



Cradle Mountain Wombat Program

Summary

SPECIES TARGETED FOR MONITORING: Common Wombat (*Vombatus ursinus*, a.k.a. bare-nosed wombat)

AIMS/OBJECTIVES OF MONITORING PROGRAM: To establish baseline data for wombat abundance in areas of high visitation and foot traffic at Cradle Mountain National Park. This information is used to assess whether increased visitation to the National Park is having any impact on the local wombat population. Additionally body condition scores and any visual evidence of sarcoptic mange (*Sarcoptes scabiei*) infection are collected. The aim of this is to gauge the overall health of the population and assist with early detection of mange to allow for appropriate intervention by PWS to prevent any outbreaks from developing that may impact the local populations.

JUSTIFICATION/RATIONALE FOR MONITORING:

The common wombat is widespread across Tasmania and can be seen in many Tasmanian National Parks including Cradle Mountain – Lake St Clair National Park. The monitoring data collected from DPIPWE's spotlight survey program across northern, eastern, central and southern Tasmania has indicated that there has been a general increase in wombat numbers since 1985, with numbers either plateauing or increasing in the last eight years. In the northwest region wombat numbers increased between 1985/86 - 2009 and have remained stable since (DPIPWE, 2018).

Wombats are an iconic species in Tasmania and very important to the tourism industry with many people visiting from around the world every year to see a wild wombat. Wombats are abundant at Cradle Mountain National Park; they can be seen very close to boardwalks and roadsides in large numbers. With visitor numbers growing every year and set to increase into the future there is concern that this will have a negative impact on the wombat populations at Cradle Mountain. Monitoring is therefore important to gain an initial understanding of their population sizes, observe any changes and ensure that visitor behaviour is being managed effectively.

Recent localised declines in wombat populations, most notably in the West Tamar area where wombat counts significantly declined between 2009/10 to 2016/17 (DPIPWE, 2018) and similarly in Narawntapu National park where the University of Tasmania recorded a 94% decline in the local wombat population from 2010 to 2016 (Martin et al, 2018) have been attributed to sarcoptic mange. Sarcoptic mange has been affecting wombats in Tasmania for more than 100 years and research has found it to have a low prevalence in Tasmanian wombat populations (DPIPWE, 2018), although localised outbreaks do arise. It is therefore important to monitor and record the health and presence/absence of mange in the wombats surveyed at Cradle Mountain National Park.

Data Collected

WHAT PARAMETERS ARE MONITORED

Wombat Counts: Total counts of wombats are recorded on two separate transects. Additional information is collected including the date, time, the distance from the animal, age (juvenile or adult), reproductive



status (whether there is a young in pouch or at heel), health status (presence or absence of mange) and a body condition score.

Methods

STUDY AREA

The transect locations are at the northern extent of the Cradle Mountain-Lake St Clair National Park on the Central Highlands of Tasmania, Australia. The park forms part of the Tasmanian Wilderness World Heritage Area; it features a diverse range of habitat types including rainforests, alpine heathland and buttongrass moorlands. Two transect locations were selected based on their open landscapes and ease of viewing wombats. Transect 1: Cradle Mountain Lodge (Figure 1) lies outside the park boundary, following the road between the Cradle Mountain Lodge and Devils@Cradle Tasmanian Devil Sanctuary (Start: 0410742E, 5394698N; Finish: 0411179E, 5395287N), approximately 793m in length. Transect 2: Ronny Creek boardwalk (Figure 2) starts at the beginning of the Overland Track and finishes at the bridge that crosses Ronny Creek (Start: 0412470E, 5390109N; Finish: 0412126E, 5389518N), approximately 712m in length.

FREQUENCY OF SURVEY

Surveys were completed quarterly starting in November 2016; this was changed to monthly mid-2017 to capture seasonal variation in wombat numbers at each site, particularly localised breeding patterns. The final survey was completed in November 2017. The two transects are surveyed on different nights in the same week. Where possible the days chosen for survey have similar weather conditions.

TIMING OF SURVEY

Surveys are undertaken one hour before sunset.

TRANSECT SURVEY

Each transect is surveyed for wombats by observers on foot, walking along the side of Cradle Mountain road or along the Ronny Creek boardwalk in a line. Observers walk together along the transect working in two separate groups to survey the left and right of the transect simultaneously. This is done to reduce the chance of double counting for example if a wombat crosses the transect this can be communicated to the other group. The survey requires two people minimum, the ideal number of personnel is six per survey with a scribe and two observers per side of the transect. Observers record the number of wombats they find, the body condition of each individual (Table 1.) and the presence/absence of mange. Where visibly obvious reproductive maturity was recorded, this was based on the size of the individual or a mother having a juvenile at the heel or in the pouch. A distance between the observer and the wombat was also approximated (in metres) to gauge a level of confidence in the scores given, a set of binoculars were used to reduce the impact of distance to give the most accurate score possible.

