

Bare-nosed wombat

Vombatus ursinus

Near Threatened (*Nature Conservation Act 1992*) | Ecological Sciences, Queensland Herbarium

Identification

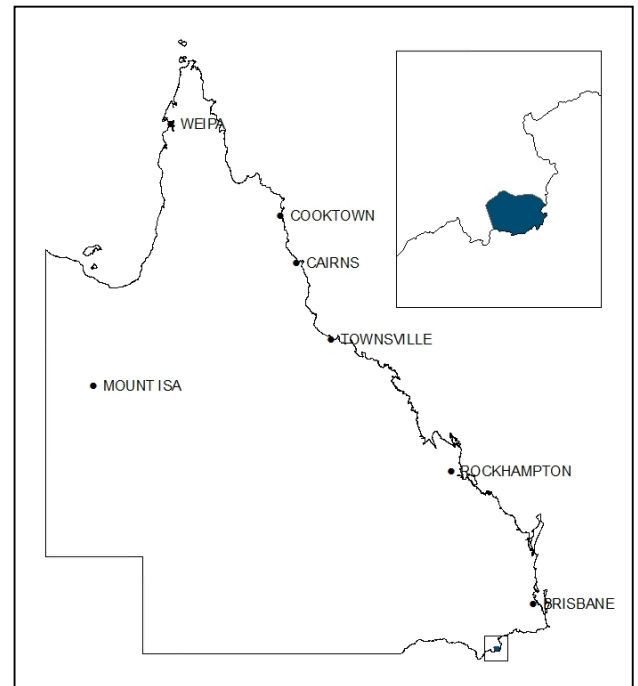
A large and stocky herbivorous marsupial with a flattened head, a bare nose and short, rounded ears. The grey-brown fur is coarse and thick. Head-body length is 840 – 1150 mm with a very short tail (25 mm); weighs 22-39 kg (McIlroy 2008). It is distinguished from the hairy-nosed wombats *Lasiorhinus* by having narrower nasal bones, a more rounded muzzle profile and shorter, more rounded ears (McIlroy 2008; Menkorst and Knight 2010).



Photo by Queensland Government

Distribution

While the core range of the bare-nosed wombat is south-eastern Australia, it has a fragmented and discontinuous distribution from the Stanthorpe area in southern Queensland to south-eastern South Australia; as well as Flinders Island and Tasmania (McIlroy 2008; Taggart et al. 2008). The most northerly populations south-eastern Queensland and in northern NSW now consist of multiple patchy populations restricted to sclerophyll forest above 600 m altitude (McIlroy 2008), although most known burrow locations in Queensland since 2005 have been above 800 m altitude (McLellan unpubl. data). The bare-nosed wombats in, and within a few kilometres of Girraween National Park, appear to be the last remaining population in Queensland. The next closest population is likely to be in Boonoo Boonoo NP approximately 20 km away in NSW (McGowan 2012).



Habitat

In general, the bare-nosed wombat prefers temperate, partly forested habitats (Evans et al. 2006); digging their burrows in sandy, rather than rocky soils (Roger et al. 2007). By contrast, bare-nosed wombats of the Granite Belt in Queensland prefer burrowing on top or along ridgelines, under rocky outcrops or large boulders (McLellan 2010; McGowan 2012).

Around 75% of Girraween wombats use granite caverns, digging relatively short burrows (~8 m long) with one or two entrances into decomposed granite (McLellan 2010), compared to burrows of up to 20 m in length with multiple entrances in the southern extent of the bare-nosed wombat's range (McIlroy 2008).

The Granite Belt population also constructs burrows in the banks of old creek gullies, with around 30% of burrows located within 100 m of a creek (McGowan 2012). Burrows are also found in flat country with suitable soils and dense fern cover (McGowan 2012). Suitable habitat is patchy, with areas of Girraween NP which apparently have no wombat activity at all (McGowan 2012). Throughout its range the bare-nosed wombat prefers burrow locations under eucalypt forest cover, which provides protection from extreme weather and predators (Roger et al. 2007; McGowan 2012).

Bare-nosed wombat burrows in Queensland have been most frequently recorded in the following Regional Ecosystems:

- 13.12.1 New England blackbutt *Eucalyptus campanulata* open forest on igneous rocks (51% of burrow records),
- 13.12.2 Gum-topped peppermint *E. andrewsii*, large-fruited stringybark *E. youmanii* woodland on igneous rock (25% of burrow records),
- 13.12.5 *E. youmanii* on igneous rock on drier hills (18% of burrow records),

with small numbers of records in shrubland (13.12.6), wetland or sedgelands (13.3.1, 13.3.6), other eucalypt woodland-to open forest ecosystems on igneous rocks (13.12.8, 13.12.9) as well as 12.9-10.12 and 13.11.4 (McLellan unpubl. data; WildNet Database 2015).

