

Tusked frog

Adelotus brevis

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

Identification

Adelotus brevis is a medium sized terrestrial frog with a snout-vent length (SVL) of up to 50 mm (Robinson 1993; Barker et al. 1995; Meyer et al. 2001).

The skin of the dorsum is rough and colouration is dark brown, grey or beige, with a variegated darker patterning (Cogger 2000; Hines 2012). A dark butterfly shaped patch is present on the head, starting between the eyes (Robinson 1993; Hines 2012).

The smooth ventral surface is mottled or marbled white and black/grey. The groin and hind sides of the calves are marbled red and black. Rudimentary webbing present in fingers and toes and no discs are present at the tips (Meyer et al. 2001).

Adult males are larger than the females, the head of the males is also broader and flatter than that of the females. Both males and females have paired tusks located at the front of the lower jaw which can only be viewed when the mouth is open (Robinson 1993; Katsikaros and Shine 1997; Cogger 2000; Meyer et al. 2001; Hines 2012).

May be confused with black soled frog *Lechriodus fletcheri*, gungan *Uperoleia*, broodfrog *Pseudophryne* and froglet *Crinia* species. *Adelotus brevis* can be differentiated from *L. fletcheri* by the white and black/grey mottling or marbling on the ventral surface. The red colouration in the groin and hind sides of the calves distinguish *A. brevis* from *Pseudophryne* and *Crinia* species. *Adelotus brevis* may be distinguished from *Uperoleia* spp. by the red on the back sides of the calves (Robinson 1993; Meyer et al. 2001).

Tadpoles

Total length is up to approximately 35 mm. Body is small and ovoid. Dorsum colouration is dark brown to black, sometimes with a small pale patch on the tip of the snout. The snout is rounded in profile, and the eyes are dorsolateral in position. Ventral surface is dark grey. Tail musculature is dark grey to light brown in colour, and fins are low, mostly clear with fine dark spots (Meyer et al. 2001; Anstis 2002).

Call

A slow, soft advertisement call described as 'pluck', 'p-tuk' or 'p-t-t-tuk' (Meyer et al. 2001; Hines 2012).

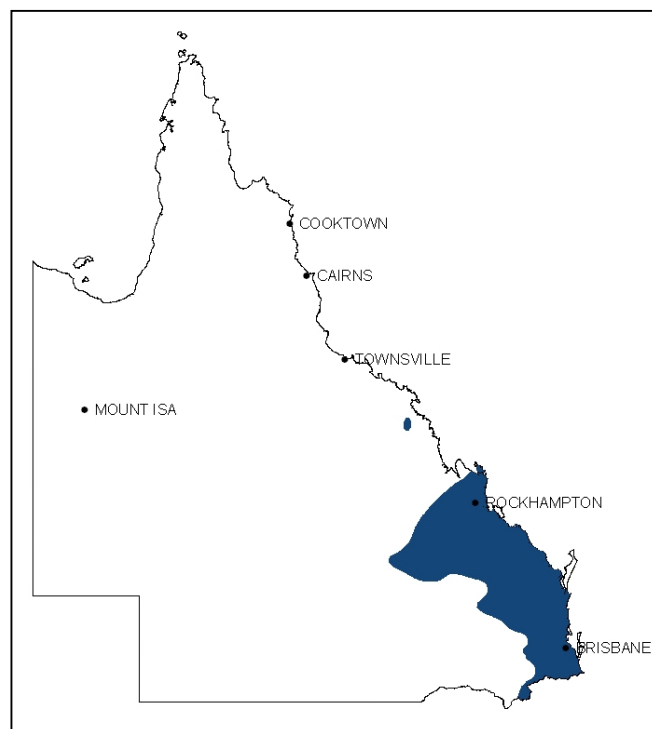


Distribution

Distribution disjunct; occurs in the Clarke Range (mid-east Queensland), then from Shoalwater Bay (mid-east Queensland), south to near Moss Vale (mid-east New South Wales) (Hines et al. 1999; Hines et al. 2004; Hines 2012).

In Queensland, inland populations are also present at Blackdown Tableland and Carnarvon Gorge (Hines et al. 2004; Hines 2012), and in Barakula State Forest (WildNet 2012).

In south-eastern Queensland, it is likely *A. brevis* has disappeared from the New England Tableland and Bunya Mountains, and has suffered declines in the Scenic Rim, probably due to the amphibian chytrid fungus (Hines et al. 1999; Hines et al. 2004; Hines 2012). However, it is still widespread in the lowlands and foothills east of the Great Dividing Range (Meyer et al. 2001; Hines 2012).



Habitat

Inhabits wet eucalypt forest, rainforest, and sometimes dry eucalypt forest, where it can be found in close proximity to suitable breeding habitat such as ponds and slow-moving sections of streams (Cogger 2000; Meyer et al. 2001; Hines 2012).

Also recorded from dams and garden ponds in urban and peri-urban areas (Hines 2012).

Seasonal and timing considerations

Surveys for *A. brevis* should be undertaken during warmer months (September to February), particularly early in spring, when males are most likely to be calling (Hines 2012).

Surveys may be undertaken by day or night. Surveys should be conducted under optimal weather conditions (i.e. after rainfall on warm, humid, and windless days/nights; with surface water present).

To increase the likelihood of detecting this species, surveys should avoid very wet weather, periods when stream levels are above basal flow, and extended dry periods.

