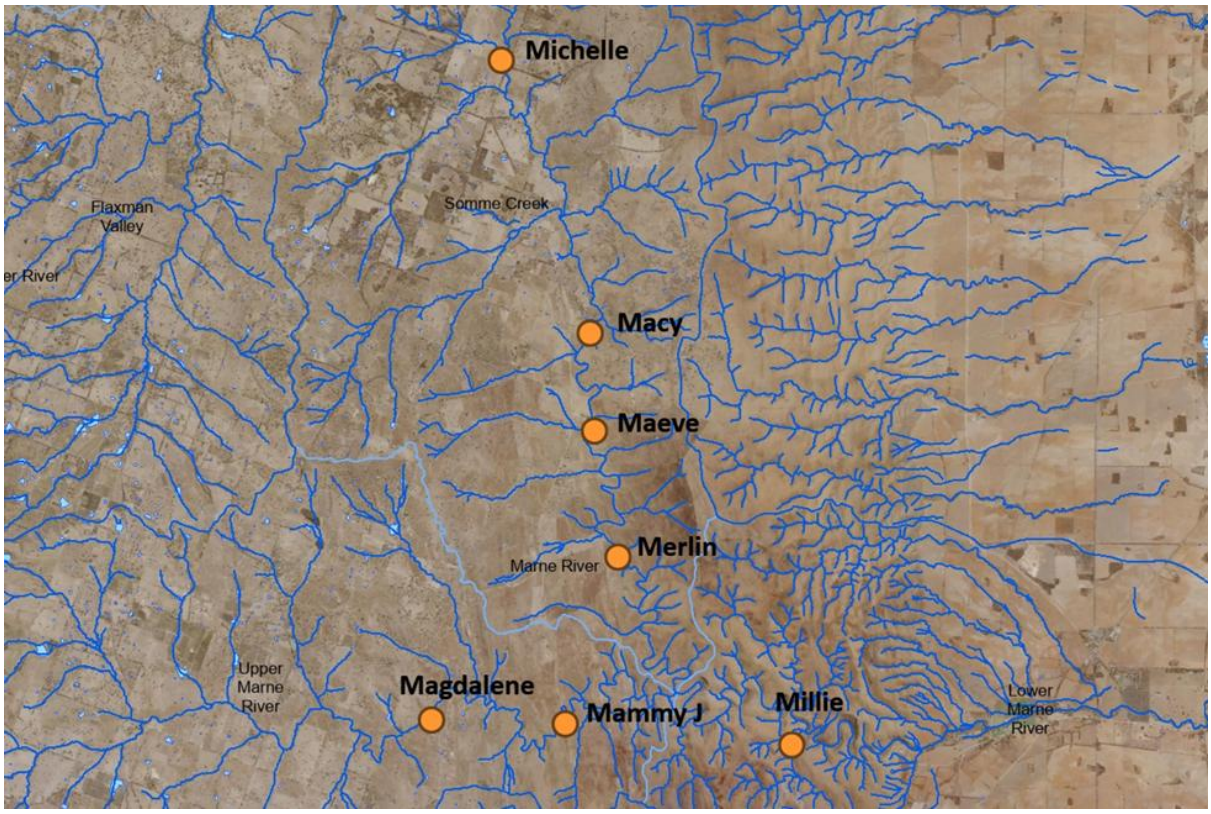
Marne North Rhine Saunders Catchment Microbat Monitoring Report

22 April 2026

A microbat monitoring project was undertaken over seven nights from the 18th of March to the 24th of March 2026, seven Anabat Swift acoustic bat detectors were deployed over the same nights. The aim of the project was to compare bat species and activity across the upper northern region of the Marne North Rhine Saunders Catchment. All the bat detectors have names that start with an 'M' and were set up on trees within the catchment area as shown below on Map 1.



Map 1 bat detector locations across the upper northern catchment area

The Australasian Bat Society's website has a bat finder application called BatMap - Ausbats, this was used to search a 10km radius of the project, the result was a total of nine known microbat species and one megabat species to occur in the survey region (see Table 1. Below). Anabat Swift detectors do not record the calls of megabats (bat species 6 on Table 1.) the focus of this project was only on the insectivorous microbat species. Over the seven nights of recording there were seven bat species that were identified from the echolocation call files, *Austronomous australis*, White-striped Freetail Bat, *Chalinolobous gouldii*, Gould's Wattled Bat, *Nyctophilus geoffroyi*, Lesser Long-eared Bat, *Ozimops planiceps*, Southern Freetail Bat, *Vespadelus darlingtoni*, Large Forest Bat, *Vespadelus regulus*, Southern Forest Bat and *Vespadelus vulturnus*, Little Forest Bat. Information on the bat species identified during the survey will be briefed below, and an example call file that has been collected from the bat detectors during this survey.

Bat Species | Total count: 10

#	Species Name	Range Code	Notes
1	Austronomus australis	Current range	*No data*
2	Chalinolobus gouldii	Current range	*No data*
3	Chalinolobus morio	Current range	*No data*
4	Nyctophilus geoffroyi	Current range	*No data*
5	Ozimops planiceps	Current range	*No data*
6	Pteropus poliocephalus	Current range	*No data*
7	Saccolaimus flaviventris	Current range	*No data*
8	Vespadelus darlingtoni	Current range	*No data*
9	Vespadelus regulus	Current range	*No data*
10	Vespadelus vulturnus	Current range	In SA, boundaries with low confidence; large ares within SA boundary may have unsuitable habitat.

Table 1. Bats species known within 10km of sites.

Austronomous australis, the White-striped Freetail bat is found all across South Australia, it uses a wide range of habitats including urban areas, grasslands, forests, woodland and shrubland. They are fast flying and can sustain flight for many hours foraging in open areas or above canopy as they do not manoeuvre well. They are agile on the ground where they consume ants and non-flying beetles. They also eat moths, beetles, bugs and grasshoppers when in flight, its echolocation call frequency is very low 10-13kHz as seen in Image 1.

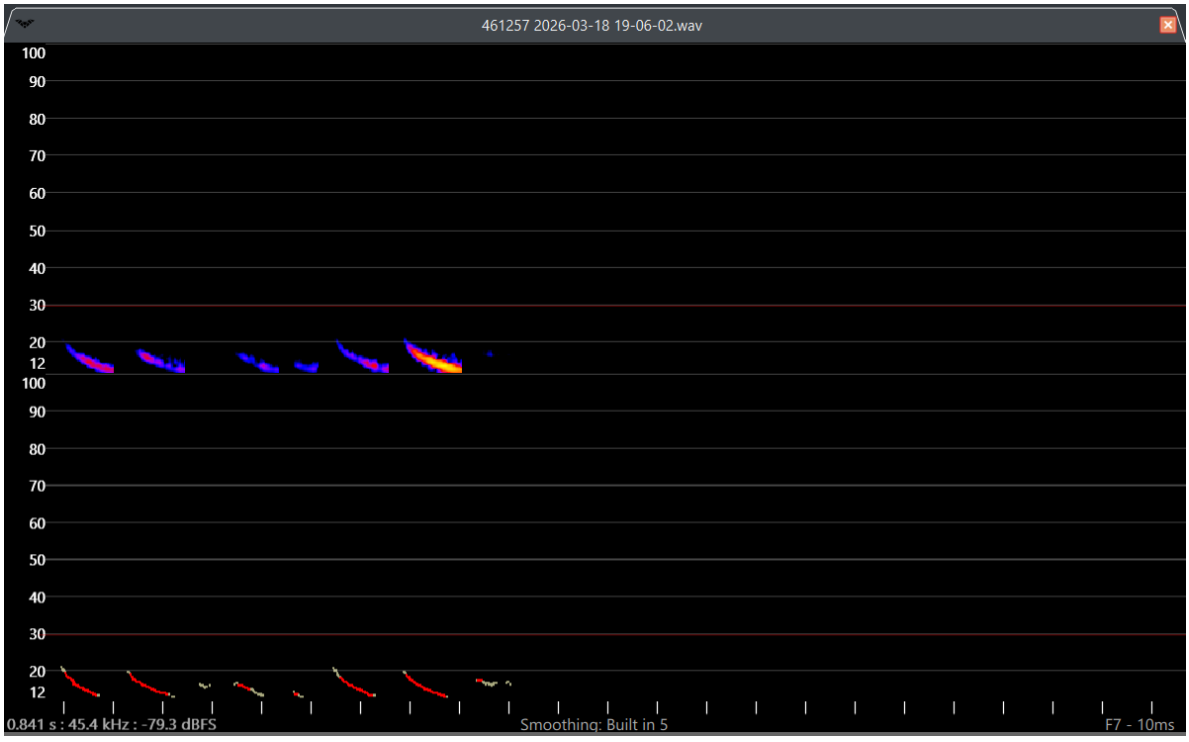


Image 1. Echolocation call from White-striped Freetail Bat, Austronomous australis.

Chalinolobus gouldii, the Gould's Wattled Bat is one of the most common species recorded during bat surveys. They often emerge early after sunset when there is still plenty of light, which makes them susceptible to predation. They have an echolocation call that has an alternating frequency between 29-33 kHz as seen in Image 2.