Results

All wombats surveyed throughout the year were given a score of 3 (thin hair but smooth, no extra fat, spine may be visible) or healthier for body condition across both sites (see Figures 4 & 5). Although the presence/absence of mange was assessed, no animal had observable signs of the disease throughout the survey period. Numbers were highest from the end of winter and throughout spring with lower numbers recorded throughout the summer months (Figure 3). It was noted that wombats came out to graze later than they usually would throughout summer (after one hour before sunset). Additionally, the numbers recorded appeared to be influenced by the weather conditions on the day the survey took place. Overall,



higher numbers of wombats were recorded at Ronny Creek in the National Park than at the Lodge transect on the outskirts.

Limitations and Recommendations

The inconsistency in the weather conditions at Cradle Mountain makes it difficult to survey during ideal conditions for viewing wombats. Therefore, some months the surveys were completed during rain or snow as there was no other option. This could lead to population counts that vary considerably from counts on sunny afternoons. It is recommended that the weather conditions be accurately noted down at the beginning of each survey as this may account for the variation in numbers between months throughout the year. In addition, there appeared to be variation within a single week with some days yielding high or low counts during the survey but driving past the same site the following day yielded a completely different result.

REPLICATE SURVEYS

It is recommended that replicate surveys be completed quarterly (once per season) to reduce the impact of nightly variation on the results. Three transect surveys will be completed on separate nights of the same week at the Lodge transect, followed by three separate surveys the following week at Ronny Creek. Although regular single monthly counts will be continued to maintain an understanding of the health and general numbers of the wombats, these results will no longer be used to interpret monthly variation.

CHANGE TO DATA COLLECTED

In addition to the regular monthly monitoring, the new quarterly/seasonal replicate surveys will adopt the methodology outlined in the 'DPIPWE Wombat Monitoring and Mange Scoring Guidelines' with the data collected including a body condition score (A-D), a mange assessment of the rear, side, front and head of the animal and a confidence rating in the score given. Furthermore, it has been noted that there is a large population North of the National Park at Middlesex Plains where the area is open and wombats are easily viewed. It is recommended that a driving survey be added to the monitoring regime to provide a potential early warning for health changes moving toward the park.

HOW WE WOULD TACKLE AN OUTBREAK – MAPPED BURROWS

A long-term recommendation is to map all burrows at both sites to gain a better understanding of the density and locations of wombats to assist with any local mange treatment programs. This includes the current practice of implementing 'burrow flaps' donated by Wombat Rescue Tasmania Inc. at active burrows to apply Cydectin chemical on wombats with mange. Thanks to the assistance of the Cradle Mountain Wildcare Volunteers, many of the wombat burrows within the regular 'transect 1' survey area, North of the Pencil Pine Creek have been mapped using the app Fulcrum. As the creek forms a natural barrier for the spread of mange it is considered that this would be a good place to get ahead of its movement. A single infected animal can have multiple burrows within an area and the mite can survive within the ideal conditions of that burrow for a prolonged period, potentially infecting the next wombat to utilise the same burrow. This information could be highly valuable and used to install 'Cydectin burrow flaps' in all burrows surrounding the sighted infected animal as quickly as possible to treat the wombat and prevent further spread of the parasite. It is also recommended to manage the visitor impact on wombat populations at both sites by restricting access into their feeding/burrow areas. This is to be achieved with the installation of barriers and multi-lingual signs directing visitors to stay on the designated tracks.



References

DPIPWE 2017 *Wombat Population Trends in Tasmania: 1985-2017*, Department of Primary Industries, Parks, Water and Environment, Tasmanian Government <http://dPIPWE.tas.gov.au/wildlife-management/fauna-of-tasmania/mammals/possums-kangaroos-and-wombats/wombat/wombat-mange/monitoring-data>

Martin, A.M., Burridge, C. P., Ingram, J., Fraser, T.A., and Carver, S. (2018) Invasive pathogen drives host population collapse: Effects of a travelling wave of sarcoptic mange on bare-nosed wombats. *Journal of Applied Ecology*, **55**, 331-341

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Figure 1. Transect 1 Cradle Mountain Lodge: Survey route for monthly monitoring of the common Wombat at Cradle Mountain National Park.



Figure 2. Transect 2 Ronny Creek boardwalk: Survey route for monthly monitoring of the common Wombat at Cradle Mountain National Park.

