



# **Habitat preferences and water requirements of the green and gold frog (*Litoria raniformis*) and striped march frog (*Limnodynastes peroni*)**

Water Assessment Branch  
Department of Primary Industries and Water  
Report compiled for Water Resources Division  
Technical Report No. WA 07/10  
July 2007

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#### Preferred Citation:

DPIW (2007). Habitat preferences and water requirements of the green and gold frog (*Litoria raniformis*) and striped march frog (*Limnodynastes peroni*). Technical Report No. WA 07/10. Water Assessment Branch, Department of Primary Industries and Water, Hobart.

**ISSN: 1449-5996**

#### **The Department of Primary Industries and Water**

The Department of Primary Industries and Water provides leadership in the sustainable management and development of Tasmania's resources. The Mission of the Department is to advance Tasmania's prosperity through the sustainable development of our natural resources and the conservation of our natural and cultural heritage for the future.

The Water Resources Division provides a focus for water management and water development in Tasmania through a diverse range of functions including the design of policy and regulatory frameworks to ensure sustainable use of the surface water and groundwater resources; monitoring, assessment and reporting on the condition of the State's freshwater resources; facilitation of infrastructure development projects to ensure the efficient and sustainable supply of water; and implementation of the *Water Management Act 1999*, related legislation and the State Water Development Plan.

## Habitat preferences and water requirements of the green and gold frog (*Litoria raniformis*) and striped march frog (*Limnodynastes peroni*)

*Litoria raniformis* and *Limnodynastes peroni* are the only two frog species in Tasmania that are considered threatened. *Litoria raniformis* is listed as 'vulnerable' under both the Tasmanian *Threatened Species Protection Act 1995* and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and 'endangered' on the *2006 IUCN Red List of Threatened Species* (IUCN, 2006). *Limnodynastes peroni* is listed as 'rare' under the Tasmanian *Threatened Species Protection Act 1995*. Both species are also found on mainland Australia (Anstis, 2002; Robinson, 2000) and currently have restricted and fragmented distributions in Tasmania (Littlejohn, 2003). *Litoria raniformis* is known to occur in central north and north-eastern Tasmania, including the Waterhouse Protected Area which lies in the Great Forester River catchment, and on Flinders Is. (Threatened Species Section, 2006). Isolated populations of *L. peroni* occur in far north-western Tasmania (including King Is.) and north-eastern Tasmania, including the Waterhouse Protected Area. The extent of occurrence of both species is currently uncertain (Threatened Species Section, 2006).

A draft recovery plan for both *L. raniformis* and *L. peroni* has recently been prepared by DPIW (Threatened Species Section, 2006) and a threatened species listing statement is available for *L. raniformis* (Threatened Species Unit, 2001). The recovery plan provides a brief review of the current knowledge of the life cycles and habitat requirements of both species, and it outlines key threats and management actions. Under this recovery plan, DPIW will seek to determine the extent of occurrence of both species by surveying the distribution of known populations and sampling other potential habitats. Key populations will also be monitored regularly to determine their status.

Knowledge of the ecology of these species is limited, particularly associations between instream flows and groundwater fluctuations and their life cycles and habitat use. However, the preferred habitats of *L. raniformis* (Bryant & Jackson, 1999; Littlejohn, 2003; Threatened Species Section, 2006; Threatened Species Unit, 2001; Tyler, 2000) and *L. peroni* (Littlejohn, 2003; Threatened Species Section, 2006), and some aspects of the biology of both species (Anstis, 2002; Littlejohn, 2003; Threatened Species Section, 2006; Tyler, 2000) are known. Based on this information, the following is a summary of the habitat preferences of these species, with a focus on direct and indirect requirements that relate to instream flows and groundwater:

- Both *L. raniformis* and *L. peroni* have similar habitat requirements. They breed in densely vegetated permanent, fresh waterbodies (Littlejohn, 2003). Littoral or shallow areas (<1.5 m deep) that contain complex emergent and submerged aquatic vegetation are used for breeding (Threatened Species Section, 2006). Riparian zones and the greater surrounding areas (including woodlands and forests) are also important for feeding, hibernation and dispersal to other breeding

sites (Threatened Species Section, 2006). Ground cover such as vegetation, rocky substrates and various forms of debris, is important for adults of both species.

- *Litoria raniformis* breeds in spring – early summer and *L. peroni* in late spring – summer (Littlejohn, 2003). The occurrence of sufficient water depths in breeding sites for the survival and development of eggs and tadpoles is critical to both species: tadpoles of *L. raniformis* may take 12-15 months to develop (Littlejohn, 2003). Seasonal water temperature regimes are also likely to be important for the reproductive cycle of these frog species.
- Seasonal instream flows, especially high flows and flood events, help maintain the hydrological regimes of backwaters, connecting wetlands, and the sub-surface watertable. The timing of recharge events in off-stream waterbodies may provide important cues for stages in the life cycles of *L. raniformis* and *L. peroni*.
- Seasonal instream flows, especially high flows and flood events, are important for the maintenance of riparian habitats, including vegetation (Boulton & Brock, 1999). Natural instream hydrological cycles contribute to the structural diversity of riparian habitats by transporting organic material and providing suitable conditions for the recruitment of vegetation. Both adult *L. raniformis* and *L. peroni* use riparian areas for refuge, feeding and dispersal; therefore, instream flow regimes are important for this stage of these life cycle and connectivity between populations.
- Seasonal instream flow regimes and healthy native riparian and terrestrial vegetation help maintain the quality of both surface water and groundwater and, therefore, are important to *L. raniformis* and *L. peroni*.

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