Rodent trapping in the Saja/Umm Ar-Rimth Protected Area of Saudi Arabia using two different trap types

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Abstract. Small mammal trapping was carried out in the Saja/Umm Ar-Rimth Protected Area to determine the species composition and to compare standard-length Sherman and commonly available cage traps. Five rodent species were captured from December 2002 to December 2003. The cage traps consistently trapped more rodents than the Sherman traps and the Baluchistan Gerbil, *Gerbillus nanus*, showed a clear preference for the cage traps. There was no marked difference in the failure rates of the two trap types. Seasonally, the trapping frequencies were not randomly distributed, with higher capture rates for most species during the cool season. Significant differences were recorded in the mean weights of the five rodent species captured, but no significant difference existed between the mean weights of the rodents successfully captured in either trap type. We conclude that both trap types were successful in trapping rodents in the observed weight range, and that species-specific behavioural differences and/or differences in trap design could affect trap efficiency. Consequently it is advisable to use a combination of trap types when studying rodent ecology. It is also strongly recommended that pilot studies be conducted to help identify any potential shortcomings in study design and field procedures.

Key words. Gerbil, jerboa, pilot study, small mammal, monitoring, Sherman traps, Saudi Arabia, Middle East.

Introduction

Desert ecosystems have a high diversity of rodents (KOTLER & BROWN 1988) and, excluding the Sciuridae and the Hystricidae, there are 46 known rodent, or small mammal species in the Arabian Peninsula (HARRISON & BATES 1991). This is in part because of their specialisation on seed-producing plants, as has also been documented in the deserts of North America (MUNGER & BROWN 1981, KOTLER & BROWN 1988). Consequently OLFERMANN et al. (1993) suggested that rodents could serve as indicator species for the restoration of vegetation, as they should be sensitive to changes in their food base and ultimately to changes in vegetation density, structure and diversity.

Trapping is a technique often used in small mammal ecology and monitoring, and in general the trapping techniques either capture the animals alive or kill them in the process. Live traps that are commonly used include the Sherman trap (O'FARRELL et al. 1994, DRICKAMER 1995) and the Longworth trap (FLOWERDEW et al. 2004), while kill-trapping is often done with Victor traps (DRICKAMER & MIKESIC 1993), Museum Specials (FRANCL et al. 2002) or other snap traps such as the "Ezeset" traps (WEIHONG et al. 1999). However, it has long been known that different trap types are more successful at capturing some species than others, thereby introducing bias in determining both the species composition and population density estimates in any given area (SEALANDER & JAMES 1958). Although a variety of studies as-

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