# Coastal sheathtail bat *Taphozous australis*

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


Photo by Eddie Adams

## Identification

Fur is grey-brown and slightly lighter on the belly. Both sexes have a well-developed wing pouch near the wrist. Males also have a well-developed throat pouch and a rudimentary pouch ridge is present in females. This is the smallest *Tahopzous* species present in Queensland; weight 19-23 g, forearm length 61-68 mm (Churchill 2008). Individuals in the Whitsundays were heavier preceding winter with weights from 24.5 -30.5 g (M. Cali pers. comm. 2011).

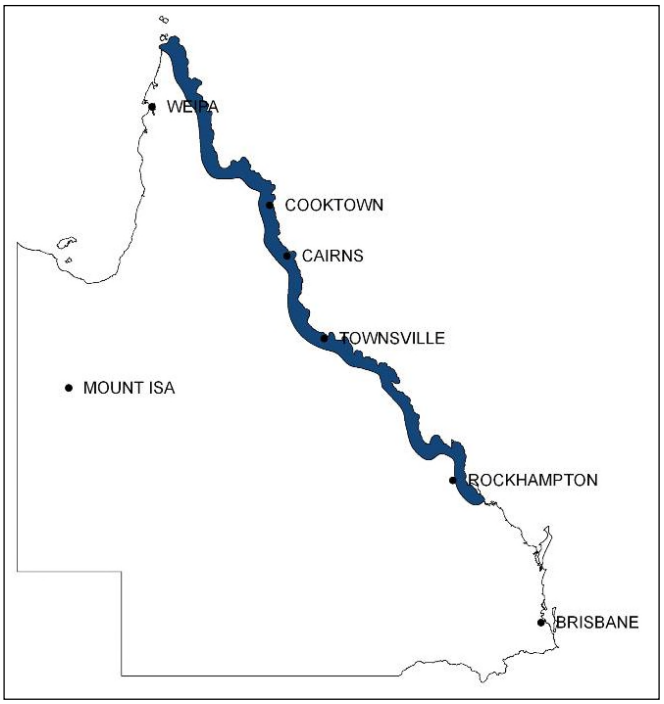
Similar in appearance to Troughton's sheathtail bat *Taphozous troughtoni*, however *T. troughtoni* is larger (forearm length 67-76 mm), and lacks the throat pouch (Churchill 2008).

## Echolocation call

Echolocation calls of *Taphozous australis* are flat or slightly sloped with a characteristic frequency of 23-27 kHz (Cali et al. in prep.). Echolocation calls of this species cannot be distinguished from those of *T. troughtoni* or Beccari's free-tailed bat *Mormopterus beccarii* throughout its range (Reinhold et al. 2001; Cali et al. in prep.).

## Distribution

This species occurs along a very narrow coastal zone in Queensland from Shoalwater Bay, through Cape York Peninsula, to Moa Island in the Torres Strait (Duncan et al. 1999). *Taphozous australis* also occurs on numerous coastal islands off Queensland throughout its range (Duncan et al. 1999). The range of this species extends no more than a few kilometres inland (Richards 2008). Extralimital distribution in Papua New Guinea, where it is known only from three records in Port Moresby and along the Lower Strickland River (Hall et al. 2008).



## Habitat: roosting and foraging

*Taphozous australis* depends on coastal roosts, preferring sea caves and rocky clefts. Also known to roost in disused mines, boulder piles, rock fissures, concrete bunkers, and occasionally in buildings (Duncan et al. 1999; Churchill 2008). Roost conditions vary from warm (26-28°C) and humid (84-92%) in the north to cool and airy with cave temperatures below outside air temperatures in the south (Hoye 1985; Churchill 2008). In the Central Queensland Coast Bioregion *T. australis* utilises airy boulder sea caves with multiple openings located on the rocky foreshore of peninsulas, < 50 m of the Highest Astronomical Tide (Cali et al. in prep.). *Taphozous australis* rarely roosts with other species and small groups of bats roost individually, up to 20 cm apart rather than huddled together (Hoye 1985; Churchill 2008; Cali et al. in prep.).

*Taphozous australis* forages above the canopy in areas of coastal dune scrubland, melaleuca swamps, open eucalypt forest, grasslands, coastal heathland, monsoon forests, and mangroves on lowlands and foothills (Churchill 2008; Cali et al. in prep.). It has also been recorded foraging around lights in urban areas adjacent to native vegetation (Cali et al. in prep.). Forages less than 3 km inland from the coast, but can commute up to 15 km up or down the coast from their roost (Cali et al. in prep.). They have also been observed flying from nearby offshore islands to the mainland to forage rather than foraging on small islands nearby (Churchill 2008; Cali et al. in prep.). Flight is fast and direct with rapid changes in direction or height to capture prey (Churchill 2008).

## Seasonal and timing considerations

Colonies of *T. australis* were undetectable during the winter months along the Central Queensland Coast (M. Cali pers. comm. 2011). Surveys targeting this species are best conducted during warmer months from September to April, particularly in the southern extent of their range.

