

Wallum froglet

Crinia tinnula

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

Identification

Crinia tinnula is a small, terrestrial frog measuring less than 22 mm in length (snout-to-vent length 16-18 mm for adult males and 16-22 mm for females) (Meyer et al. 2006; Meyer 2012).



Colouration and pattern of the dorsum is highly variable, as is typical of the genus *Crinia*. Individuals may be grey, brown, russet and/or olive-brown above with irregular darker markings or longitudinal stripes. The ventral body surface is off-white to dark grey in colour with light and/or darker stippling and a narrow cream stripe running down the middle of the throat.

In some individuals, this faint white stripe extends beyond the throat to the belly. The snout is often pointed in profile projecting beyond the lower jaw. The toes and fingers are free of webbing and possess no discs or pads (Barker et al. 1995; Cogger 2000; Meyer et al. 2006).

Crinia tinnula may be confused with other sympatric *Crinia* species (i.e. clicking froglet *C. signifera*, chirping froglet *C. deserticola* and beeping froglet *C. parinsignifera*). It differs from these species by having a pale white line on the throat, snout profile, and call (Barker et al. 1995; Cogger 2000; Meyer et al. 2006). In addition, it is rare to find *C. tinnula* in association with *C. parinsignifera*, except in disturbed habitat (Meyer et al. 2006).

Tadpoles

Total length is up to 37 mm. Body is ovoid and mostly dark brown or grey with irregular dark markings. Snout is broadly rounded in profile and the dorsolateral eyes are quite large relative to body size. The tail fins have a brown musculature and are semi-transparent with dark patches, fine reticulations and flecking, which can sometimes be gold or silver).

The underside of tadpoles is usually marked with silver-gold spots/flecking (Anstis 2002; Meyer et al. 2006).

Call

A short high-pitched 'tching' or 'tcheh' (Barker et al. 1995; Meyer et al. 2006).

Distribution

Confined to the coastal lowlands and sand islands of south-east Queensland and New South Wales (Meyer et al. 2004; Meyer et al. 2006; Meyer 2012). Occurs from Kurnell (New South Wales), north to Littabella National Park (Queensland) (Hines et al. 1999; Meyer et al. 2004; Meyer et al. 2006).

In Queensland, populations of *C. tinnula* are known from Moreton Island, Bribie Island, North Stradbroke and Fraser Islands, as well as adjacent areas on the mainland (Meyer et al. 2006; Hines and Meyer 2011; Meyer 2012).

Habitat

Inhabits acid paperbark (*Melaleuca*) swamps, sedgelands and drainage lines in wet heath. Also found in disturbed wallum habitat, such as exotic pine plantations, quarry site, recently burnt heathland, 4WD-impacted areas and roadsides (Meyer et al. 2006; Hines 2008; Hines and Meyer 2011; Meyer 2012).

Dispersing or non-breeding individuals have been recorded in sclerophyll forest and dry heath, in some cases a considerable distance from the nearest water body (Meyer et al. 2006; Hines and Meyer 2011; Meyer 2012).

Seasonal and timing considerations

Crinia tinnula has been recorded breeding in all seasons following significant rainfall events. Surveys for this species may therefore be undertaken any time of year shortly after heavy rain.

At most times of year, calling males are most likely to be detected at night. During winter months, however, calling activity may be greater during daylight hours.

Recommended survey approach

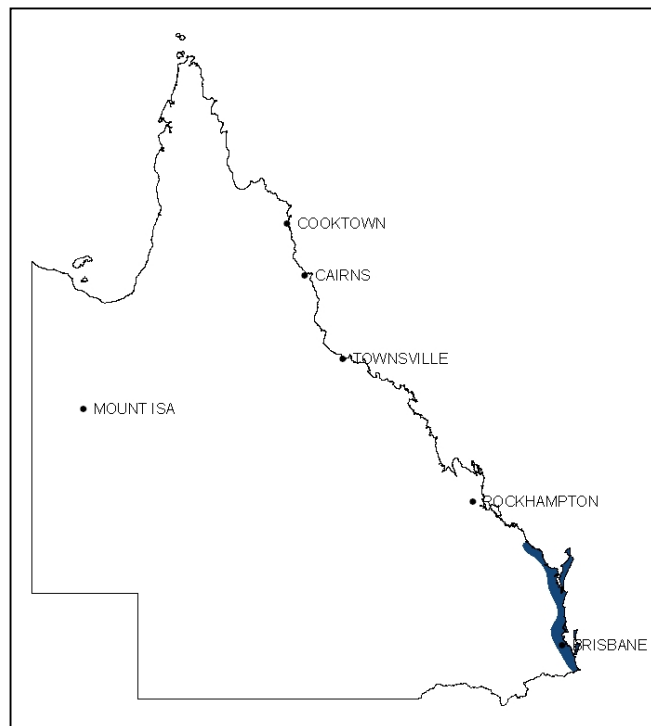
It is usually difficult to detect this species visually, especially in more dense vegetation. Thus, aural censuses are the preferred active survey method. If *C. tinnula* is not detected in the first round of aural surveys, surveys should be undertaken in subsequent seasons (i.e. repeat surveys should be spread out over 2-3 seasons) (E. Meyer pers. comm. 2012). A combination of the following survey techniques is recommended:

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 immediately after rainfall (if possible) and left to record for two weeks to a few months, preferably in the vicinity of receding waterbodies.

