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SNAKES ON AN ISLAND: INDEPENDENT INTRODUCTIONS HAVE DIFFERENT POTENTIALS FOR INVASION

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Abstract

Snakes introduced to islands can be devastating to naïve native fauna. However, introduced populations must establish before range expansion (invasion) can occur. The factors that can determine successful invasion are those associated with the introduction event (e.g., characteristics of the founding population), the location (e.g., suitable environment and prey availability) and the species (e.g. life history characteristics). Here, we collected morphometric, ecological and genetic data on the recently introduced California Kingsnake (*Lampropeltis californiae*) in Gran Canaria. We found that snakes occurring at two locations a few 10 s of km apart do not represent the same population. Genetic analyses confirmed significant genetic difference (FST = 0.184; Dest = 0.341), and that despite being inbred (Fis = 0.245–0.257) the populations had high levels of diversity (Ho = 0.485–0.490; allelic richness = 4.875–6.364). Snakes at the different Gran Canaria locations were significantly different in morphology (colouration, mass, length and age), fitness (egg production) and diet (rodents, skinks, lizards and geckos), supporting a hypothesis of separate founding groups in combination with local environmental heterogeneity leading to variation between these populations. We concluded that one population was more successful than the other in reproduction and recruitment, and may be having a greater impact on endemic reptiles. We recommend greater eradication effort for this population, as well as monitoring of local fauna at all locations to access the impact of predation.