

## White-bellied and Orange-bellied Frogs *Geocrinia* species

Conservation Status: Critically Endangered and Vulnerable

### Identification

The white-bellied frog *Geocrinia alba* and orange-bellied frog *Geocrinia vitellina* are two small species of frogs that are endemic to Western Australia and are both restricted to small areas in the lower southwest. There are also two other *Geocrinia* species found in the similar habitats in the southwest.

The white-bellied frog has a light brown to grey back with two parallel rows of darker brown wart-like spots along the body. The belly is white, with or without a very faint yellow wash. Toes are short and unwebbed. The males make a mating call that is a series of 11-18 rapid pulses repeated irregularly. You can listen to a recording of the call on the Western Australian Museum's [website](#).

*White-bellied Length:* 2.0-2.4cm (males) and 1.7cm (females)

The orange-bellied frog is similar-looking to the white-bellied frog, except that it has a bright orange or egg-yolk yellow coloured belly. The males making a mating call that is a series of 9-15 slow pulses repeated irregularly. You can listen to a recording of the call on the Western Australian Museum's [website](#).

*Orange-bellied Length* 2.1-2.5cm (males) 1.8cm (females)

### Taxonomy

**Family:** Myobatrachidae

**Genus:** *Geocrinia*

**Species (white-bellied):** *alba*

**Species (orange-bellied):** *vitellina*

**Other common names:** the orange-bellied frog is also sometimes referred to as the yellow-bellied frog, because some have a bright yellow belly rather than a bright orange belly.

### Distribution and Habitat

Both species have naturally restricted and patchy distribution in the lower southwest of WA. The white-bellied frog is only found in swampy flows where the Leeuwin-Naturaliste Ridge and Blackwood Plateau intersect. The orange-bellied frog is only found in a small number of tributaries on the northern side of the Blackwood River.

Both species are not known to co-occur but they are found in similar swampy habitats, associated with broad drainage lines, dense riparian vegetation and sandy soil.

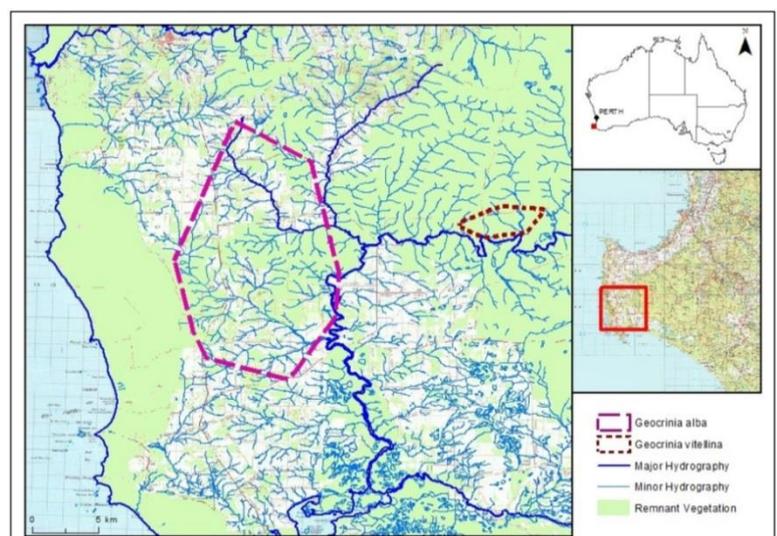
For further information regarding the species distribution, please refer to [www.naturemap.dpaw.wa.gov.au](http://www.naturemap.dpaw.wa.gov.au).



White-bellied frog. Photo: Perth Zoo



Orange-bellied frog. Photo: Perth Zoo



General areas where *Geocrinia alba* (left) and *Geocrinia vitellina* (right) are known to occur (Parks and Wildlife, 2014).

## Community Involvement

If you think you have seen a white-bellied or orange-bellied frog, fill out a [fauna report form](#) and send it to the Department's Species and Communities Branch at [fauna@dbca.wa.gov.au](mailto:fauna@dbca.wa.gov.au). The Department keeps track of the distributions of threatened species to help monitor population trends and inform management decisions.

The Department runs a variety of volunteer projects across WA including scientific research, community education and manual labour. Further information about these opportunities can be found on the Department's [webpage](#).