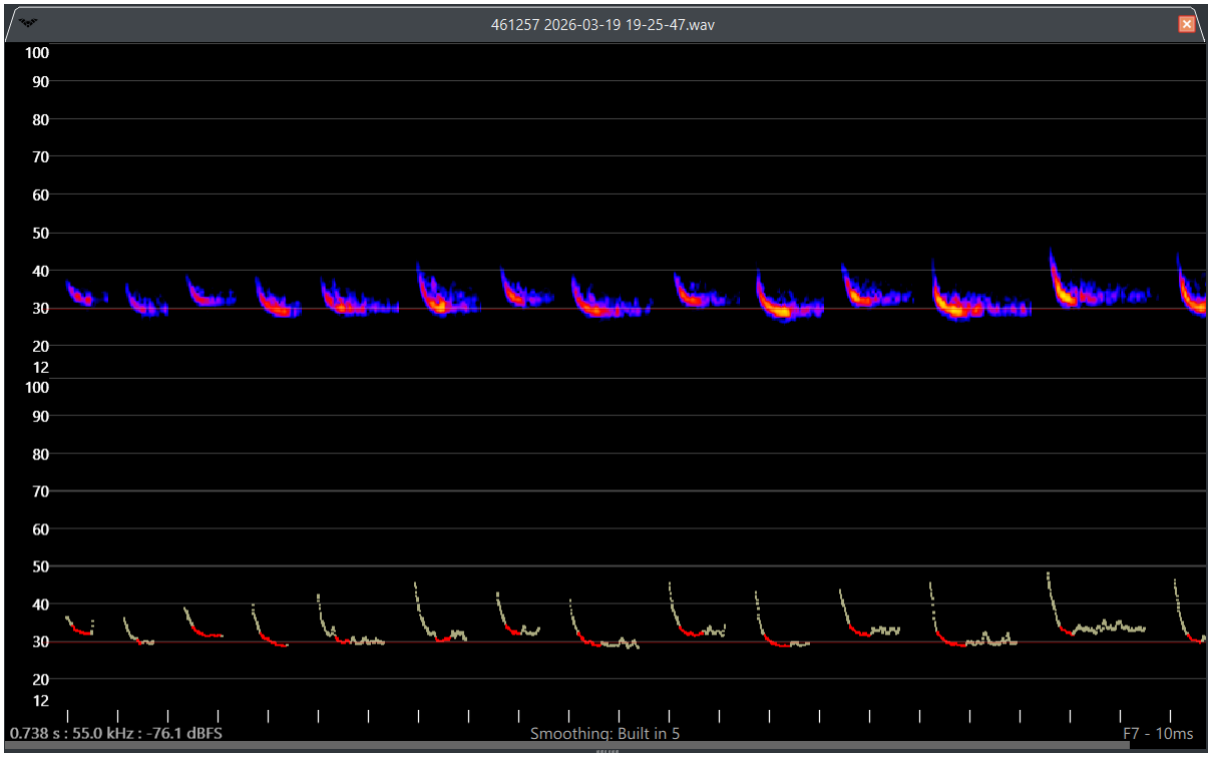


Image 2. Echolocation call from Gould's Wattled Bat, Chalinolobus gouldii.

***Nyctophilus geoffroyi*,** Lesser long-eared Bat is found throughout South Australia in grasslands, urban areas, woodlands and Eucalypt forests. They have large distinctive ears as can be seen in Photo 1 taken by Dennis Matthews. They are both gleaners, taking prey from foliage or the ground, and aerial foragers, catching prey in the air, most commonly eating moths, but also wingless insects like ants and spiders. They have an echolocation call that looks like angled vertical lines from 35-80 kHz as shown in Image 3.

Photo 1. Nyctophilus geoffroyi photo by Dennis Matthews.

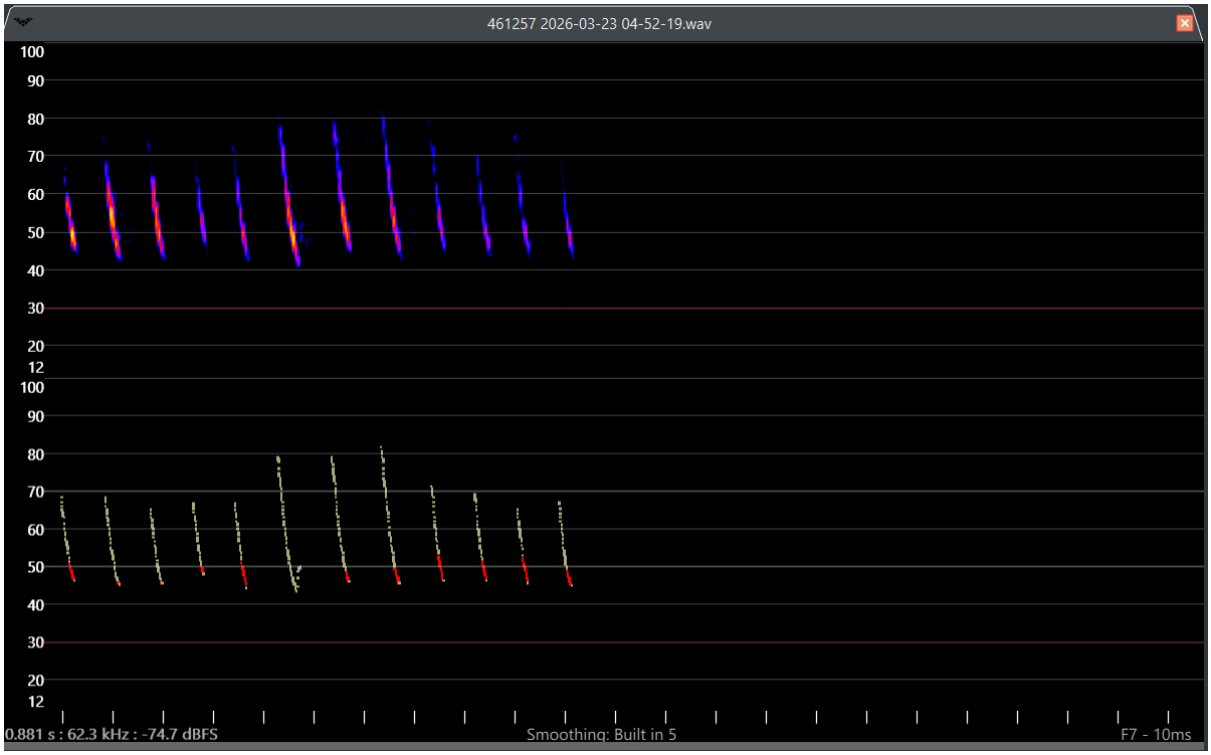


Image 3. Echolocation call from Lesser Long-eared Bat, Nyctophilus geoffroyi.

Ozimops planiceps, the Southern Freetail Bat is the most common free-tailed bat in South Australia. They are found in Cypress Pine Woodlands, Mallee, dry open forest and woodland habitats like River Red Gum. They typically forage between trees, above forest canopy, the edge of remnant vegetation and the ground, eating moths, beetles, bugs and ants. This species echolocation call is between 26-29.5 kHz as seen in Image 4.

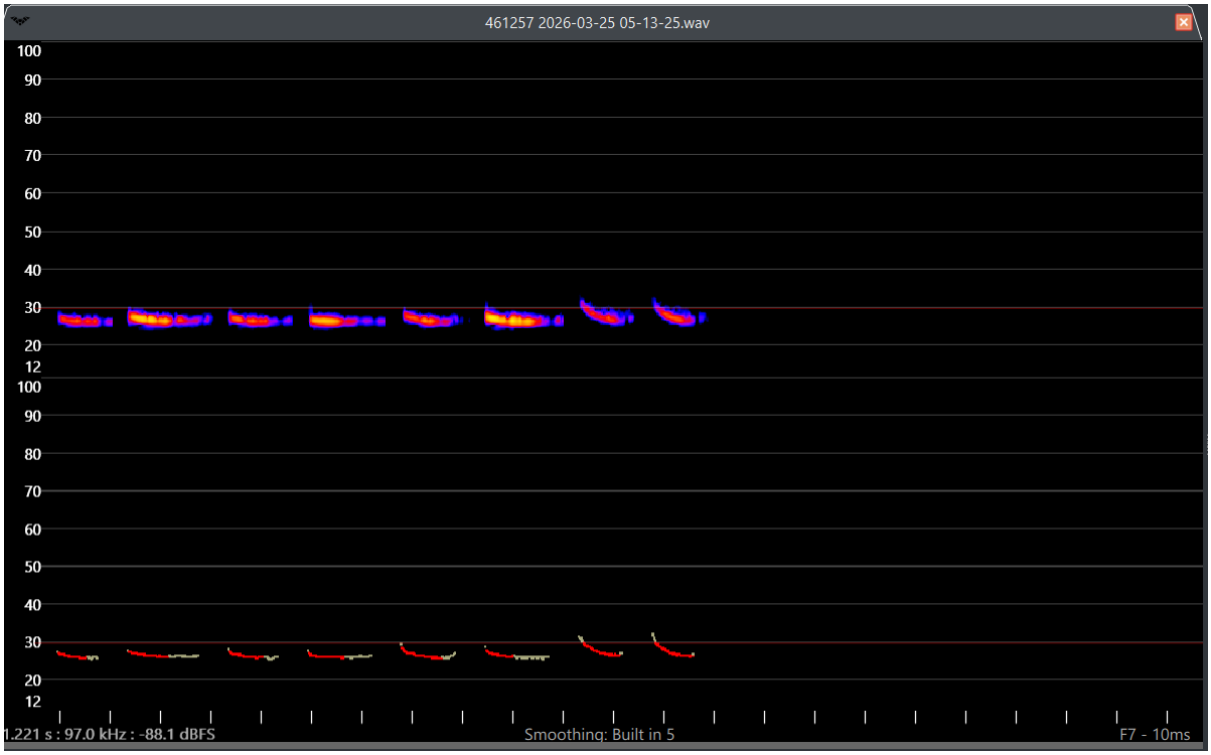


Image 4. Echolocation call from Southern Freetail Bat, Ozimops planiceps.

Vespadelus darlingtoni, the Large Forest Bat, can forage on mild winter nights when other species are hibernating. They are highly manoeuvrable foraging amongst foliage between tree canopy and understorey. Their echolocation call is between 40-42 kHz shown in Image 5.

