

Koala Karaoke

Cold Country Koala Karaoke Survey Report

2022-23 Bioacoustic Survey



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Project Overview

The koalas of the Southern Tablelands have needed to overcome many challenges in recent years. They have dealt with extended drought conditions, devastating bushfires and loss of habitat. The more recent wetter conditions have promoted forest regeneration and helped to provide quality habitat for koalas. To supplement natural regeneration, koala habitat restoration projects are working to protect remnant vegetation and reconnect habitat patches. To assess how well these activities are supporting our local koala populations we need to understand where koalas are living and how many there are (Figure 1).

The Cold Country koalas of the Southern Tablelands have been surveyed periodically between 2011 and 2019 by NSW NPWS (NPWS personal communication 2020). During this period, koalas were surveyed using a scat count technique called the Grid Based Spot Assessment Technique (RGBSAT). This method uses a grid to pick survey sites, which then counts scats under trees at the site [1]. More recently koala surveys have employed a bioacoustic survey technique [2]. Throughout the breeding season, male koalas bellow to attract females and mark their territory. The bioacoustic survey exploits this behaviour and uses recording devices to detect koala presence. By deploying the recorders in a grid arrangement, the results can identify the occurrence of koalas in each area and have been able to provide information on koala abundance [3].

The South East Local Land Services Koala Habitat Recovery Project undertook a bioacoustic koala survey across the Monaro during the 2021 breeding season. The survey aimed to improve baseline knowledge of koala presence post-bushfire and work with landholders to help detect the presence of koalas on their property. The survey deployed just over 100 recorders across two distinct areas within the Snowy-Monaro region: the Monaro areas from Numeralla to the Tinderry region and the Avonside area east of Jindabyne. The survey detected koalas on 56% of the recorders in the Monaro area and 4% at Avonside. The survey also highlighted areas that support high numbers of koalas, primarily the forested areas around Numeralla. Detection levels of 83% around Numeralla are above what other surveys have found in the more northern areas of the state [4].

Following on from the 2021 survey, Landcare, Local Land Services and the Department of Planning and the Environment worked together to undertake another koala bioacoustic survey in 2022. This survey formed part of the state-wide baseline survey under the NSW Koala Strategy [1] and sampled widely across the greater Southern Tablelands region.



Figure 1. One of the resident Southern Tablelands koalas (Photo credit Kirrily Gould, Local Land Services)

Project Area

The project surveyed wooded areas within approximately 700,000ha across sections of the Southern Tablelands region (Figure 2). Within this region the Southern Tablelands Area of Regional Koala Significance (ARKS) was a particular focus. Surveys were conducted across 12-14 nights at each site between October 2022 and January 2023 using Song Meter Micro or Mini audio recorders. Recorders were deployed at sites nominated through the state-wide baseline survey program to complement surveys conducted nationwide under the CSIRO's Koala Monitoring Program. Audio recordings were analysed by the NSW Primary Industries Forest Science Unit, Local Land Services and Landcare.

