

Using digital images of *Lacerta agilis* dorsal patterning and capture mark recapture methods to estimate population sizes of *L. agilis* on areas of heathland

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The population size of the sand lizard *L. agilis* on the Dorset heathlands in the UK is unknown. Research was undertaken over three field seasons (2005-2007) to determine whether the size of the *L. agilis* populations could be established using CMR methods with digital dorsal images as the 'marking tool'. Much literature has commented on the use of natural markings for individual identification using capture mark recapture methods to estimate the number of individuals using specific areas. More recently Arzoumanian et al. (2005) describes a successful technique of pattern-matching spot patterns on whale sharks using a computer programme developed for astronomers. The patterning present on the whale sharks is very similar to that found on *L. agilis*. Nine areas of heathland were surveyed intensively through the *L. agilis* field season with equal sampling effort. Location, temperature, humidity and habitat data were collected at each lizard sighting and an image of each *L. agilis* seen was taken. Population estimates were calculated by identifying individual lizards from their dorsal patterning and creating a capture history for each lizard. The capture history data was then used to generate the population estimates.

The population estimates will be presented with their confidence limits and the success of the technique evaluated annually and per location. Difficulties encountered when using this technique will be discussed and remedial measures adopted will be shared.

References

Arozoumanian, Z. Holmberg, J. Norman, B. (2005) An astronomical pattern-matching algorithm for computer-aided identification of whale sharks *Rhincodon typus*. Journal of Applied Ecology 42:999-1011.

