



The Avicultural Society of New South Wales (ASNSW)

(Founding in 1940 as the Parrot & African Lovebird Society of Australia)

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Genetic Aspects of the Conservation of the Orange-Bellied Parrot

Extract from RDOU Conservation Statement

(The Avicultural Review April 1986 Vol. 8 No. 4)

Small populations of animals can suffer a loss of the genetic variation required for them to be able to adapt to major changes in their environment and, at very low populations levels, inbreeding can occur. Some geneticists have suggested that the minimum 'effective population size' (a mathematical concept that takes into account the breeding structure of a population as well as its size) to prevent loss of genetic variation is 500, and to prevent inbreeding, 50. Effective population size is often smaller than actual population size.

Clearly, with fewer than 200 Orange-bellied parrots now remaining, the species could not have an effective population size of 500, and it may not, in fact be much more than 50. Thus, it might appear that the Orange-bellied parrot is doomed to extinction in the near future for genetic reasons alone.

This however would be an unwarranted assumption. Most of the characteristics of a population's breeding structure that affect effective population size are unknown for the Orange-bellied parrot, and those that are known (a pair breeding system and a low variance in clutch size) would lead to a relatively high effective population size. Even if the effective population size was accurately known, there remains considerable uncertainty about how meaningful the minimum population size estimates of 500 and 50 are in ecological terms. Despite a considerable body of theory on population genetics, there have been few field studies about such problems and at least one of these found that inbred clutches survived better than those that were not inbred. Perhaps more importantly many species of bird have survived in the long term in habitats which could never have supported populations larger than 500 (for example, the Great Pied-billed Grebe in Guatemala and many birds endemic to small islands).

[Saving the Orange-bellied Parrot – YouTube.com](#)

[Tasmanian Parks and Wildlife Services - Orange-Bellied Parrot, *Neophema chrysogaster*](#)

[Tasmanian Parks and Wildlife Services - Current Status of the Orange-bellied Parrot](#)

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