



Original article

Food habits of the Arabian skink, *Scincus hemprichii* Wiegmann, 1837, (Sauria: Scincidae), in the Southwest Saudi Arabia

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ABSTRACT

Food and feeding habits of the Arabian skink, *Scincus hemprichii* were investigated in Jazan province, southwest of Saudi Arabia. *S. hemprichii* individuals fed during eleven months of the year. The mass of food in the stomachs indicated that a high degree of foraging success occurred during the warm spring while the lowest was during winter with January as an exception to feeding by the lizard. Analysis of the contents of 60 stomachs revealed that the diet of *S. hemprichii* in the study area consisted of arthropods, with two species of beetles of the family Dermestidae (*Dermestis vulpinus* and *Dermestis maculates*) and three type of dipteran larvae, accounting for 76% of the total volume of the food items. Specimens collected during January had empty stomachs.

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1. Introduction

Documenting the diet and feeding behavior of a lizard species is often the first step in the development of an understanding of its ecology. Dietary information can be used to place an animal species in a broader ecological and evolutionary context (Greene, 1993) and to guide conservation efforts (Greene, 1994). Seasonal variation in most temperate habitats has a significant effect on several aspects of the life history (activity, reproduction, feeding and growth) of lizards (Griffiths and Christian, 1996). Likewise, seasonality has a pronounced effect on the diet composition of a lizard (Dunham, 1980; Brown, 1991; Durtsche, 1995; Griffiths and Christian, 1996; Wapstra and Swain, 1996). A lizard's diet might broaden or narrow seasonally as food abundance changes and therefore might adopt a flexible, opportunistic approach to feeding, unless the lizard is a dietary specialist (Arnold, 1987; Robinson, 1987; Diaz and Carrascal, 1990; Durtsche, 1995; Wapstra and Swain, 1996). Foraging mode associated with restricted habitat use, however, may also limit foraging opportunities and lead to a

degree of specialization in diet (Wapstra and Swain, 1996). Abundant reports are available on the feeding habits of reptiles (King and Green, 1979; Stamps and Tanka, 1981; Diaz and Carrascal, 1990; Castro et al., 1991; Loumbourdis and Hailey, 1991; Vitt and Blackburn, 1991; Gil et al., 1994; Ballinger et al., 1995). Although, various studies have been undertaken on the foraging habits of the Arabian reptiles (Kevork and Al-Uthman, 1972; Al-Ogily and Hussain, 1983; Al-Sadoon and Al-Otaibi, 2014; Al-Sadoon et al., 1999, 2016), the natural history of *S. hemprichii* Wiegmann 1837 has been little explored.

Among the two species of genus *Scincus* inhabiting Saudi Arabia, the Arabian skink, *S. hemprichii* Wiegmann, 1837 belong to family Scincidae. This species is endemic to the Tihama region of coastal terrain of the southwest of the Arabian Peninsula extending from Sabya (Asir Province, Saudi Arabia) through western Yemen to the Aden region of Yemen (Arnold and Leviton, 1977; Arnold, 1986). Currently, no detailed information is available on the ecology, particularly regarding feeding habits, of this skink lizard in Saudi Arabia.

S. hemprichii is a diurnal species and inhabits the soft loose sandy desert of southwest Arabia. It spends most of its time under the surface of the sand searching for small arthropods. They feed on their insect prey at mid-noon in cold days or at early morning and the afternoons on warm days (Gasperetti, 1978). In Southwest region of Saudi Arabia, individuals of *S. hemprichii* have been collected during different field visits, thus providing an opportunity to increase the knowledge of its ecology. In the present study we provide information on the diet of *S. hemprichii* based on data from

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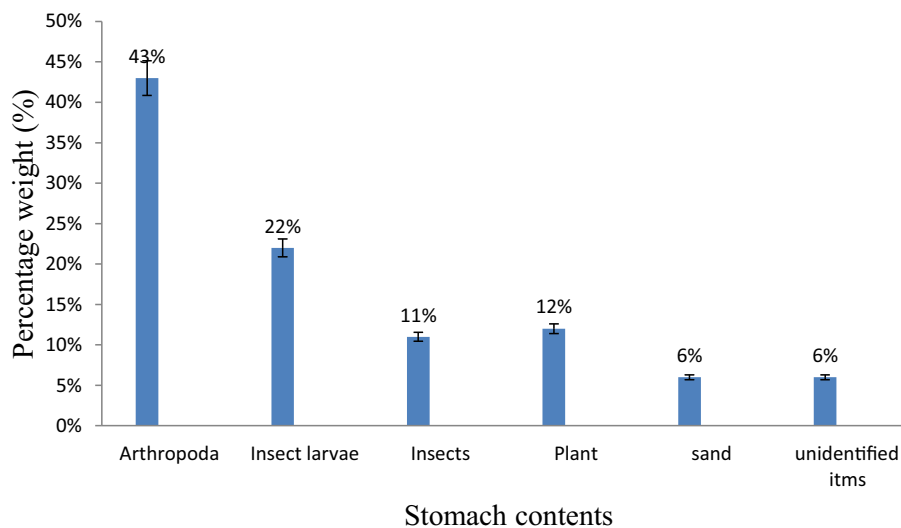