Seasonal and timing considerations

In general, searches for signs and other inferential evidence such as burrows and scats, as well as hair trapping, can be undertaken at any time of the year. However, bare-nosed wombats can have multiple burrows (up to 20) which they use over a period of several weeks (McIlroy 2008), so determining current occupation of an area or individual burrow potentially needs to be conducted over this timeframe. Activity outside the burrow also has seasonal peaks in spring and particularly autumn (Story et al. 2014), so any survey techniques relying on detecting surface activity (e.g. direct observation, camera trapping, spotlighting and signs such as scats, tracks and fresh signs of burrow excavation, etc.) may be best undertaken at these times of year. Pre-winter burrow refurbishments are common in May, with lots of fresh soil excavated from burrows (McLellan 2010). Wombats are also intolerant of high temperatures and tend to remain in their burrows when it is warmer than 26°C (Wells 1989).

Tracks are best surveyed in the early morning when shadows are long.

Recommended survey approach

Trapping surveys are not considered necessary to determine the presence of the bare-nosed wombat in a survey area (DSEWPaC 2011) as they are readily identified using signs or other indirect methods.

The following survey techniques should be prioritised in order as per the headings below:

Searching for signs (scats, tracks, burrows)

Diurnal searches for signs of activity, particularly their burrows and distinctive cuboidal scats, are the most efficient method in determining the presence of bare-nosed wombats in general. Other signs of activity include freshly excavated soil, scratchings or diggings, absence of debris in burrow entrances (e.g. cobwebs, leaf litter and plant growth), rubbing posts, smooth pads/ runways and tracks (Triggs 2009; McLellan pers comm. 2015).

Conduct walking transects in suitable habitat; recording transect width, visibility (e.g. vegetation density, rain), and time taken to traverse.

Camera trapping

Using infra-red camera traps to detect the presence of wombats is becoming an increasingly popular survey technique. Camera trapping is preferable to live trapping as cameras can be deployed for much longer periods, have fewer ethical issues than live trapping and can be very effective at detecting animals at low densities. To maximise the likelihood of detection, place unbaited camera traps in or adjacent to suitable habitat, particularly on animal runways.

Camera traps can also be used to determine current occupation where wombat signs have been found: position cameras near burrows or runways (DSEWPaC 2011). Set cameras near burrows where they cannot be accidentally interfered with or disabled by wombats (e.g. by excavating dirt onto the camera or by rubbing up against the camera) (Story et al. 2014).

Infra-red camera traps set for a minimum of 14 days, with no time delay, are likely to capture enough detail for a positive identification (see Meek et al. 2012). However most types and models of camera traps are suitable for animals the size of the bare-nosed wombat (Urlus et al. 2014).

Hair analysis

Hair sampling or trapping may be an option where evidence of current activity or even population density information is required. Wombat hairs with intact follicles can be remotely collected by suspending strong double-sided adhesive tape (e.g. TESA brand) horizontally across burrow entrances at approximately wombat-back height (Sloane et al. 2000; McGowan 2012). Tape is secured between stakes or star pickets on earthen burrows or with duct tape in granite caverns (McGowan 2012). Genetic analysis of the hair can provide individual identification which can then be used to calculate density using mark-recapture analysis.

Spotlighting/ Nocturnal searching

Nocturnal observation surveys and/or spotlighting can be conducted in suitable habitat or around potentially active burrows to identify wombats emerging to forage. Spotlighting can be done on foot or from a vehicle, potentially covering large areas quickly; but this technique should always be done in conjunction with diurnal searches for signs and burrows.

Survey effort guide

Detection rates for bare-nosed wombats have varied with different studies, depending on the wombat population density (0.3 – 1.9 ha⁻¹ McIlroy 2008), habitat and survey method. The recommended level of effort below may provide a reasonable opportunity to detect the bare-nosed wombat if present in the project area.

Minimum effort per 5 ha of suitable habitat

Survey technique	Minimum Effort
Searching for signs and burrows	4 hours per survey day. Search 5 m either side of 100 m transects. Resurvey potential habitat (e.g. runways of unknown origin, unused burrows or old and weathered signs) within 14 days or deploy camera traps.
Camera trapping	Infrared cameras with no time delay set for a minimum of 14 days in potential habitat or directed at burrows/runways as outlined above.

Ethical and handling considerations

- Consider weed and pathogen spread when using equipment in multiple locations as these can be transported via dirty equipment.
- Wear gloves when handling scats and other animal signs to reduce exposure to zoonotic diseases.

Acknowledgements

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Citation

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