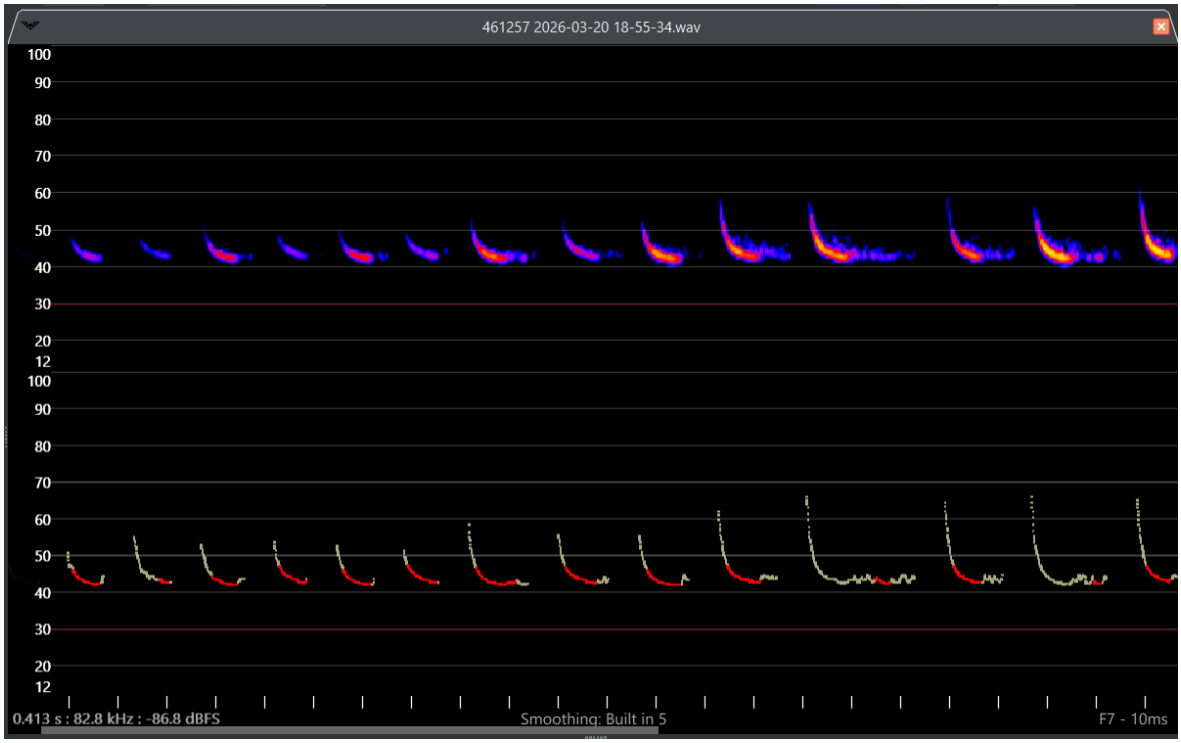


Image.5 Echolocation call from the Large Forest Bat, Vespadelus darlingtoni.

Vespadelus regulus, the Southern Forest Bat are aerial insectivores, flying close to vegetation and understorey. They can easily take off from the ground. They prefer a diet of moths and other small flying insects like beetles, flies and bugs. Their call frequency is around 42 kHz.

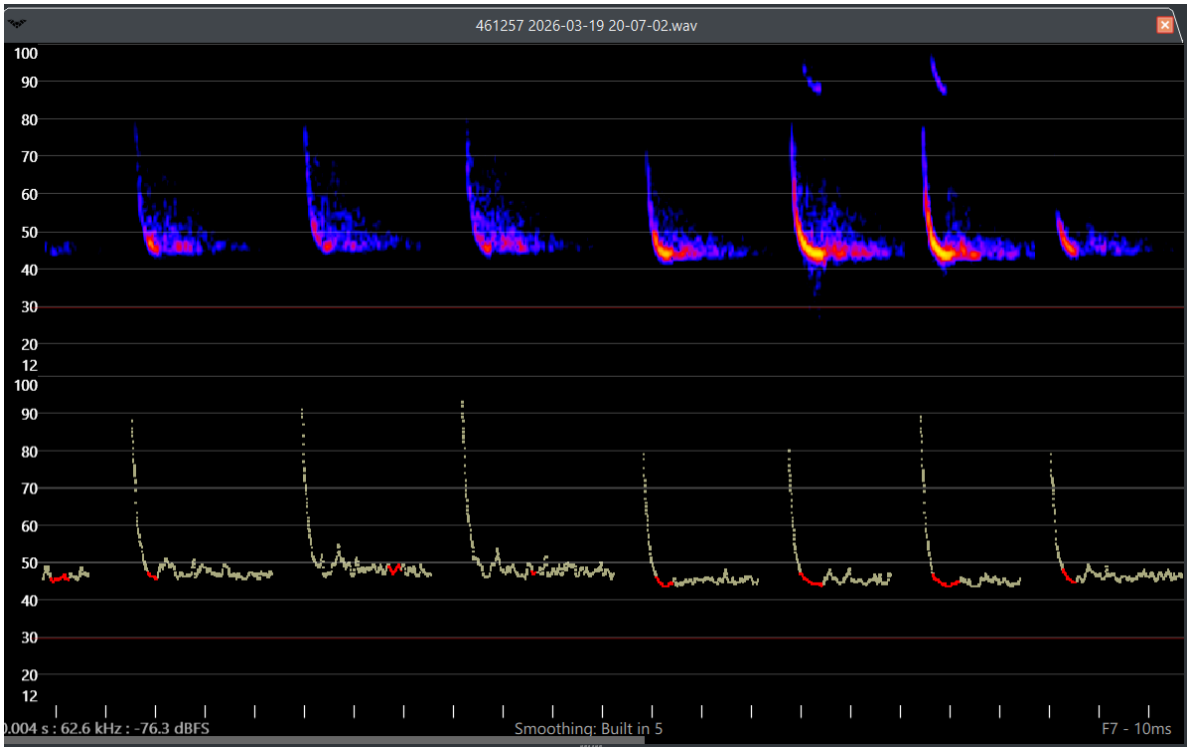


Image 6. Echolocation call of the Southern Forest Bat, Vespadelus regulus.

***Vespadelus vulturnus*,** the Little Forest Bat is South Australia's smallest bat. They forage close to vegetation within the upper levels of the forest understorey and the spaces between trees commonly 3-8m from the ground, always below the canopy preferring moths, beetles and flies, with larger prey being taken back to the roost to consume, they can also take off from the ground with ease. Frequency of their echolocation call is between 48-55 kHz as seen in Image 7.

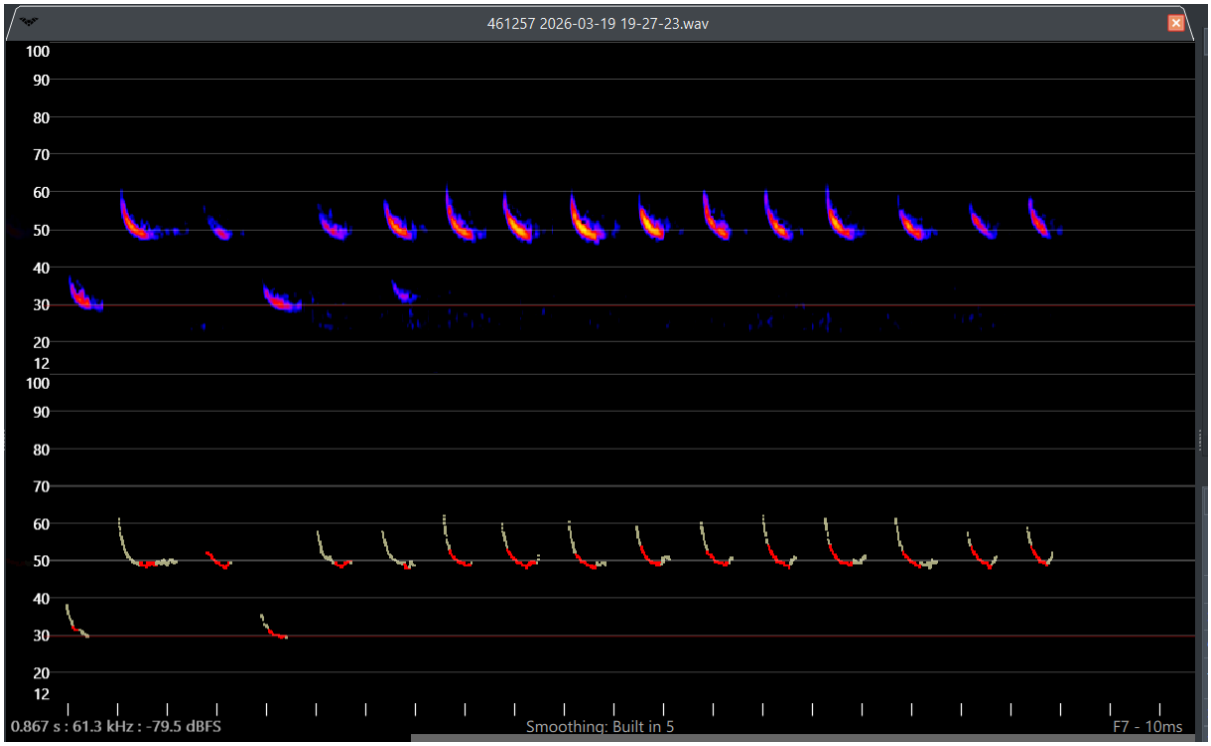


Image 7. Echolocation call from Little Forest bat, Vespadelus vulturnus.