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).



Thorough aural/visual survey

This survey technique involves observer/s walking through suitable wallum habitat systematically listening (calling adult males) for frogs and searching for tadpoles. Length of transect, weather conditions and time spent conducting the survey should be recorded.

Aural censuses targeting calling *C. tinnula* and searches for larvae should focus on receding water bodies (after heavy rainfall) within suitable habitat (Meyer et al. 2006).

The most effective way to capture tadpoles is with a dip net. For identification purposes, tadpoles can be held in a sealable plastic bag filled with stream/pond water from where it was captured (Meyer et al. 2001).

*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.

Pitfall and funnel trapping

Pitfall and funnel trap arrays could be used in addition to other survey techniques. Trapping arrays should be established in close proximity to suitable wallum habitat to maximise capture success.

Survey effort guide

Although there is currently no published information on detection rates for *C. tinnula*, the recommended effort below, when implemented in appropriate habitat, weather conditions and season(s), should provide a high likelihood of detecting *C. tinnula*.

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

Minimum effort within suitable breeding habitat during optimal conditions			
Survey technique	Effort per survey period	Effort per survey	Number of survey periods
Acoustic recorders	2 recorders per ha (or 50 m)	2 weeks	1 survey
Thorough aural/visual survey	Three 100 m transects per ha or if ≤ 1 ha 2 transects; at least 30 minutes per 100 m	Spread over 2 or more nights	2 surveys
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. If transects are established in wet wallum habitat, take care not to deviate from transects at any time.
- 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 prolonged exposure of animals to the spotlight beam. For longer observation periods, dim the light or use an infrared beam or a red filter.
- Avoid handling individuals as it may affect their behaviour and/or health. If necessary, use appropriate handling methods for examination (i.e. examining individuals through a plastic ziplock bag with minimal touching of frogs).
- Any captured animals should be released at the site of capture as soon as possible after identification.

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.

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Citation

Rowland, J. 2012. Wallum froglet, *Crinia tinnula*. Targeted species survey guidelines. Queensland Herbarium, Department of Environment and Science, Brisbane.

Key references

- Anstis, M. (2002). 'Tadpoles of south-eastern Australia'. Reed New Holland: Sydney.
- Barker, J., Grigg, G.C. and Tyler, M. J. (1995). 'A field guide to Australian frogs'. Surrey Beatty and Sons: Chipping Norton.
- Cogger, H. G. (2000). 'Reptiles and amphibians of Australia'. Reed New Holland: Sydney.
- DEWHA (2010). 'Survey Guidelines for Australia's Threatened Frogs'. Department of Environment, Water, Heritage and the Arts: Canberra, Australia.
- Hines, H. (2008). Presidential address 2008. Frogs of the southeast Queensland bioregion. *Queensland Naturalist* 46, 29-43.
- Hines, H. B. and Meyer, E. A. (2011). The frog fauna of Bribie Island: an annotated list and comparison with other Queensland dune islands. *Proceedings of the Royal Society of Queensland*, 261-274.
- Hines, H., Hero, J-M., Meyer, E., Newell, D. and Clarke, J. (2004). *Crinia tinnula*. In: 'IUCN 2011. IUCN Red List of Threatened Species'. Version 2011.2. www.iucnredlist.org Accessed 22 February 2012.
- Hines, H.B., Mahony, M. and McDonald, K. (1999). An assessment of frog declines in wet subtropical Australia. In 'Declines and disappearances of Australian frogs' (Ed A. Campbell) pp. 44-63. Environment Australia: Canberra.
- Meyer, E., Hero, J-M., Shoo, L. and Lewis, B. (2006). 'National recovery plan for the wallum sedgefrog and other wallum-dependent frog species'. Report to Department of the Environment and Water Resources, Canberra. Queensland Parks and Wildlife Service: Brisbane.
- Meyer, E.A., Hines, H.B, Clarke, J.M., Hodgson, J. and Gynther, I. (2004). Occurrence of the wallum froglet (*Crinia tinnula*) at Littabella National Park, south-eastern Queensland. *Memoirs of the Queensland Museum* 49, 691-692.
- Meyer, E. (2012). Wallum froglet, *Crinia tinnula*. In 'Queensland's Threatened Animals' (Eds L. K. Curtis, A. J. Dennis, K. R. McDonald, P. M. Kyne and S. J. S. Debus) pp. 147-148. CSIRO Publishing: Collingwood.