## Recommended survey approach

Like all *Taphozous*, *T. australis* are difficult to catch in mist nets or harp traps except at the cave entrance (Churchill 2008), and the use of bat detectors is also limited as their calls cannot be distinguished from *T. troughtoni* or *M. beccarii* (Reinhold et al. 2001; Cali et al. in prep.). *Taphozous australis* is most commonly surveyed by searching for roosts.

### Roost searches

Prior to the survey it is important to establish whether there are rocky shores and islands, any mines, caves or bunkers close to the sea, and any known *T. australis* roosts within the project area. These areas should be searched for *T. australis*. Searches for additional roosts within the project area should also be conducted during the survey. Use of a boat may be required to survey or access some areas of the coastline and near shore islands (Cali et al. in prep.). Several hours per day may be required to conduct these searches, dependent on the number of potential roost sites, number of people searching, and difficulty accessing potential roosts. Thorough searching requires walking along rocky coastline areas at low tide and searching boulder piles, fissures and caves (M. Cali pers. comm. 2011).

As it is not possible to distinguish *T. australis* from *T. troughtoni* visually in the roost or via echolocation calls, the capture of individuals in a colony is required to determine the species present. This can be achieved by hand, with a handnet or most successfully by placing mist nets at the roost entrance (due to the difficulty of setting up harp traps and poles on especially rocky foreshores, mist nets may need to be hooked onto the edges of the cave entrance). Where there are multiple entrances it may be necessary to mist net all the larger entrances of a potential roost. Bats can then be flushed into the net or captured as they leave the roost at

dusk. A person is required on the cave side of each mist net to remove captured bats from the net and place them into calico bags. Several bats will be sufficient to obtain an identification.

**Note:** do not use mist nets across the roost entrances unless there is prior knowledge of the number of bats within and the number is not large (< 50). *Taphozous australis* usually roost in colonies of up to 25 individuals, and in the southern part of the range where the species occupies airy boulders and sea caves with multiple openings (Churchill 20008), it is unlikely all bats present in the colony will be captured. However, colonies of up to 100 bats have been recorded (Churchill 2008), and sea caves with few exits may result in many more captures than can safely be dealt with. Therefore a cautionary approach is required.

### Other

As *T. australis* is capable of commuting long distances and colonies on nearby offshore islands may rely on the mainland to forage, this species may still be affected by a proposed development or activity if it impacts on foraging habitat; even when the species is not found roosting within the survey area. Radio telemetry may be necessary to determine the foraging habitat of *T. australis* within the project area.

## Survey effort guide

The recommended level of effort below may provide a reasonable opportunity to verify the presence of *T. australis* in the survey area.

| **Project area: per km of rocky coastline** | |
|---|---|
| **Survey technique** | **Minimum Effort** |
| Roost searches | 1 hour per 2 km of rocky coastline within the survey area |
| e.g. 10 km of rocky coastline in a 15 km stretch within a survey area may require 5 hours of searching, whilst a 15 km stretch of coastline with only a small rocky headland may require only 30 minutes of searching to survey. | |

## Ethical and handling considerations

- Care should be taken when searching roosts and catching bats during the breeding season. Females may be heavily pregnant, have young attached, and/or be nursing crèched young between September and January (Churchill 2008; M. Cali pers. comm. 2011).
- Do not use mist nets across the roost entrances unless there is prior knowledge of the number of bats within and the number is not large.
- The number of people entering or searching a cave at any time should be kept to a minimum.
- Any damage to the bat roost, such as removing rubble blocking corridors is unacceptable, even if these activities would increase the effectiveness of the search.
- Care should be taken when working around or handling microbats due to zoonotic diseases, such as Australian bat lyssavirus (for further information see www.health.qld.gov.au). Only fully vaccinated personnel are to handle bats.

## Acknowledgements

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## Citation

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## Key references

Cali, M., Ball, T. and Adams, E. (In Prep). 'Roosting and foraging behaviour of *Taphozous australis* in the Central Queensland Coast Bioregion'. Department of Environment and Resource Management: Mackay.

Churchill, S. K. (2008). 'Australian Bats'. Allen and Unwin: Sydney.

Duncan, A., Baker, G. B., and Montgomery, N. (1999). 'The Action Plan for Australian Bats'. Environment Australia: Canberra.

Hall, L., Thomson, B. & Richards, G. 2008. *Taphozous australis*. In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. www.iucnredlist.org Accessed 30 May 2011.

Hoye, G. (1985). Observations on bats of Cape Hillsborough National Park, Queensland. *Macroderma* 1, 49-51.

Reinhold, L., Law, B., Ford, G., and Pennay, M. (2001). 'Key to the bat calls of south-east Queensland and north-east New South Wales'. Queensland Department of Natural Resources and Mines: Brisbane.

Richards, G. C. (2008). Coastal sheath-tailed bat, *Taphozous australis*. In 'The Mammals of Australia.' (Eds S. Van Dyck and R. Strahan) pp. 476-477. Reed New Holland: Sydney.