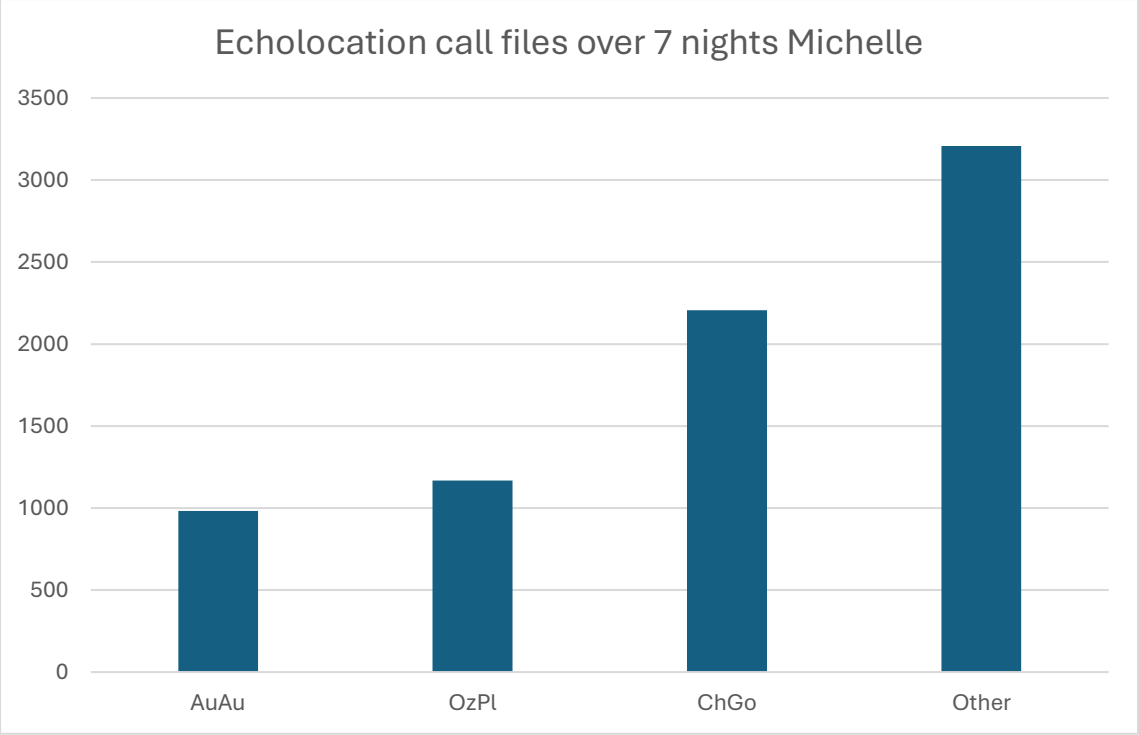
Results for each site

The following results will be presented for each bat detector using the name provided, graphs will be presented showing a crude indication of activity for bat species across the seven nights of recording, **AuAu** represents *Austronomous australis*, **OzP**l is *Ozimops planiceps*, **ChGo** is *Chalinolobous gouldii* and **Other** is a combination of *Nyctophilus geoffroyi* and *Vespadelus darlingtoni, Vespadelus regulus* and *Vespadelus vulturnus*.

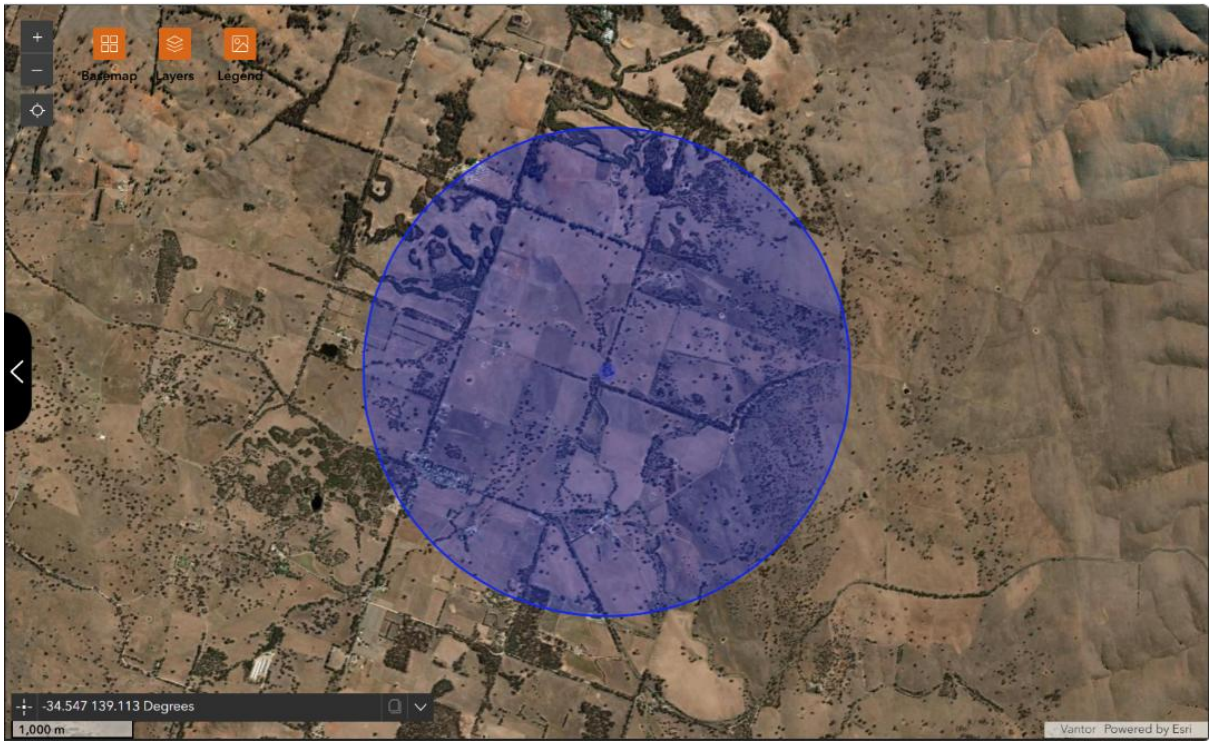
Michelle was the northern most point in the catchment and the detector was set up on a red gum tree near the North Rhine River (formerly known as Somme Creek) on Blandford Road, (Site photo 1) it is in a location where there are usually permanent water holes, but they were dry at the time of this survey (Site photo 2.). The location is surrounded by grazing land, and a local landholder has been revegetating near the water course. **Michelle** recorded six of the seven species, the species that was not recorded at this site was the Little Forest Bat, *Vespadelus vulturnus,* this site did however have a lot of *Vespadelus regulus* calls. There was a total of 8531 bat calls recorded over the seven nights and had the highest number of other bat species, so either Forest Bats or Leser-Long-eared Bats. Graph 1. represents the activity of each species across the seven nights and Aerial photo 1. has a 2km radius around the survey site which shows the vegetation in the area.

Site photo 1. Michelle site photo direction of microphone with the creek in the background.

Site photo 2. North Rhine River where there is usually a water hole, it was a dry creek during the survey.



Graph 1. Echolocation calls from Michelle for seven nights grouping species.



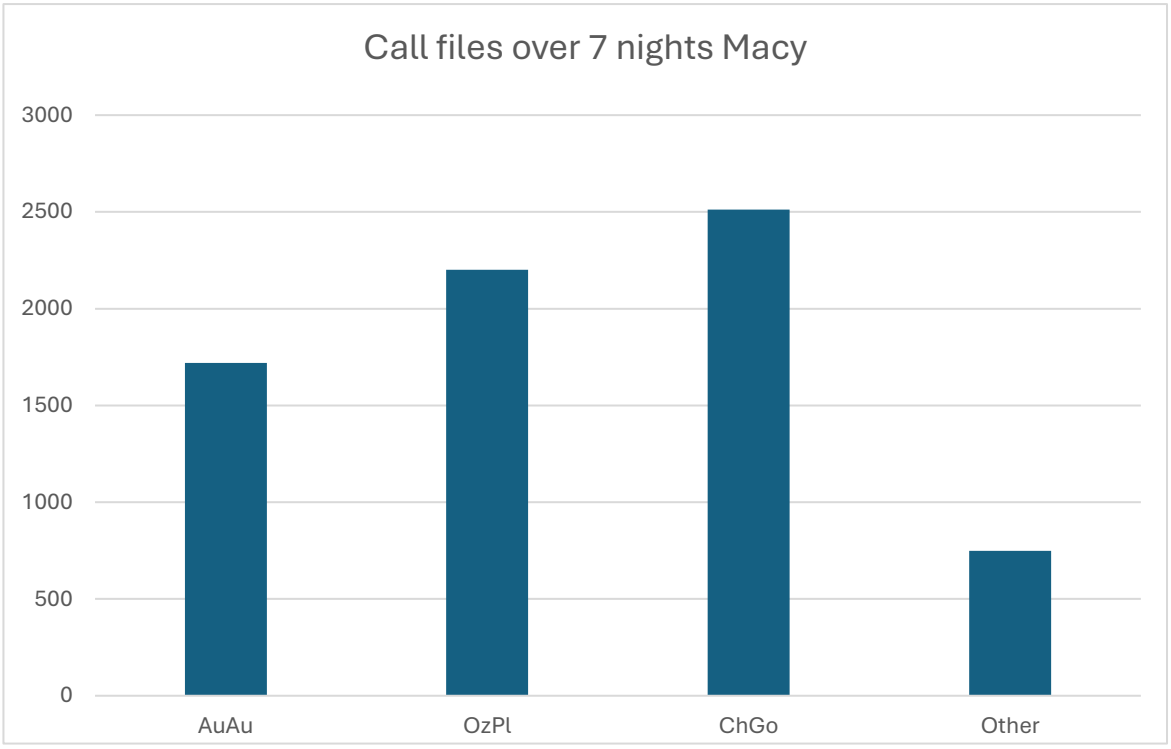
Aerial photo1. Map showing a 2km radius of land surrounding bat detector site for Michelle using BatFinder.

