Appendix. Catalogue numbers of museum voucher specimens examined during this study

Bloemfontein National Museum
NMB7406, NMB7407, NMB7388, NMB7408.

Transvaal Museum
TM32797, TM33237, TM33246, TM33247, TM33250, TM33262, TM33264, TM33267, TM33274, TM33336, TM33377, TM58022, TM34319, TM46771, TM48580, TM66629, TM66634, TM26023.

Namibia National Museum
SMWN1174, SMWN1169, SMWN1175, SMWN1177, SMWN1221, SMWN1227, SMWN1237, SMWN1241, SMWN1243, SMWN1246, SMWN1248, SMWN1249.

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Effects of refuge and conspicuousness on escape behavior by the broad-headed skink (Eumeces laticeps)

William E. Cooper, Jr.

Department of Biology, Indiana University-Purdue University Fort Wayne, Fort Wayne, Indiana 46805, USA
e-mail: cooperw@ipfw.edu

Many aspects of lizard antipredatory behavior have been studied (Greene, 1988), notably caudal autotomy (e.g., Congdon et al., 1974; Arnold, 1988; Cooper and Vitt, 1991), but little is known about factors influencing escape decisions. From a cost-benefit perspective, prey should initiate escape when a predator approaches close enough that predation risk exceeds costs of escape (Ydenberg and Dill, 1986; Clark, 1994). Effects of increased risk in lizards include greater wariness associated with decreased speed at lower temperatures (e.g., Rand, 1964; Rocha and Bergallo, 1990) and initiation of escape increasingly further from approaching predators with increasing directness and speed of approach (Burger and Gochfeld, 1990; Cooper, 1997a). Other risk factors affecting escape decisions by the broad-headed skink (Eumeces laticeps) include repeated approach by predators and change in predator path (Cooper, 1997b).

Predation risk to palatable prey increases greatly with conspicuousness, the decreased probability of being detected being the basis for crypsis by concealing coloration and immobility (Cott, 1940). Surprisingly little is known about the effects of conspicuousness...
on escape decisions by lizards. Of two syntopic species of *Anolis*, the less conspicuous one permitted closer approach by a herpetologist before fleeing (Heatwole, 1968). This finding suggests that assessment of risk was adjusted to degree of conspicuousness. Due to possible phylogenetic differences between the two species affecting permissible closeness of approach (e.g., different escape speeds or other aspects of evasiveness once escape has begun), the evidence for an effect of conspicuousness, although strongly suggestive, must be considered tentative. Stronger evidence for an effect of conspicuousness might be obtained by observing differences in escape responses of lizards on substrates where their conspicuousness differs.

Here I examine effects of two risk factors, position relative to refuge and conspicuousness, on escape behavior by the broad-headed skink (*Eumeces laticeps*), a semiarboreal species that relies heavily on use of refuges, especially trees (Cooper, 1993; Cooper and Vitt, 1994; Cooper, 1997c) to escape predators.

**Methods.** I conducted observations on antipredatory responses by *Eumeces laticeps* to approach by a human potential predator on Seabrook Island and Kiawah Island, Charleston County, South Carolina during May in 1994 and 1995. I walked through the habitat slowly on warm, sunny days (1000-1500 h Eastern Standard Time) until I sighted a lizard. For the study of importance of refuges, I recorded microhabitat (categories in table 1) where initially observed and initial distance from a refuge such as a tree or dense plant cover. I then slowly (ca. 60 m/min) approached the lizard directly and recorded whether or not it fled. If it fled, I immediately stopped moving and recorded the microhabitat where its flight ended. In most cases I recorded the approach distance, the distance from me when the lizard began to flee. In another set of observations on individuals that took refuge under fallen palmetto fronds, I recorded whether the lizard was closer to the nearest tree or to the palmetto frond before fleeing. I avoided multiple observations per individual within each year by making observations only once at each location at the study site. Although some individuals may have been observed in both years, observations are considered independent.

To detect an effect of conspicuousness on escape, I examined closeness of approach allowed by adult lizards on two different backgrounds. The dorsal coloration of adult

<table>
<thead>
<tr>
<th>Initial microhabitat</th>
<th>Refuge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tree</td>
</tr>
<tr>
<td>Tree</td>
<td>24</td>
</tr>
<tr>
<td>Open ground &lt; 1.5 m from tree</td>
<td>9</td>
</tr>
<tr>
<td>Open ground ≥ 1.5 m from tree</td>
<td>0</td>
</tr>
<tr>
<td>Litter ≥ 1.5 m from tree</td>
<td>1</td>
</tr>
<tr>
<td>Fallen log</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1. Microhabitats where lizards were initially sighted and sought refuge after being approached. Lizards closer than 1.5 m to a tree on both open ground and on surface litter are included in the second category of initial microhabitat.