Fig. 1. Percentage of the stomach contents of *S. hemprichii*.

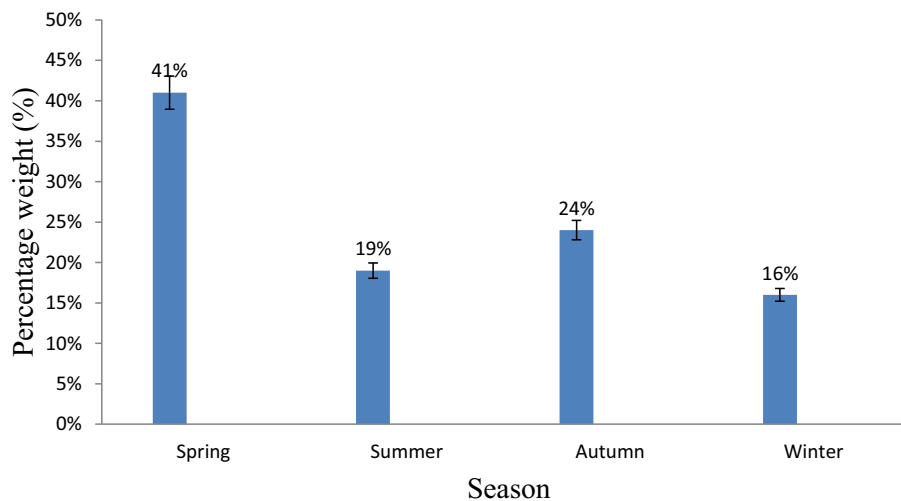


Fig. 2. Seasonal variation in the amount of food in the stomach of *S. hemprichii* expressed as percentage of the total amount recorded during different seasons of the year.

the population living in the collection area and its surroundings. We also assess whether its diet shows seasonal differences in composition, considering that the availability of potential prey varies seasonally in some areas of southwestern region of Saudi Arabia.

2. Materials and methods

We examined 60 specimens of *S. hemprichii* (30 males, 30 females) collected between November 2015 and October 2016 in the Jazan province (16°53'N; 42°32'E) situated in the southwest of Saudi Arabia. Their habitats consist of sandy dune areas. Lizards were collected by excavating them from their burrows (Van Wyk, 1992). The habitat was dominated by *Artimisia abyssinica*, a green shrub and *Panicum turgidum*, a perennial desert grasses. Plants of *Heliotropium* sp. along with few other perennials were also seen. The common beetles present in the habitat were *Dermestes vulpinus*, *Dermestes maculatus* and *Carabus nenoralis*. Grasshoppers were abundant while the desert locust, *Schistocerca gregaria* was also present in lesser number. The area hosts a number of reptile species along with this skink. The most abundant were Geckos and other lizards of the Genus *Acanthodactylus*.

The captured lizards were transported to reptilian laboratory in Zoology department, college of science, King Saud University where all experimental procedures were performed. Lizards were killed by freezing at $-2\text{ }^{\circ}\text{C}$ for 24 h till further analysis (Al-Sadoon et al., 2016). Body weight and dimensions were recorded before dissecting the animals. Seasonal analysis of dietary composition was carried out by dividing the data into four seasons: winter (December-February), spring (March-May), summer (June-August) and autumn (September-November). The specimens were dissected and the digestive tract was removed and stored in 70% ethanol.

The stomach was cut, weight and the composition of the contents of each stomach was examined qualitatively under a dissecting microscope. The total number of each prey type found in each stomach was classified. The presence of each prey type in each stomach was used to calculate percent occurrence. All animals were euthanized in accordance with the standards set forth in the guidelines for the care and use of experimental animals by the King Saud University, Riyadh, Kingdom of Saudi Arabia.

One-way analysis of variance (ANOVA) was performed to indicate any differences in the stomach content.

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