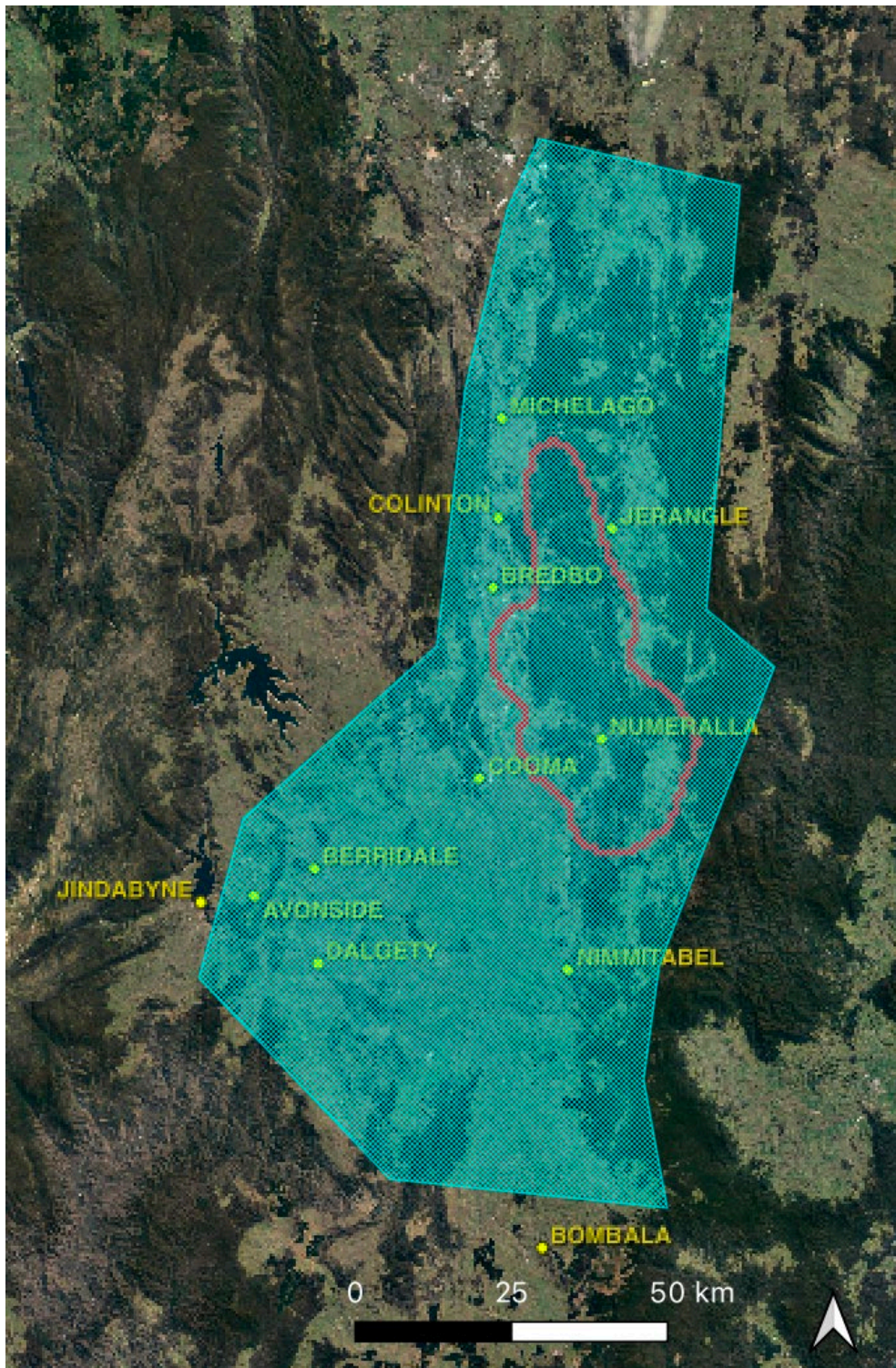


Figure 2. The area of focus for the 2022 Koala Karaoke survey and the Southern Tablelands ARKS area (red).

Koala Karaoke Project Results

152 recorders were deployed across all land tenures, with 71 on private land, 64 on National Park reserves and 18 in State Forests. Koalas were detected at 45 sites, which equated to 29.6% of all sites (Figure 3).

