

Management of freshwater wetlands for the endangered green and golden bell frog (*Litoria aurea*): roles of habitat determinants and space

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Abstract

The range of the green and golden bell frog (*Litoria aurea*) has undergone a widespread yet unexplained contraction in south-eastern Australia since the mid 1970s, and the species is now listed as endangered in the New South Wales Threatened Species Conservation Act 1995 and as vulnerable in the federal Environmental Protection and Biodiversity Conservation Act 2000. Although the cause of the range contraction is unknown, remedial action is necessary to ensure the long-term viability of remaining populations. This can include habitat creation around existing populations and reintroduction projects. However, the habitat requirements of this species are poorly understood. We examined the habitat at 43 waterbodies on Kooragang Island, Australia, with the aim of producing a set of variables which could differentiate between those occupied by *L. aurea* and those where the species was absent. *L. aurea* was found in 21 waterbodies and breeding was confirmed in four. Aspects of waterbody physiognomy and water chemistry could not explain *L. aurea* distribution. The plant species *Juncus kraussii*, *Schoenoplectus litoralis* and *Sporobolus virginicus* were significant predictors of the presence of *L. aurea*, as was the diversity of vegetation on the banks of waterbodies. The presence of the eastern mosquitofish (*Gambusia holbrooki*) did not influence waterbody occupancy and tadpoles were found co-existing with this introduced fish. The distribution of waterbodies occupied by *L. aurea* was aggregated. A waterbody was more likely to be occupied if neighbouring waterbodies within 50 m were also occupied. Habitat creation projects for this species are most likely to succeed if wetland habitat is created in proximity to an existing population.

Hamer A.J., Lane S.J. & Mahony M. (2002) Management of freshwater wetlands for the endangered green and golden bell frog (*Litoria aurea*): roles of habitat determinants and space. *Biological Conservation*, Vol. 106, pp. 413-24.