Recommended survey approach

Due to the difficulties associated with locating non-calling individuals, it is recommended that observers prioritise survey techniques. Aural and dip-net surveys should be the highest priority, through to trapping being the lowest priority, as indicated by the following headings:

Aural/thorough water body survey

Observer/s can walk more rapidly through suitable habitat listening for calling adult male frogs, in particular targeting breeding habitat (i.e. ponds and slow-moving sections of streams). Where possible, suitable breeding habitat should be systematically searched for frogs and tadpoles. Length of transect/area searched, weather conditions and time spent conducting the survey should be recorded.

Tadpoles may be found in ponds and unconnected stream-side pools. The most effective way to capture tadpoles is with a small hand-held dip net. For identification purposes, tadpoles can be held in a sealable plastic bag, ideally filled with stream/pond water from the point of capture (Meyer et al. 2001).

Thorough searches targeting adult *A. brevis* should focus on low vegetation, debris, and cavities and crevices within or adjacent to water (Hines 2012).

*Note: tadpoles can be very difficult to identify to species-level and usually require highly specialised skills for positive identification, or housing tadpoles for a period of time to allow them to metamorphose into adult frogs, under the appropriate state government permits.

Call playback

Due to their generally cryptic behaviour and known response to call playback (Katsikaros and Shine 1997), this survey technique for *A. brevis* may also be conducted to increase the probability of detection. This method involves broadcasting the call of the species via a tape recorder or MP3 player through a speaker(s).

Call playback should follow a standard technique e.g. initial two minute listening period before call playback commences, followed by three minutes of call playback, followed by another two minutes of listening.

Acoustic recorders

Acoustic recorders can be left to record all calling male frogs heard from one vantage point for a period of time. Recorders should be deployed at the start of spring (i.e. early September), in close proximity to suitable breeding habitat, and left to record for two weeks to a few months (depending on rainfall).

Stream noise may be an issue with detecting calls, therefore recorders should be positioned to reduce this interference, where possible.

Analysis of calls (post-recording) to detect presence of the species should target periods (day or night) when frogs are most likely to be calling (e.g. after rainfall periods).

Pitfall and funnel trapping

Pitfall and funnel trap arrays can be used to detect animals moving between water bodies, in particular non-calling males (Katsikaros and Shine 1997).

Trapping arrays should be established in close vicinity of suitable breeding habitat to maximise capture success.

Survey effort guide

There is limited published information on detection rates for *A. brevis* (Parris et al. 1999). Some of the recommended effort below is based on this published material, and when implemented in appropriate habitat, weather conditions and season, should provide a high likelihood of detecting *A. brevis*.

If suitable habitat is limited within the project area, thorough searches should be repeated multiple times over the same section(s) of suitable breeding habitat.

Minimum effort within suitable breeding habitat during optimal conditions			
Survey technique	Effort per survey period	Effort per survey	Number of survey periods
Aural/thorough water body survey	300 m per 1000 m of water body perimeter and/or stream, or total of 900 m if < 1000 m present; at least 20 minutes per 100 m	Spread over 3 or more nights	2 surveys
Call playback	2 playback sessions per 5 ha (or 300 m)	2 surveys (i.e. 1 per night per site)	2 surveys
Acoustic recorders	2 recorders per ha (or 50 m)	1 month	1 survey
Pitfall and funnel trapping	4 pits and 6 funnel traps per ha	4 nights	2 surveys

Ethical and handling considerations

General

- Minimise habitat disturbance at breeding sites.
- Avoid chemical contact with the environment and animals while handling (e.g. insect repellent).
- Strict hygiene protocols should be implemented to minimise disease and pathogen (e.g. chytrid fungus) spread (for further information see www.ehp.qld.gov.au).
- Avoid handling individuals as it may affect their behaviour and/or health. If necessary, use appropriate handling methods for examination (i.e. holding frogs by their back legs).
- Any captured animals should be released at the site of capture as soon as possible after identification.
- Avoid prolonged exposure of animals to the spotlight beam. For longer observation periods, dim the light or use an infrared beam or a red filter.

Trapping

- Traps must be thoroughly checked early in the morning before temperatures become too hot.
- Provide shelter in the bottom of the buckets and over the top of funnel traps to reduce predation and exposure (heat, cold and dehydration) of trapped animals. For funnel traps, we recommend at least 70 % shade-cloth however silver roof insulation or dense vegetation are alternatives. Dehydration can be a problem, especially for amphibians, when humidity is low. Using vegetation cover or moistening the soil under the funnel/moistening the soil in the bucket can reduce this risk.
- Close pitfall trapping buckets if they begin to fill with water and do not reopen until the risk of drowning has passed.

- Ants preying on trapped animals can be a problem so locate traps away from obvious ant nests and be vigilant for ant activity. If they become a problem (e.g. they are attacking captured animals) and cannot be controlled the traps should be immediately closed.
- Take care when checking funnel traps as they may trap venomous animals; personnel should be trained in the removal of venomous snakes.
- Consider weed and pathogen spread when using equipment in multiple locations as these can be transported via dirty equipment.

Acknowledgements

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Citation

Rowland, J. 2013. Tusked frog, *Adelotus brevis*. Targeted species survey guidelines. Queensland Herbarium, Department of Environment and Science, Brisbane.

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