Macy was set up on a redgum tree near the North Rhine River (formerly known as Somme Creek) on Keyneton Estate Road near Jutland Road (Site photo 3.), there was a pool of water still

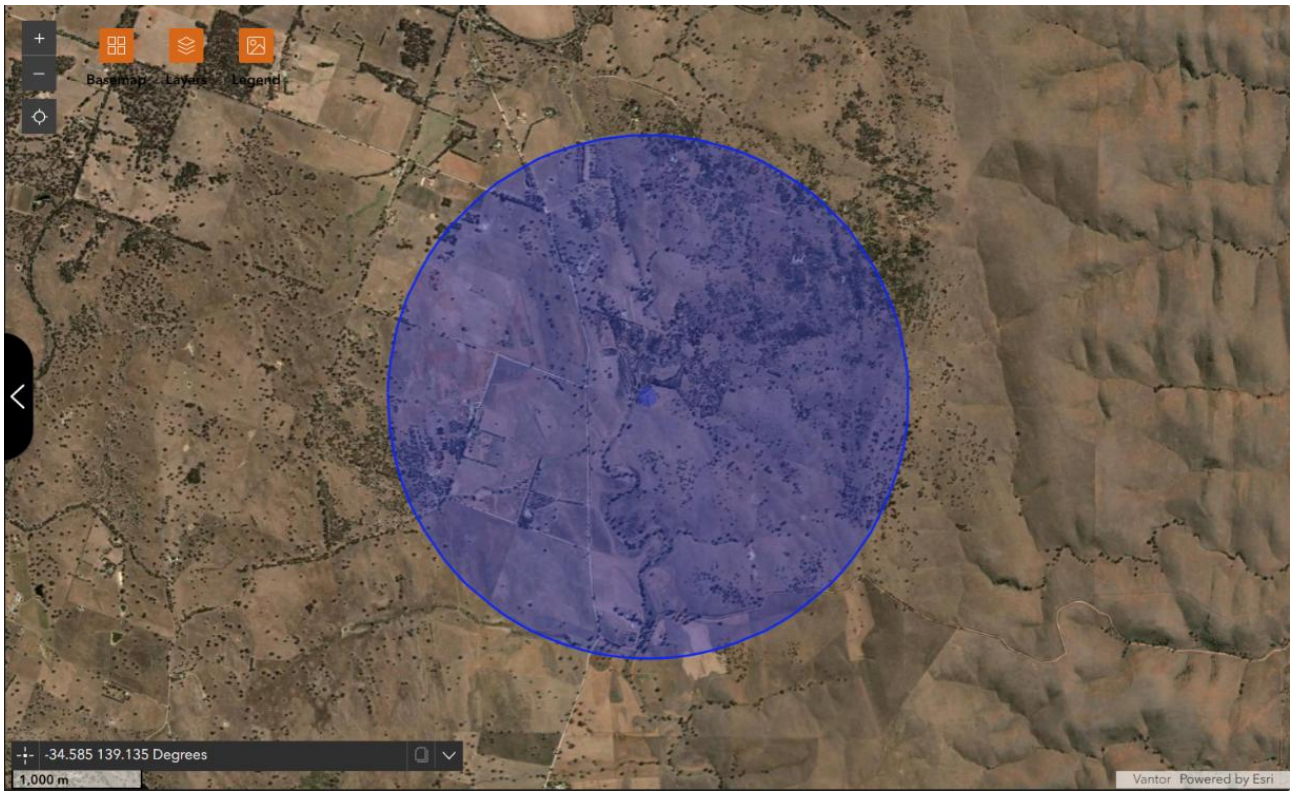
remaining in the creek (Site photo 4.). This bat detector recorded a total of 7549 bat calls across the seven nights, and seven different species and the most calls from the Southern Freetail Bat. Graph 2. represents the activity of each species across the seven nights and Aerial photo 2. has a 2km radius around the survey site which shows the vegetation in the area.

Site photo 3. Macy site photo direction of microphone with the creek on the right and in the background

Site photo 5. Water still in the North Rhine River at site where Macy set up for recording.



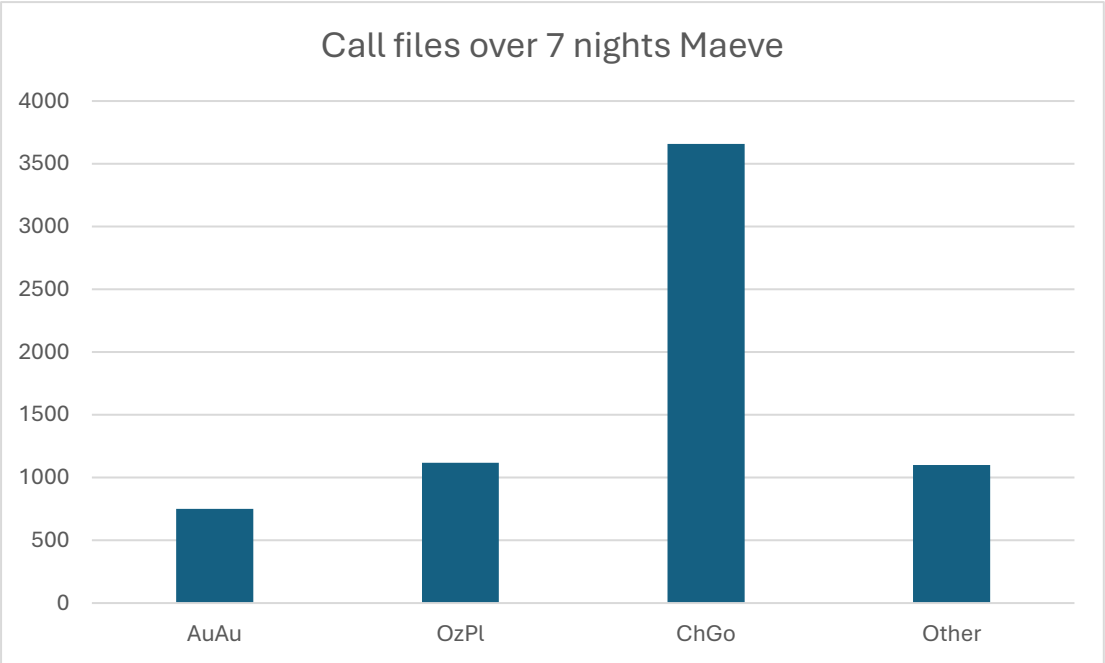
Graph 2. Echolocation calls from Macy for seven nights grouping species.



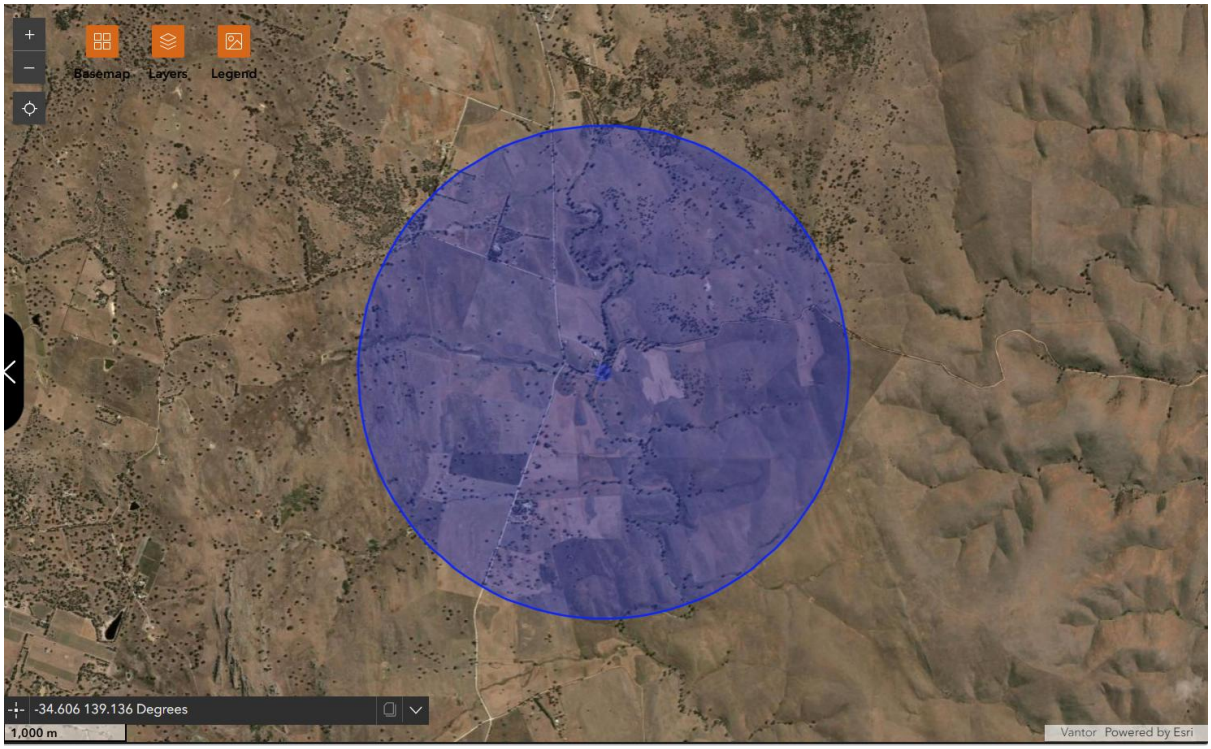
Aerial photo 2. Map showing a 2km radius of land surrounding bat detector site for Macy using BatFinder.

Maeve was set up on a big old redgum tree right next to a permanent water hole which is part of the North Rhine River (formerly known as Somme Creek) on Pine Hut Road (Site photo 6), the area is surrounded by grazing land, there is an old homestead nearby with some sheds, and other outbuildings, the old stone walls are also surrounding the area. Maeve had a total of 7183 bat calls over the seven nights and the most active bat was *Chalinolobous gouldii* and there were over 7000 noise files, the second most from any site. Graph 3. represents the activity of each species across the seven nights and Aerial photo 3. has a 2km radius around the survey site which shows the vegetation in the area.

Site photo 6. Maeve site photo direction of microphone can see stone wall in background through the cloud.



