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An assessment of the suitability of captive-bred founders for lizard restoration projects using Duvaucel's geckos (*Hoplodactylus duvaucelii*).

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Abstract

Sourcing founders for species restoration projects can be problematic, especially when using rare or endangered animals. Harvesting from small natural populations could be detrimental to those populations. A possible solution is to use captive-bred founders as this would reduce harvesting pressure on natural source populations. In the summer of 2013, a combination of captive-bred and wild-sourced Duvaucel's geckos (*Hoplodactylus duvaucelii*) were released on two islands in Auckland's Hauraki Gulf. To assess the suitability of captive-bred founders for species restoration projects, short-term survival, condition, reproductive performance, dispersal and activity patterns, and habitat use were investigated using mark-recapture surveys and radio telemetry over a 12 month period following the release, and comparisons were made between captive-bred and wild-sourced geckos.

Captive-bred geckos were encountered more often than wild geckos one year after the release, and had greater increases in body condition index. They also had better overall health, but more partial tail losses. Gravid females from both groups were encountered during the first post-release breeding season and at least 50% of juveniles were encountered alive during the first year. Less than 15% of radio tracked geckos moved further than 100 m away from their release locations. The size of activity areas reduced with time after release. Areas of activity were largest for wild geckos during both radio tracking periods and were much larger than the activity areas of captive-bred geckos during the second radio tracking period. *Hoplodactylus duvaucelii* did not appear to utilise available habitats randomly and rearing history did not appear to influence habitat use. Flax had considerably high use during both radio tracking periods. Overall, captive-bred geckos performed similarly to their wild counterparts, demonstrating that they are suitable for species restoration projects.

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