



Conference Abstract

Monitoring a loss: Detection of the semi-aquatic crocodile lizard (*Shinisaurus crocodilurus*) in inaccessible habitats via environmental DNA

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Abstract

Assessing the conservation status of a species is strongly dependent upon data on species distribution and abundance. With the emergence of novel methods for species monitoring – such as the use of environmental DNA (eDNA) – monitoring success can be improved at reduced expenditure in the field, particularly in remote regions and terrains where access is difficult or dangerous. The highly endangered crocodile lizard (*Shinisaurus crocodilurus* Ahl, 1930) inhabits fragmented sites of the remaining evergreen forest with running water systems in a narrow distribution range in southern China and north-east Vietnam. Crocodile lizards spend most of the day within or above water bodies, which are commonly remote and inaccessible. To monitor recent spatial occurrences, and to confirm the persistence or extinction of previously reported populations (especially in heavily altered habitats), the suitability of using eDNA and quantitative polymerase chain reaction (qPCR) was tested as an alternative method for monitoring this semiaquatic lizard. To assess the accuracy and limitations of this method, eDNA results from the field were compared with

eDNA data from mesocosms and census data on the actual abundance of this species in the field. Environmental DNA of the crocodile lizard was detected in all of the positive controls, and in four of six natural sites; thus, all data collected using traditional field surveys were confirmed with eDNA results. eDNA monitoring was found to be a reliable method for assessing the viability of populations; we suggest that it should be developed as a tool for efficient wildlife management, particularly under difficult field and funding conditions.

Keywords

endangered species, reptiles, riparian, species monitoring, streams

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