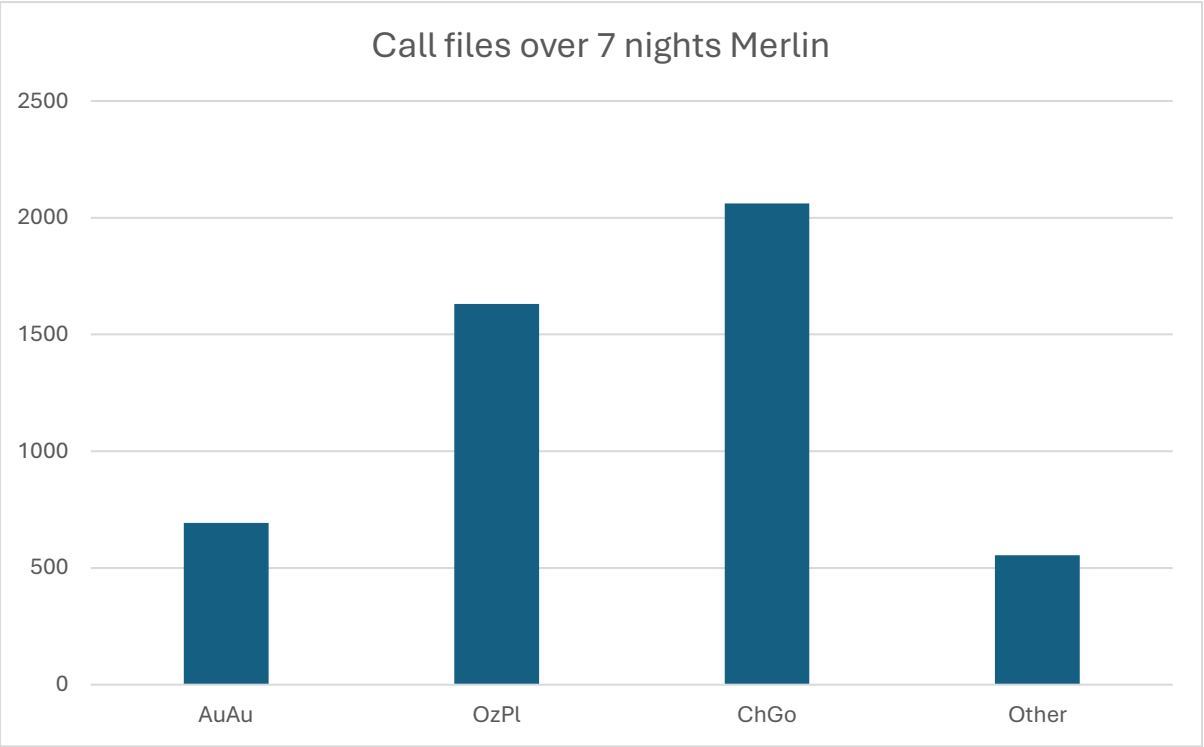
Graph 3. Echolocation calls from Maeve for seven nights grouping species.



Aerial photo 3. Map showing a 2km radius of land surrounding bat detector site for Maeve using BatFinder.

Merlin was set up on a large old redgum tree in a dry section of the North Rhine River (formerly known as Somme Creek (Site photo 7.)), near Med Wrights Road, the site is on sheep grazing land and the neighbour grazes cattle and has some plantings of Old Man Saltbush, *Atriplex nummularia* and section of Lucerne. This property was also impacted by the 2014 Eden Valley fires. This site had a total of 5407 bat calls over the seven nights and had all seven species. Graph 4 represents the activity of each species across the seven nights and Aerial photo 4. has a 2km radius around the survey site which shows the vegetation in the area.

Site photo 7. Merlin site photo direction of microphone.

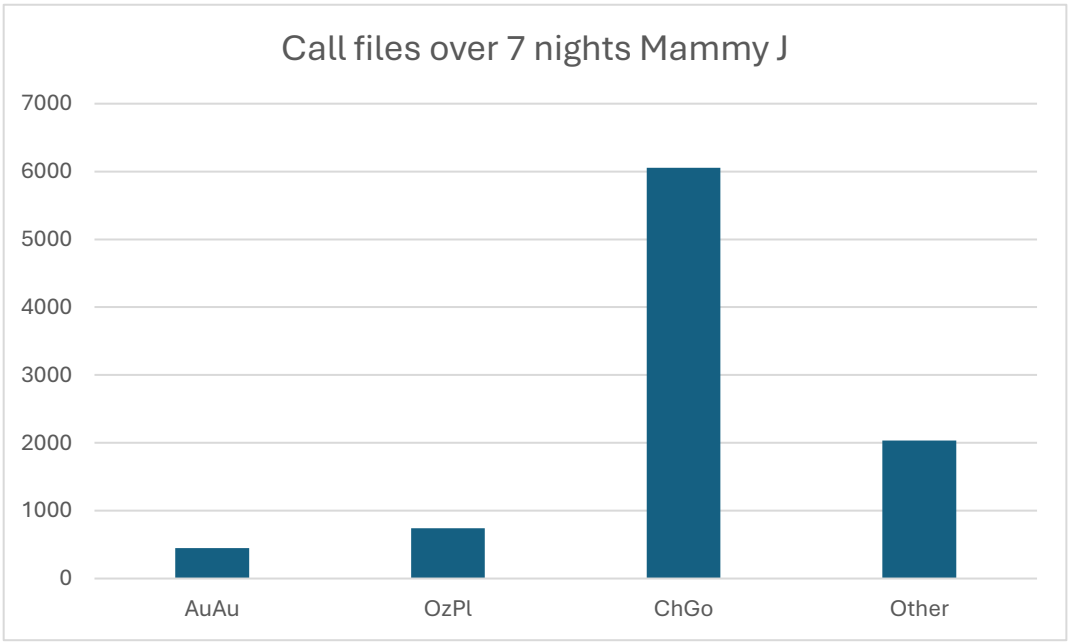


Graph 4. Echolocation calls from Merlin for seven nights grouping species.

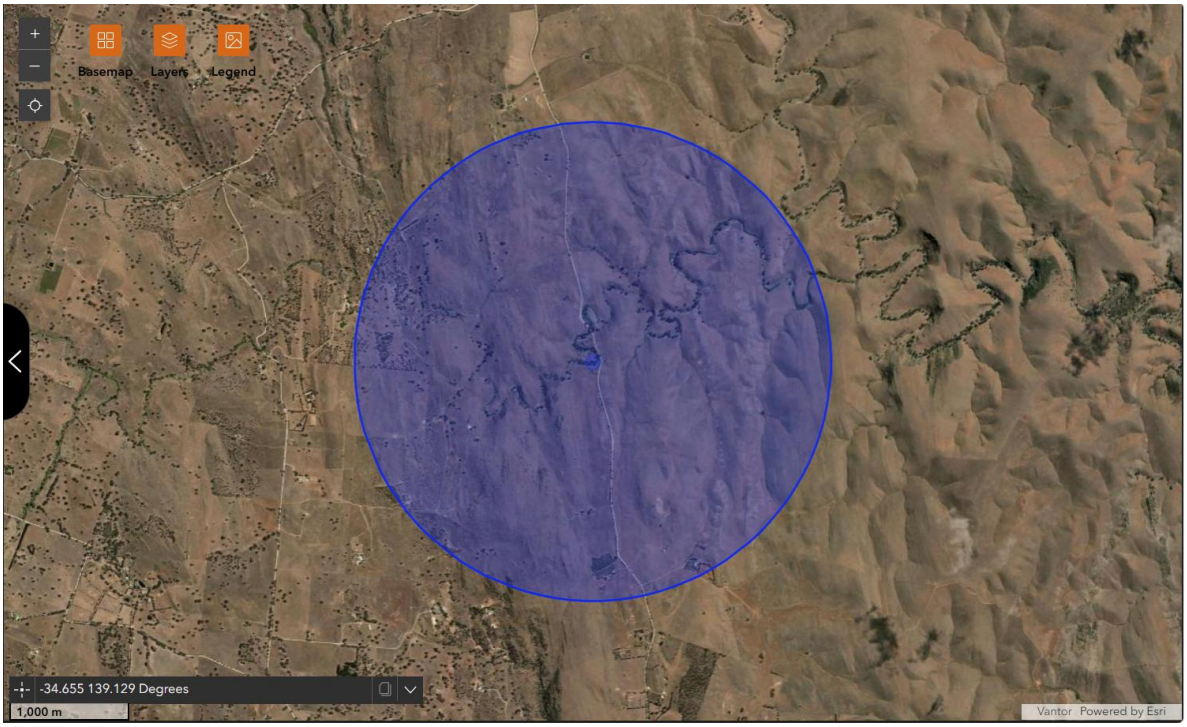
Aerial photo 4. Map showing a 2km radius of land surrounding bat detector site for Merlin using BatFinder.

Mammy J was set up in Jutland Water Reserve located on Jutland Road on the Marne River, the Barossa Council has a Native Heritage Agreement over this 4.3 Ha site, (Site photo 8), there was water in the Marne at the time of the survey and the site has permanent pools. This site had a total of 10,170 bat calls over the seven nights and had all seven species and the most calls for Gould's Wattled Bat. Graph 5 represents the activity of each species across the seven nights and Aerial photo 5. has a 2km radius around the survey site which shows the vegetation in the area.

Site photo 8. Mammy J site photo direction of microphone can see the reeds in the Marne River.



