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**Conservation Biology of the  
Pink-Tailed Legless Lizard**

*Aprasia parapulchella*

By

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## Abstract

This study arose from a conservation dilemma between the need to conserve a population of the endangered pink tailed legless lizard, *Aprasia parapulchella* and crucial upgrading of Canberra's sewerage treatment plant. The study focused on conservation biology and how it could be applied to the management of *A. parapulchella*. As little biological information was available on *A. parapulchella*, research was focused on obtaining data that would be beneficial in the conservation management of the species. This included the dietary and habitat requirements, population status and structure and population relocation and habitat restoration.

*A. parapulchella* was found to occur in low relative densities at all sites (maximum 9.1 lizards per 1000 rocks turned, Mt Taylor). Populations of the species appear to be larger than has been considered previously, however numbers are still below 500 individuals per site. Sexual dimorphism is present in the species with females achieving longer snout-vent lengths than males. Sex ratios were equal in all sites, however average size of lizards was different at the four main study sites, indicating differences in population structure. The life history of *A. parapulchella* can be summarised as long-lived, late maturing (3<sup>rd</sup> or 4<sup>th</sup> year of life) with a low reproductive rate (single clutch of two eggs per year).

*A. parapulchella* is a dietary specialist feeding on about 11 different species of ants. Interestingly, the lizards also live with the same species that they feed upon. By far the most important species in the diet and homesite requirements of *A. parapulchella* is the ant *Iridomyrmex rufoniger*. *A. parapulchella* shows positive selection towards the species in homesite choice, is found most commonly in the nests of this ant, and selects its brood over the brood of other ant species in diet experiments. In addition this ant was represented in the diet of *A. parapulchella* more commonly than any other ant. The relationship between ants and *A. parapulchella* appears to be unique and the mechanisms of this specialisation require further investigation.

The vegetation associations where *A. parapulchella* occur are different across the range of the species. Sites at Bendigo and West Wyalong support mallee communities, while in the ACT region, Bathurst and Tarcutta, *A. parapulchella* appears to be a habitat specialist, being found most commonly in sites dominated by grass species, both native and introduced. *A. parapulchella* lives beneath rocks in grassland sites. Rocks that the species uses for homesites are commonly between 100 and 150 mm wide, 120-220 mm long and 50 and 150 mm thick. There were significant differences between the sizes of rocks used at different sites and between different seasons. Rocks used by females were significantly larger than rocks used by juvenile lizards. Twelve other species of reptile were found to use rocks in grassland sites, with rocks partitioned within the community on the basis of size and shape.

An experimental relocation of *A. parapulchella* was conducted to try to determine ideal habitat conditions for the survival of relocated individuals. Unfortunately of the 114 lizards released, only 15 were recaptured. Although recaptures were low, trends indicated that treatments of *Themeda triandra* and very high rock densities had the highest survival rates. Key habitat variables were reinstated at the Lower Molonglo Dam site however restoration is preliminary with more time needed for the habitat to be suitable for occupation by *A. parapulchella*.

What started as a situation that was likely to have a deleterious impact on *A. parapulchella* has been turned into a conservation success story. Without the involvement of ACT Electricity and Water, much of the basic biology of *A. parapulchella* would still be unknown. The findings will now form a solid basis from which to effectively conserve *A. parapulchella*. The project provides an example of the conservation success that can be achieved between industry and conservation partnerships.

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