## Biology and Behaviour

White-bellied and orange-bellied frogs are fully terrestrial breeders. Males generally chorus in spring (September to November). They call from small, damp depressions (burrows) that are usually under leaf litter, moss or other vegetation. Amplexus (mating) and oviposition (egg laying) occurs within the burrow, where the eggs are laid in a jelly-mass and left unattended. Clutch size varies, but on average a clutch contains 10-12 eggs. Females that lay earlier in the breeding season tend to produce more and larger offspring.

The eggs hatch and the tadpole develops and metamorphoses within the burrow. There is no free-swimming stage or feeding during development. The juveniles leave the burrow after metamorphosis. Juvenile development is slow and sexual maturity is reached at approximately 2-3 years. Life spans can be up to 6 years but adult mortality is so high that most only live through one breeding season.

Both species are basically sedentary, with genetic information indicating that there is very limited to no migration amongst and between populations for any life stage or sex, including at very local scale. One study found that 95% of male frogs moved less than 5m in a year, and less than 20m between years.

## Conservation Status

The white-bellied and orange-bellied frogs are recognised as a threatened species under State and Commonwealth legislation. In Western Australia the species is listed as fauna that is 'likely to become extinct' in the wild (Specially Protected) under the [Wildlife Conservation Act 1950](#) and have been assigned the threat status ranking of Critically Endangered (white-bellied frog) and Vulnerable (orange-bellied frog) using [International Union for Conservation of Nature](#) (IUCN) criteria. Nationally the species are listed as Endangered (white-bellied frog) and Vulnerable (orange-bellied frog) under the Commonwealth [Environment Protection and Biodiversity Conservation Act 1999](#).

Threats to both species include:

- Physical habitat disturbance from domesticated animals (cows, feral pigs) and humans;
- Hydrological changes due to drought and anthropogenic uses (dams, drainage lines, water extraction);
- Vegetation clearing of habitat (particularly for agricultural purposes);
- Wildfire and inappropriate fire regimes;
- Changes in water quality (particularly due to contamination from fertilisers, herbicides, pesticides etc.);
- Disease; and
- Climate change.

There are gaps remaining in the knowledge about the species' habitat requirement and ecological thresholds. This lack of knowledge is considered a threat because it is limiting the development and implementation of the best management strategies for the species recoveries.

## Management

### Recovery Plan

A [recovery plan](#) has been produced for the white-bellied and orange-bellied frogs, and it outlines the recovery actions required to maintain or increase the current extent and viability of both species. Recommended actions from this plan include:

- Protect and effectively manage populations and the habitat critical to their survival.
- Increase the species viability through population augmentation and establishment.
- Implement an evidence-based management approach.
- Increase community awareness and understanding of the species.

## Existing Conservation Measures

The *Geocrinia* Recovery Team, currently led by the Department of Biodiversity, Conservation and Attractions, has been assisting with the implementation of recovery actions as outlined in the past and current recovery plans since the early 1990s.

All *Geocrinia vitellina* sites and some *Geocrinia alba* sites are within the Blackwood River National Park and other Department managed land. Management of this land for the benefit of the two species includes fire management and feral pig control. The majority of the *Geocrinia alba* sites are on the private land, and conservation fences have been constructed to protect the species' habitat from damage by livestock.

Research has been conducted into *Geocrinia* genetics, and the results of this study have informed management strategies for both species.

Since 2008, [Perth Zoo](#) has been successfully rearing eggs collected from the wild and captive breeding both white-bellied and orange-bellied frogs for release into the wild. The Department, with Perth Zoo's captive-reared and captive-bred frogs, has conducted translocation of both species to augment existing populations and introduce to new sites.

The Department, with the aid of NRM funding, conducts regular monitoring of white-bellied and orange-bellied populations. The Department has also undertaken surveys to find new populations and improve knowledge of their distributions.

## Citation

Department of Biodiversity, Conservation and Attractions. (2017). *Fauna profiles: White-bellied and Orange-bellied Frogs Geocrinia species*. Retrieved from <http://www.dbca.wa.gov.au/>

## Key References and Further Reading

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Tyler, M. and Doughty, P. (2009). *Field Guide to Frogs of Western Australia* (4<sup>th</sup> ed.). Perth, WA: Western Australian Museum.

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