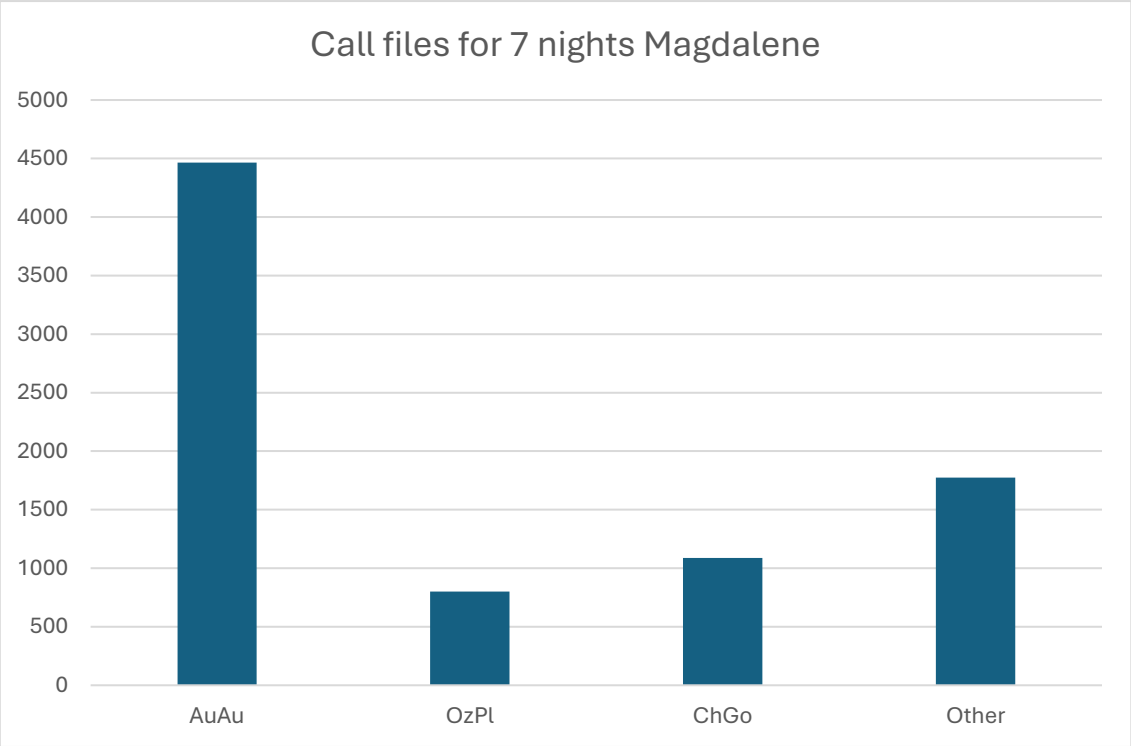
Graph 5. Echolocation calls from Mammy J for seven nights grouping species.



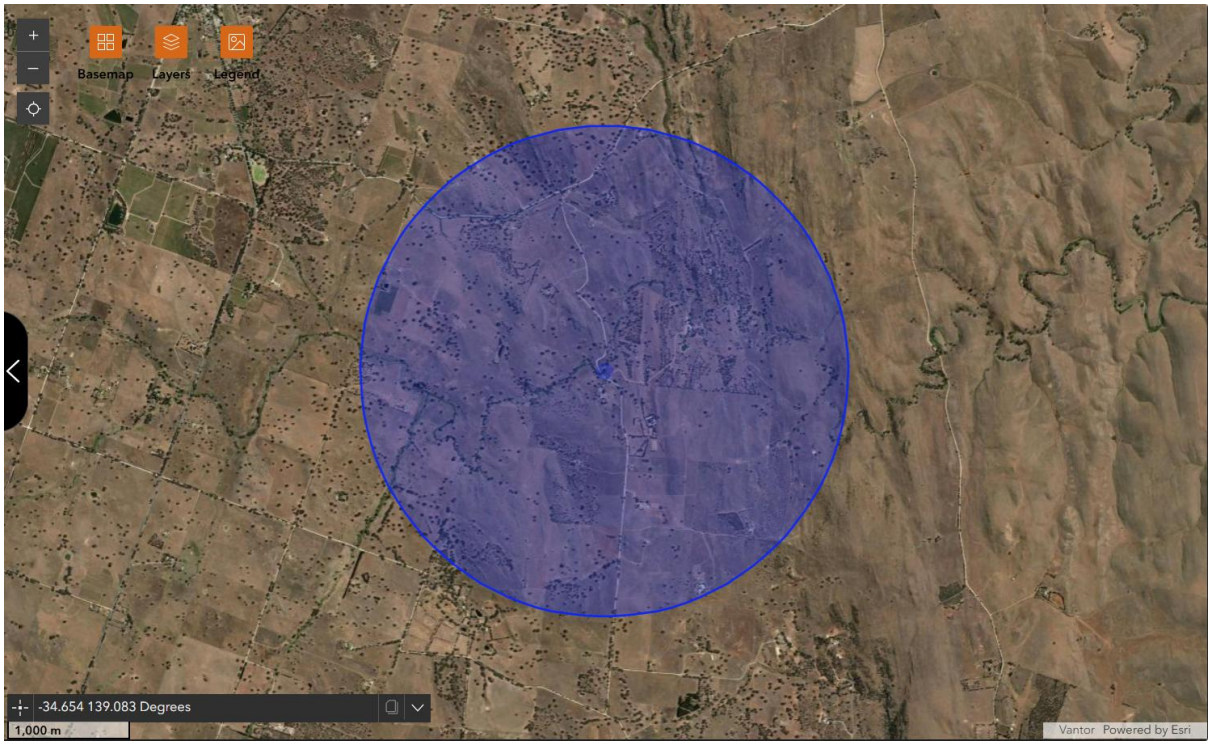
Aerial photo 5. Map showing a 2km radius of land surrounding bat detector site for Mammy J using BatFinder.

Magdalene was set up on Moss Smith Road on the Marne River next to a permanent water hole (Site photo 9). This site had a total of 10,204 bat calls over the seven nights and had all seven species and had the highest number of calls from Gould's Wattled Bat. Graph 6 represents the activity of each species across the seven nights and Aerial photo 6. has a 2km radius around the survey site which shows the vegetation in the area.

Site photo 9. Magdalene site photo direction of microphone a permanent water site on the Marne River.



Graph 6. Echolocation calls from Magdalene for seven nights grouping species.

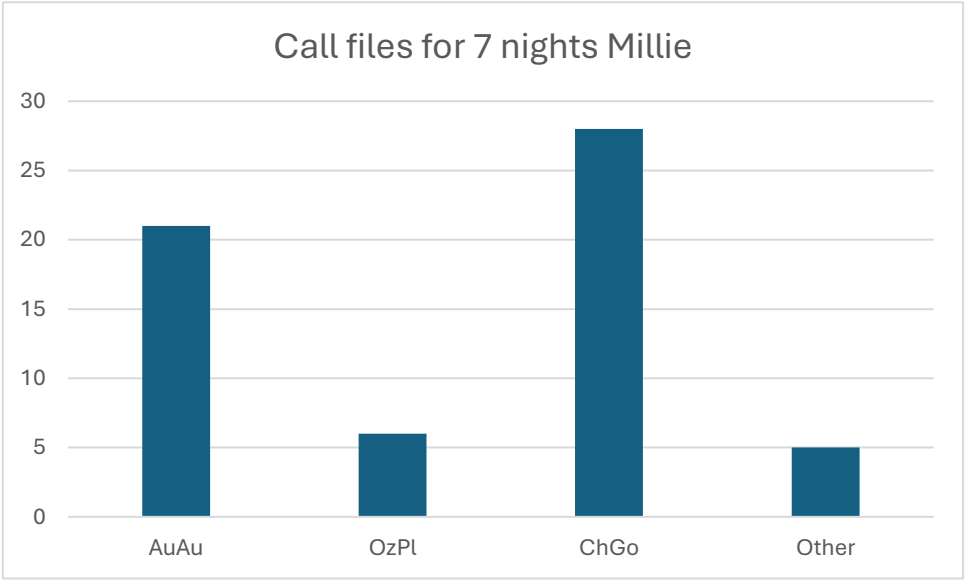


Aerial photo 6. Map showing a 2km radius of land surrounding bat detector site for Magdalene using BatFinder.

Millie was set up in an open area of grassland very elevated on the southern side of the Marne River near the Marne Weir, it was away from the main river course with only a remnant pine tree and the ruins of a stone shepherds hut (Site photos 10 and 11). This site had a total of 245 bat calls over the seven nights and had four species recorded, this is the lowest number of species and calls for any site. Graph 7 represents the activity of each species across the seven nights and Aerial photo 7. has a 2km radius around the survey site which shows the vegetation in the area.

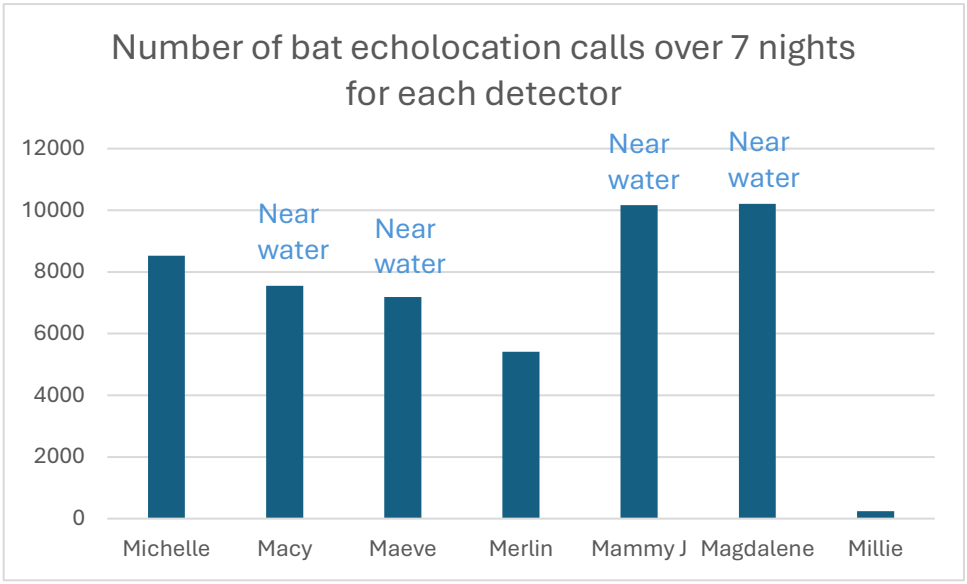
Site photo 10. Millie site photo direction of microphone.