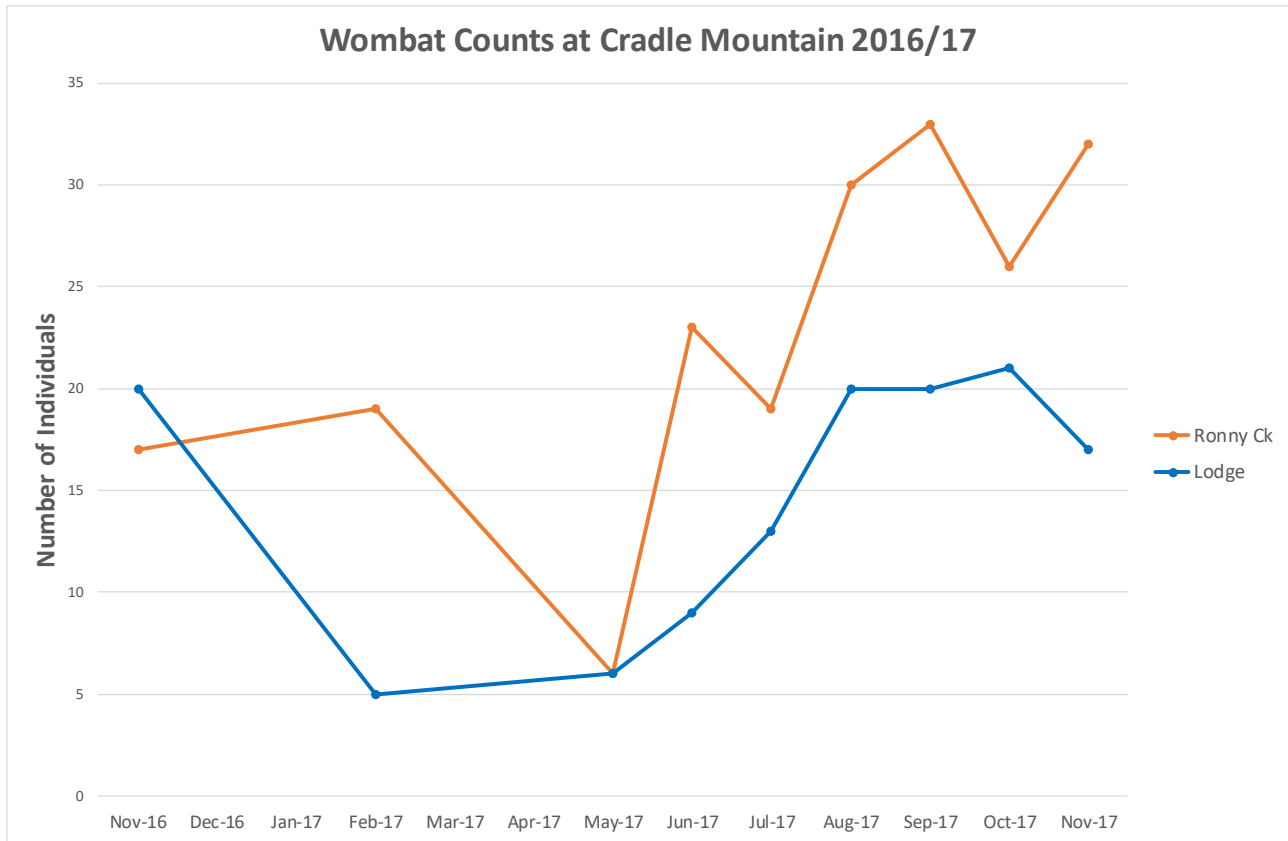


Figure 3. Wombat population trends at Cradle Mountain National Park over two transects between the months of November 2016 to November 2017.

Table 1. Body Condition Scoring (adopted from UTAS Wombat Mange Data Sheet)

Score	Description
1	Balding, emaciated
2	Thin hair, matted, very thin, spine, hips, ribs visible
3	Thin hair, smooth hair, no extra fat, spine may be visible
4	Healthy fur (smooth, shiny), a little extra fat around belly
5	Smooth fur, very fatty on belly

