Translocation and post-release monitoring techniques of Auckland green gecko (*Naultinus elegans elegans*) using a penned release

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Juvenile green gecko “Jade”, posing for a photo, Hunua Ranges, New Zealand. Photograph by Harry Scott.
Abstract

A translocation of Auckland green gecko (*Naultinus elegans elegans*) using penned and hard releases is conducted during an emergency salvage in the Hunua Ranges, Auckland. The value of limiting individuals’ movement post-translocation is discussed. Radio-telometry as a resourceful long-term monitoring technique is also discussed including limitations. The population of 52 individuals were salvaged prior to deforestation of habitat as part of the mitigation process in human-wildlife conflict. Translocations are a major part of New Zealand’s conservation strategies, and this event proved a unique opportunity to study post-release movements of Auckland green gecko (*Naultinus elegans elegans*).

To test whether penned releases have an effect on post-release movements, salvaged geckos were divided into two groups. One group of individuals was released as a penned release and one group as a non-penned (hard) release. Using radio-telemetry, information was collected on movement behaviours post-release. 100% minimum convex polygons and 95% kernel estimates were used to establish areas for each individual and compared between the two release groups. Due to the small sample sizes, statistical power was low and no statistically significant differences were found between penned and non-penned release groups in terms of movement post-release. However, exploratory data analysis shows some differences in range particularly in relation to distance from release (m). It seems that penned released geckos tend to stay within the area of their release site compared with non-penned released geckos. This could be an early indication of territory and home range establishment from founder individuals.
Multiple methods of monitoring post-translocation of green geckos as well as trapping and monitoring or mammalian predators within the area were carried out throughout the duration of the radio-telemetry aspect of the study. The benefits and limitations are discussed for each. Rat trapping in the release site area showed a trend with very low numbers caught (n=2) and high levels of mice prints throughout the general shrubland area. The presence of rat poison in the digestive tract of one rat caught during trapping leans towards successful pest control to date which is keeping numbers of rats at relatively low densities.

Using penned release methods during wildlife translocations can prove to be an expensive and long-term endeavour. The practical use of penning Auckland green gecko post-release is still yet to be accurately defined in this study. Using radio tracking techniques to monitor the translocated individuals’ movement behaviours up to 4 weeks after release was successful. Using specific materials and harness designs that are the right ‘fit’ for the species is imperative as was shown with the unsuccessful use of the first design in this study. Transmitters allowed for the collection of detailed information of movement behaviours horizontal and vertical to be collected with ease. For cryptic, arboreal geckos this information would otherwise be difficult to attain if relying only on regular searching techniques such as spotlighting. Future translocations of gecko should consider using radio-telemetry to collect invaluable information for future translocation management decisions.
Permits and Authorisations

MUAEC Protocol 13/71
“Dispersal of Green Geckos Following Translocation”
Approved Thu 22/05/2014 3:25 p.m.

National Doc Permit number 37031-FAU, File number NHS-12-03
This National permit is for use by trained Tonkin and Taylor staff and covers capture, handling, and relocation of NZ lizards across the Auckland Region, including Hunua Quarry.
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