Returning them back to the wild: Movement patterns of repatriated Egyptian Tortoises, *Testudo kleinmanni* Lortet, 1883 (Sauropsida: Testudinidae)

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Abstract. This paper reports the movement patterns of two hard released, repatriated Egyptian Tortoises, *Testudo kleinmanni*, into Omayed Protectorate, Egypt. Upon release, both tortoises immediately dispersed away from the release point. The maximum dispersal distances from the release site were 1455 m and 1131 m. These tortoises had exceedingly large activity ranges (mean 72.2 ha) which were roughly 10 times the size recorded for other *T. kleinmanni* populations. There was also some spatial overlap and potential competition with livestock for vegetation, as 35 % of tortoise relocations were found within 2 m of livestock tracks. We suggest that any future tortoise repatriations into Omayed Protectorate should consider methods such as soft releases that could potentially reduce the initial long distance dispersals and the exceptionally large activity ranges

Kurzfassung. Es werden die Ortsveränderungen von zwei Ägyptischen Landschildkröten, *Testudo kleinmanni*, die im ägyptischen Protektorat Omayed wiedereingebürgert wurden, verfolgt. Nach der Freilassung entfernten sich beide Tiere zunächst von der Stelle, an der sie ausgesetzt worden waren. Die maximale Entfernung betrug 1455 m bzw. 1131 m. Beide Tiere hatten Aktivitätsräume (Durchschnitt 72.2 ha), die etwa zehn Mal so groß wie jene von anderen bekannten *T. kleinmanni*-Populationen waren. Es gab auch räumliche Überlappung und möglicherweise Konkurrenz mit Haustieren, da sich 35% aller Wiederfunde innerhalb von nur 2 m von Spuren von Haustieren befanden. Es wird empfohlen, bei der Wiedereinbürgerungen von Schildkröten im Omayed-Protektorat zukünftig eine Eingewöhnungsphase voranzuschalten ("soft release"), da damit möglicherweise die große Dismigration und die extrem großen Aktivitätsräume verkleinern werden können.

Key words. Repatriation, reintroduction, hard release, release site dispersal, *Testudo kleinmanni*, Egypt.

Introduction

Repatriations, the release of individuals into an area formerly or currently occupied by that species, are increasingly being used as a conservation method for the re-establishment of rare and endangered species (DODD & SEIGEL 1991). An important component of any repatriation experiment is understanding the movement patterns of released animals in order to improve future repatriations (MOEHRENSCHLAGER & MACDONALD 2003, TUBERVILLE et al. 2005). Repatriation has the potential to assist the recovery of the endangered Egyptian Tortoise, *Testudo kleinmanni* (Lortet, 1883). It is one of the smallest and most endangered tortoise species, is among the least studied, and has the most restricted range of all tortoises in the Mediterranean basin of North Africa and the Middle East (BAHA EL DIN et al. 2003, ATTUM et al. 2007).

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