Environmental enrichment for captive Eastern blue-tongue lizards (Tiliqua scincoides)

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Abstract

Eastern blue-tongue lizards (Tiliqua scincoides) are kept in zoos and increasingly commonly as exotic pets, but little is known about improving their welfare by enrichment of their environment. Using nine animals kept individually in cages provided with a brick for basking and a pipe for hiding, we initially investigated enriching their environment with mealworms, either scattered on the floor or inserted into a foodball. The mealworms increased the time that the lizards spent feeding on both their ration and the mealworms and increased liveweight gain. Scattering the mealworms on the floor of their cages increased the time taken to eat them, compared with taking them from the foodball. Mealworms also reduced the time that the lizards spent hiding. Second, using eight individually housed lizards and replacing the pipe with a log which could be used both for basking and hiding, we investigated whether increasing the size of their enclosure and its temperature affected their behaviour, in a two-factor changeover design with two-week periods. When lizards were moved from small to large enclosures, they greatly increased the time that they spent walking on the first day, and they walked longer and further for the rest of the period. Lizards in big enclosures also spent more time hiding in the log and less time inactive on the log or the brick. Lizards in hot enclosures spent more time basking on the log and less time hiding in it, which would be valuable for display animals. The benefit of enriching the captive environment of Eastern blue-tongue lizards by scattering mealworms in their cage may depend on the effect on the lizards’ weight and the cage’s conditions, as captive lizards often become obese, and inactivity and weight loss are normal in their natural habitat during the dry season. Increasing the size of enclosures increases walking activity and reduces weight gain, which similarly will have variable effects on welfare depending on the impact on their bodyweight. Lizards in large enclosures have an increased propensity to hide so it is important that opportunities for this are provided.

Keywords: animal welfare, Eastern blue-tongue lizard, environmental enrichment, skink, space availability, temperature

Introduction

The majority of environmental enrichment research has focused on mammals and birds (Young 2003), and the enrichment of reptiles has been largely ignored (Hayes et al. 1998). Two reasons have been suggested for this. Firstly, reptiles are not as commonly kept as either companion or production animals as mammals or birds, which has meant that there has been neither an emotional nor an economic motivation to develop their husbandry (Warwick et al. 1995). Secondly, their main captive environment has traditionally been in zoos, where reptiles were believed to be torpid and highly tolerant and adaptive to novel environments, so that no enrichment was needed (Case et al. 2005). However, it has been argued that reptiles, as social foragers that are deprived of social learning opportunities in isolation, may be less tolerant of, and adaptable to, their artificial captive environment (Warwick et al. 1995).

Reptiles and other exotic pets represent a growing sector in the pet market, having first entered the mainstream trade in the 1990s (Altherr & Freyer 2001). A recent survey in the USA found that there were approximately one million lizards kept as pets, compared with 72 million dogs, 82 million cats and 11 million birds (AVMA 2007). In Germany, it was estimated in 1989 that there were about 1.5 million reptiles, and this number is believed to have increased substantially in the latter years of the 20th century (Altherr & Freyer 2001).

Few studies have investigated the welfare of reptiles in captivity. Enclosure design has been assessed for a few species, such as Round Island day geckos (Phelsuma guentheri) (Wheler & Fa 1995), blue-tongued lizards (Tiliqua scincoides) (Kreger 1993), and Nile soft-shelled turtles (Trionyx triunguis) (Burghardt et al. 1996; Krause et al. 1999), but its influence is inadequately understood (Hayes et al. 1998). Reptile husbandry guides that have been published make little mention of environmental enrichment (McCarthy 1992; Pough 1992; Warwick et al. 1995), and enrichment strategies that are used for reptiles