

Cascade treefrog

Litoria pearsoniana

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

Identification

Litoria pearsoniana is a small tree frog with a snout-vent length (SVL) of 24-29 mm for males and 31-40 mm for females (Barker et al. 1995; Meyer et al. 2001).



The skin of the dorsum is smooth to finely shagreened, with variable colouration, from bright green to combinations of green and brown to dark brown: sometimes with small black spots or reticulations. A faint gold/cream stripe extends from the nostril, through the eye and over the tympanum, down the flanks to the mid-body. This stripe is underlined in brown, broadening as it runs along the sides to the mid-body (Robinson 1993; Barker et al. 1995; Meyer et al. 2001; Hines 2012). A pale line may be present along the upper lip (Hines 2012). The edges of the foot and heel are gold- or white-lined. The tympanum is usually brown and distinct (Meyer et al. 2001).

Ventral surfaces are granular and white or cream in colour. The posterior of the thighs and groin are yellowish tan to brick red. The finger and toe discs are well-developed and large, and only the toes are fully webbed (Robinson 1993; Barker et al. 1995; Meyer et al. 2001; Hines 2012). Metamorphs typically beige on dorsum and ventral surface usually yellow, with a white spot present beneath eye (Meyer et al. 2001).

May be confused with New England treefrog *L. subglandulosa* and eastern sedgefrog *L. fallax*. It can be distinguished from *L. fallax* by its blunt snout profile (snout slopes back towards mouth in *L. fallax*), when viewed from side-on. The presence of the white or gold-edged heel and foot in *L. pearsoniana* is absent in *L. subglandulosa* (Meyer et al. 2001; Hines 2012).

Tadpoles

Total length is up to approximately 40 mm. Body is small and globose. Dorsum colouration is a pale golden during early stages, becoming uniform dark brown, sometimes with dark spots, in the later stages. Snout is rounded in profile, and eyes are dorsolateral.

Ventral surface is transparent. Tail musculature is moderate and grey to light brown in colour, and fins are mostly clear with fine dark spots (Meyer et al. 2001; Anstis 2002; Hines 2002).

Call

A chuckling, three-note call described as "weeeak kik kik" lasting for 0.8 to 1.8 seconds (Barker et al. 1995; Meyer et al. 2001; Hines 2002).

Distribution

Distributed from just south of Gympie (Queensland), to north of the Hunter Valley (New South Wales) (Hines et al. 1999).

In Queensland, *L. pearsoniana* has suffered declines in the past (e.g. Brisbane Forest Park and Conondale Range), this is likely attributed to the amphibian chytrid fungus. However, there has been recovery in some places and it is currently considered the most widespread and abundant stream-dwelling frog in wet forest areas, such as the Conondale, D'Aguilar and Main Ranges (McGuigan et al. 1998; Hines et al. 1999; Hero et al. 2004; Hines 2012).

Historically known from Girraween National Park, though there have been no recent records and is suspected to be extinct in that area (Hines 2012).

Habitat

Found in rainforest gullies and adjacent wet sclerophyll forest, in association with flowing streams (Robinson 1993; Barker et al. 1995; Hines 2002; Hines 2012). Occasionally inhabits ponds within these habitats (H. Hines pers. comm. 2012).

Seasonal and timing considerations

The optimal time and season to survey for *L. pearsoniana* is at night during the breeding season/warmer months (September to February) (Murray et al. 2009; Hines 2012).

Surveys should be conducted under optimal weather conditions (i.e. during and after rain and/or spring/early summer storms on warm, humid, and windless nights). To increase the likelihood of detecting this species, surveys should avoid extended dry periods, very wet weather and times when stream levels are above basal flow (H. Hines pers. comm. 2012).

Recommended survey approach

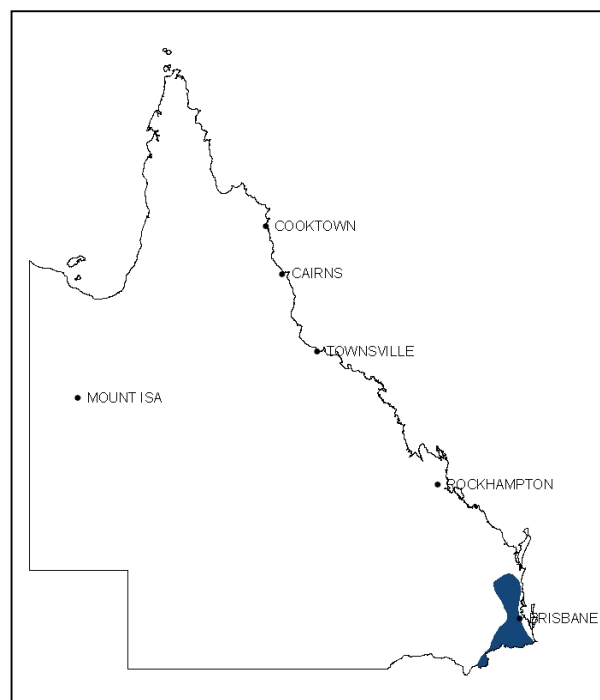
A combination of the following survey techniques is recommended:

Thorough stream survey

This survey technique involves observer/s walking through suitable stream habitat systematically searching and listening (calling adult males) for frogs and tadpoles. Length of transect, weather conditions and time spent conducting the survey should be recorded. Thorough searches targeting adult *L. pearsoniana* should focus on low vegetation, debris and rocky sections either within, or bordering streams (Hines 2012). Keep in mind that metamorphs are often abundant amongst these microhabitats in summer and autumn.

Tadpoles can be found in unconnected, stream-side pools. The most effective way to capture tadpoles is with a dip net. For identification purposes, tadpoles can be held in a sealable plastic bag, ideally 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.



Call playback

Due to their sometimes cryptic and infrequent calling behaviour, call playback for *L. pearsoniana* may also be conducted to increase the probability of detection. This technique 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 in late spring/early summer and left to record for two weeks to a few months, preferably in the vicinity of vegetation overhanging the stream. Stream noise can also be an issue with detecting calls thus recorders should be positioned to reduce this interference, where possible.

Recording and analysis of calls (post-recording) should target periods when frogs are most likely to be calling (i.e. early evening). Keep in mind that frogs may also be active and calling on warm overcast days (Meyer et al. 2001).

Survey effort guide

There is limited published information on detection rates for *L. pearsoniana* (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(s), should provide a high likelihood of detecting *L. pearsoniana*. If suitable habitat is limited within the project area, transects should be repeated multiple times over the same section(s) of stream.

Minimum effort within suitable breeding habitat during optimal conditions			
Survey technique	Effort per survey period	Effort per survey	Number of survey periods
Thorough stream survey	300 m per 1000 m or total of 900 m if < 1000 m habitat present; at least 20 minutes per 100 m	Spread over 2 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)	2 weeks	1 survey

Ethical and handling considerations

- 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 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 of 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.

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Citation

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