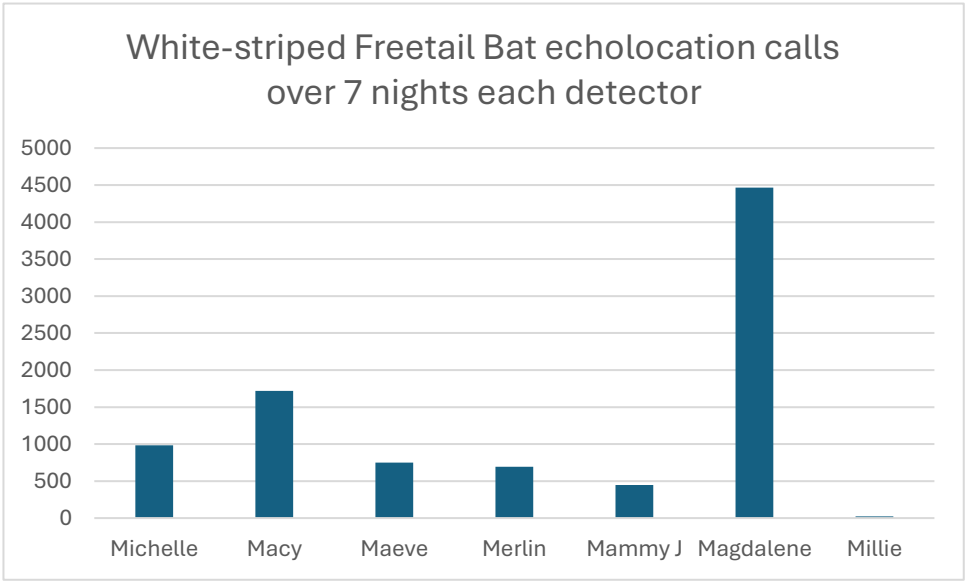
Site photo 11. Millie set up on pine tree, stone ruin nearby.

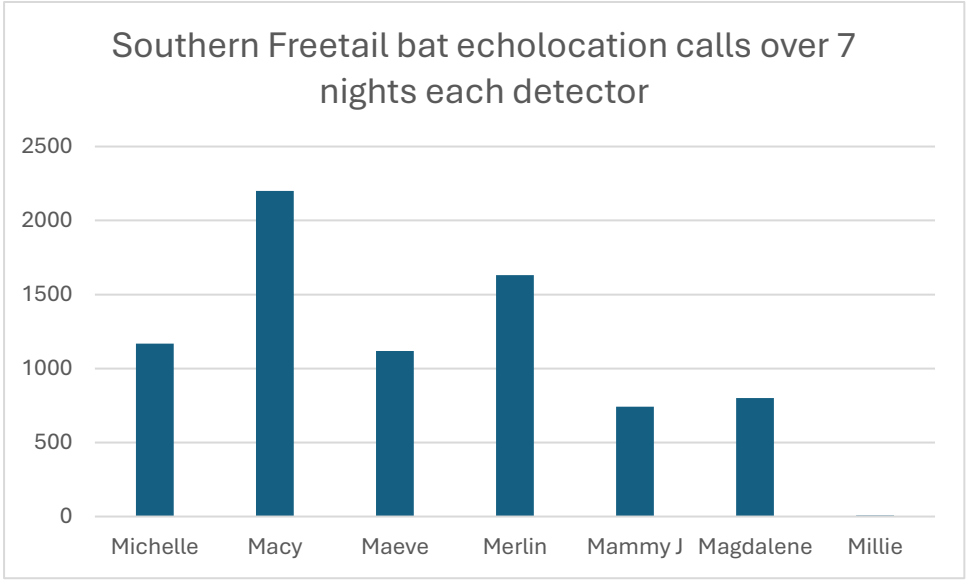


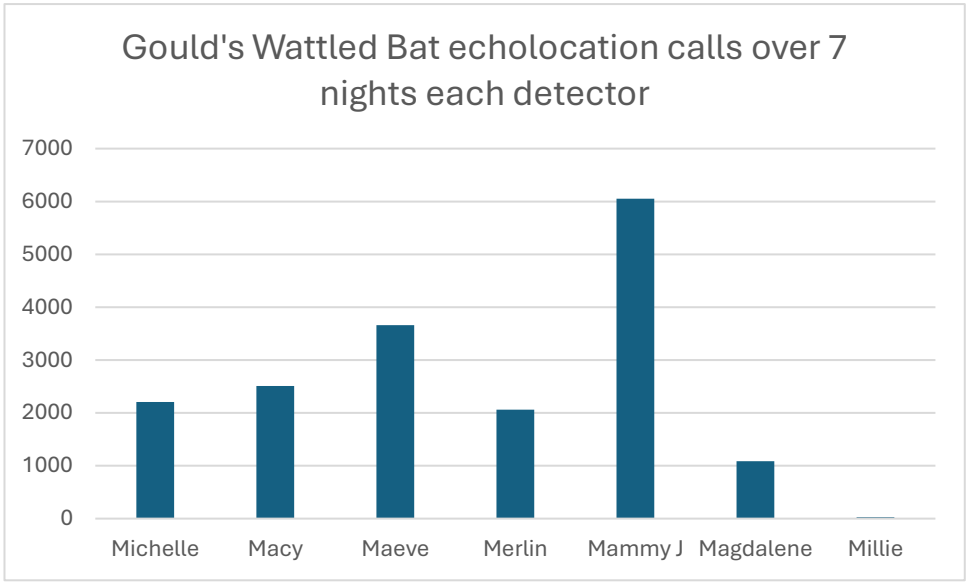
Graph 7. Echolocation calls from Magdalene for seven nights grouping species.

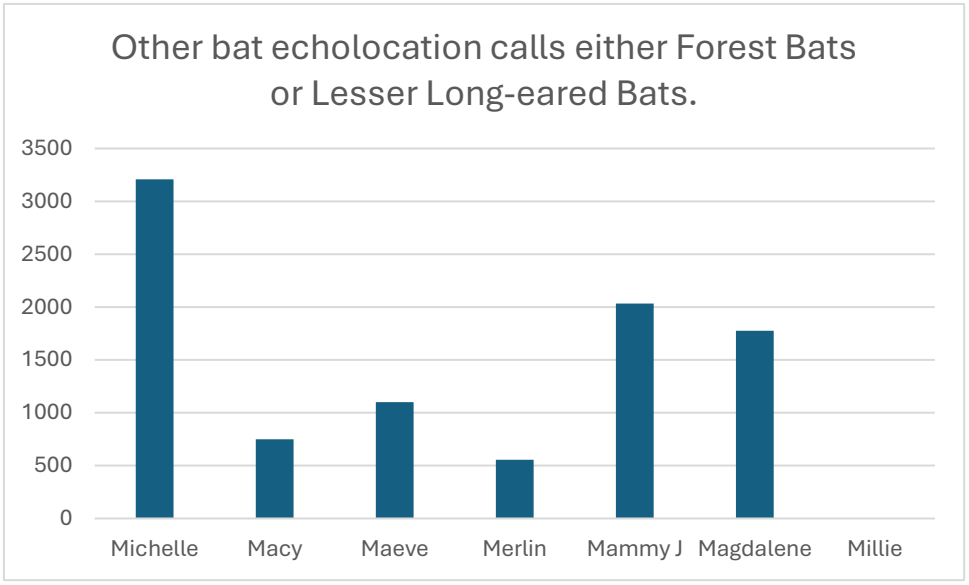
The following graphs are to illustrate some comparisons between the sites.

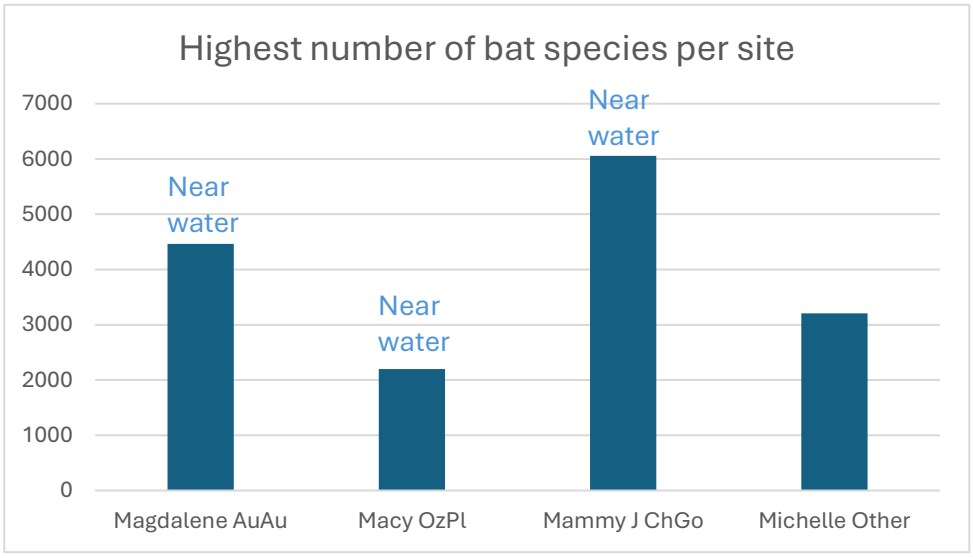







Gould's Wattled Bat echolocation calls over 7 nights each detector
7000
6000
5000
4000
3000
2000
1000
0
Michelle
Macy
Maeve
Merlin
Mammy J
Magdalene
Millie


Other bat echolocation calls either Forest Bats or Lesser Long-eared Bats.
3500
3000
2500
2000
1500
1000
500
0
Michelle
Macy
Maeve
Merlin
Mammy J
Magdalene
Millie


Highest number of bat species per site
7000
6000
5000
4000
3000
2000
1000
0
Near water
Near water
Near water
Magdalene AuAu
Macy OzPl
Mammy J ChGo
Michelle Other