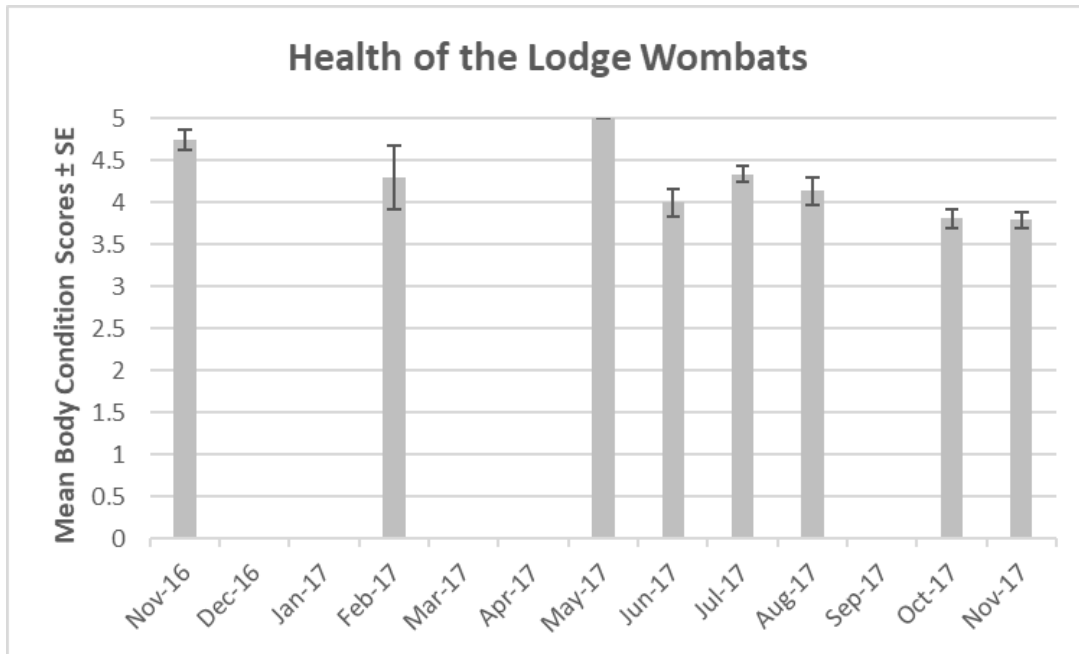


Figure 4. Mean body condition scores of the common bare-nosed wombat at the Cradle Mountain Lodge Transect (1) at Cradle Mountain National Park. Body condition scored between 1 and 5, 1 being emaciated and balding and 5 being smooth fur and very fat around the stomach. Error bars represent standard error (SE).

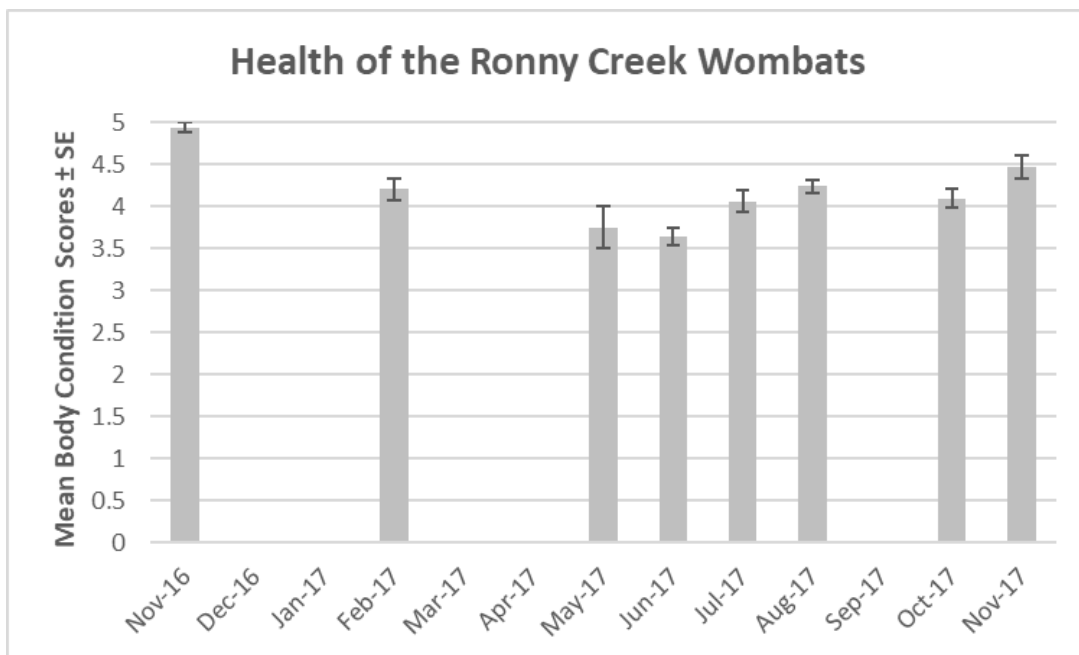


Figure 5. Mean body condition scores of the common bare-nosed wombat at Ronny Creek Boardwalk Transect (2) at Cradle Mountain National Park. Body condition scored between 1 and 5, 1 being emaciated and balding and 5 being smooth fur and very fat around the stomach. Error bars represent standard error (SE).