

A guide to genetic management in conservation parks



Wildlife conservation parks and their role in threatened species conservation

Wildlife conservation parks play an important role in conserving Australia's threatened fauna by providing managed refuge areas for species where predation threats are often reduced. **cesar** believe these parks are an integral part of threatened species conservation and their importance will continue to grow as the effects of habitat fragmentation, predation, human disturbance and climate change continue the threat of species extinctions in Australia. The benefit of conservation parks in threatened species programs extends far beyond refuge habitat and it is integral that they are valued and integrated into threatened species programs. Some of the benefits of conservation parks include:

- open range areas in which wildlife can breed without constant human interference;
- largely free of voracious predators such as the red fox and feral cats and dogs;
- viable and cost effective alternative to captive breeding programs;
- captive breeding can be integrated within these conservation parks so that the underlying genetics can be managed efficiently, yet adaptation to captivity and behavioral naivety can be reduced
- can be used as sources for wild re-introduction translocations (with the benefits of having animals that are hardened for release);



Figure 1. Leadbeater's possum (left) and Brush-tailed rock-wallaby (right).



Implementing a genetic management plan

Genetic management plans are species specific and focus on ensuring optimal genetic health of populations and prolonging their existence within a conservation park. **cesar's** genetic management plans are tailored to the size and conditions of the conservation park, and integrate best genetic management practices that are independent of traditional studbooks often used by Zoos to minimize inbreeding. **cesar** implements genetic management plans for species by first understanding the history of individuals within the park. We then use genetic markers to evaluate the genetic condition and relatedness amongst individuals, before developing the genetic management plan. Using our unique and growing threatened species genetic database, as well as our extensive client network and research contacts, we may then suggest strategies to supplement and improve the genetic condition of target species by incorporating new animals into the conservation park. This will depend on the genetic quality of animals currently within the conservation park and the likelihood of the population sustaining itself over a long period of time. For threatened species, we aim to develop genetic management plans that not only result in robust and resilient populations within the conservation park, but also contribute more broadly to the conservation of the target species.

Mt Rothwell: a genetic management plan in action

Mt Rothwell Interpretation and Conservation Park is one of the premier conservation parks within Victoria. **cesar** have been developing and implementing a genetic management plan for three of Mt Rothwell's threatened species, the eastern barred bandicoot, the eastern quoll and the brush tailed rock wallaby. These species all suffer from low genetic health due to a combination of factors including small population size and limited founder stock. **cesar's** genetic management plan utilises novel approaches to correct the genetic issues that are manifesting within each species and provide the optimal genetic base for the future success of these species at Mt Rothwell. Importantly, **cesar's** genetic management plans are also developed in line with threatened species recovery plans for each species, allowing Mt Rothwell to contribute significantly to the recovery of these endangered species.

For a confidential discussion about your needs please contact the Genetic Insights team via our website www.cesaraustralia.com or call 03 9349 4723.