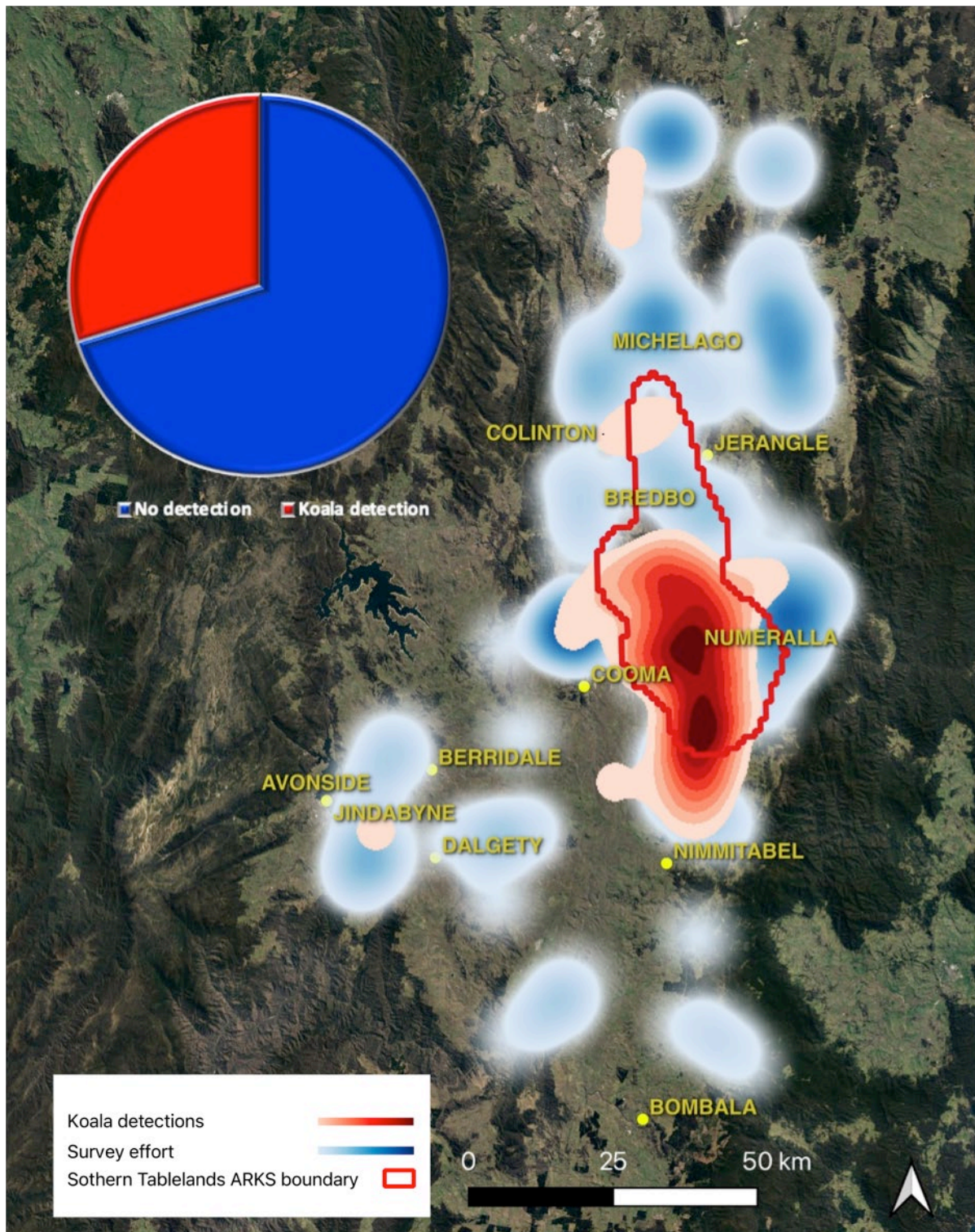


Figure 3. Survey effort and koala presence across the Southern Tablelands ARKS and the recorder activity for the region.

Koala presence was found to be much higher in the Southern Tablelands ARKS, with 72% of the recorders detecting koala calls. When property tenure was examined, NPWS reserves heard koalas at 91% of ARKS sites. Private property, while not as great, also recorded a high level of detection at 66% within the ARKS (Table 1). No recorders were deployed on State Forest lands within the ARKS boundary.

The results from sites outside of the ARKS boundary were substantially lower despite almost twice as many recorders deployed. Only 6% of sites outside of the ARKS detected koalas, with all but one

found on private property (Figure 1). While these results demonstrate that the frequency of koala occurrence outside of the ARKS is much lower, the survey confirms previous reports on the distribution of koalas across the Southern Tablelands beyond the ARKS. Koalas were found in semi-rural areas in close proximity to Queanbeyan, through to the Tinderry ranges, nearby Cooma and within the Avonside range. It is also worth noting the sampling intensity within the ARKS was over three times greater than the outside area. Future surveys will continue to explore the region as a whole, with a greater emphasis on areas of unknown koala status.

Table 1. Results of surveys within and outside of the Southern Tablelands ARKS.

Heading	Southern Tablelands ARKS	Outside of ARKS
Number of recorders	54	98
Recorder detection	72%	6%
Number of private properties	15	56
Private property detection	66%	9%
Public property detection	91%	2%

Discussion

The results of this survey have shown that koalas continue to occupy areas right across the Southern Tablelands. The pattern of detection probability was similar to previous surveys, with far greater koalas detected in the Southern Tablelands ARKS compared with elsewhere. This season was slightly higher than the previous year, with koalas detected on 72% of recorders, up from 56% in 2021 [2]. The Numeralla area continues to be a hotspot [3, 4] and as a consequence, has been declared an Area of Intergenerational Significance (AIS) and is considered critical for koala conservation in south eastern NSW [5].

The Southern NSW AIS cannot exist in isolation however and an understanding of koala presence and movement in neighbouring areas is necessary to ensure koalas persist across the greater region. Koalas can be very cryptic and in low densities may be very hard to view. In the Southern Tablelands, many koala sightings are from individuals crossing roads. Recent sightings have been on the Monaro Highway near Bredbo, Kosciuszko Road near Avonside, The Snowy River Way near Beloka and Cooma (K. Gould and S. Miller pers comm. 2023). The distance between these sightings highlight the broad distribution of koalas in the region. It also emphasises the importance of private property in koala conservation, with a limited reserve system across this broader landscape.

Supporting private properties to manage for koala habitat has been a focus in recent years and the NSW Koala Strategy, Local Land Services and Landcare have partnered to assist landholders.

Protecting remnant patches and creating vegetation corridors to link remnant habitat is a priority. Over the last couple of years 423ha of habitat restoration has been achieved (S. Miller & K. Gould pers comm. 2023). Future on-ground activities will continue to look to the koala survey results to target their activities for maximum benefit. Upcoming surveys will aim to expand and intensify surveys into areas with lower or unknown densities of koalas to offer further insights into distribution of koalas across the broader region.

Annual koala surveys continue to provide new information and confirm established information each year. The survey in 2022 explored areas far beyond the Southern Tablelands ARKS and demonstrated a broad koala occupancy across the region. The survey also emphasised the critical role that private landholders play in the conservation of cold country koalas, especially for koala habitat outside of the Southern Tablelands ARKS. The willingness of landholders to participate in this survey also demonstrates the desire that the community has for koala conservation. We thank all those landholders that participated in the survey and shared so freely their insights into koalas on their property. Continued support of landholders in this region will secure koala habitat and conservation of this unique species. [5]

References

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