

Spatial Ecology of an Endangered Amphibian *Litoria Raniformis* within Modified Tasmanian Landscapes

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Abstract : Within Tasmania, the growling grass frog (*Litoria raniformis*) has experienced a rapid contraction in distribution. This decline is primarily attributed to habitat loss through landscape modification and improved land drainage. Reductions in seasonal water-sources have placed increasing importance on permanent water bodies for reproduction and foraging. Tasmanian agricultural and commercial forestry landscapes often feature small artificial ponds, utilized for watering livestock and fighting wildfires. Improved knowledge of how *L. raniformis* may be exploiting anthropogenic ponds is required for improved conservation management. We implemented telemetric tracking in order to evaluate the spatial ecology of *L. raniformis* (n = 20) within agricultural and managed forestry sites, with tracking conducted periodically over the breeding season (November/December, January/February, March/April). We investigated (1) potential differences in habitat utilization between agricultural and plantation sites, and (2) the post-breeding dispersal of individual frogs. Frogs were found to remain in close proximity to ponds throughout November/December, with individuals occupying vegetative depauperate water bodies beginning to disperse by January/February. Dispersing individuals traversed exposed plantation understory and agricultural pasture land in order to enter patches of native scrubland. By March/April all individuals captured at minimally vegetated ponds had retreated to adjacent scrub corridors. Animals found in ponds featuring dense riparian vegetation were not recorded to disperse. No difference in behavior was recorded between sexes. Rising temperatures coincided with increased movement by individuals towards native scrub refugia. The patterns of movement reported in this investigation emphasize the significant contribution of manmade water-bodies towards the conservation of *L. raniformis* within modified landscapes. The use of natural scrubland as cyclical retreats between breeding seasons also highlights the importance of the continued preservation of remnant vegetation corridors. Loss of artificial dams or buffering scrubland in heavily altered landscapes could see the breakdown of the greater *L. raniformis* meta-population further threatening their regional persistence.

Keywords : habitat loss, modified landscapes, spatial ecology, telemetry

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