ORNITOLOGIA NEOTROPICAL 7: 163–164, 1996

REACTIONS OF BIRDS TO NESTLING PREDATION BY A SNAKE

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Key words: Nest predation, vine snake, Leptophis aethula, Tangara larvata, *mobbing, Esmeraldas, Ecuador.*

Close views of snake predation on birds are rare, therefore we thought it worthwhile to note such an event on 18 April 1996, in a semi-open plantation close to Playa de Oro (00° 53' 00"N, 78° 47' 30"W), Esmeraldas Province, Ecuador.

The plantation, on the southern bank of the Rio Santiago, has cocoa (*Theobroma cacao*, Sterculiaceae), zapote (*Quararibea cordata*, Bombacaceae), coconut palms (*Cocos nucifera*, Arecaceae), banana (*Musa* sp., Musaceae) and *Bactris* palms (*Bactris gasipaes*, Arecaceae). This palm grows to 20 m tall, with a trunk covered with strong spines several cm long. A pair of Golden-hooded Tanagers *Tangara larvata* had a nest about 10 m up in such a palm, atop a bromeliad epiphyte on the trunk protected from rain and sight by the leaves of a climbing Araceae.

One chick with well-developed plumage, at least 10 days old, was regularly fed by both adults. While the ♀ was at the nest, the ♂ usually sang conspicuously from the petiole of an araceous leaf about 30 cm above the nest. To our knowledge, for this species this behavior has not been described before although it is documented for other species of the family (Skutch 1954, Isler & Isler 1987). Presumably, this advertising behavior during daytime indicates that the species is preyed on by snakes and nocturnal mammals, since they locate their prey by means of other senses (Skutch 1976).

At 16:00 h we were struck by unusually noisy activity by the tanager pair, calling incessantly near the nest. One of us (Schu.) then discovered a snake approaching the nest. It was green, about 1 m long, with relatively large eyes and a black eyestripe, making it possible to identify it as *Leptophis aethula* (Colubridae).

The *T. larvata* adults increased their warning calls and flights, reaching a peak of excitement when the snake rapidly grabbed the nestling. The alarm calls soon attracted other bird species, which joined in the diving attacks and made continual mobbing noises at the snake. The chick was devoured within 5 min, but it was 30 min before it reached the center of the reptile's body.

During this time, 14 bird species attacked and called at the snake. In addition to *T. larvata*, there were two hummingbirds, one ♂ *Amazilia tzacatl* and one ♂ *Thalurania colombica*, the latter approaching dangerously close to the snake while displaying aggressive flight maneuvers. Further species were one ♂ *Myrmotherula surinamensis*, one *Tyrannus melancholicus*, one *Myiozetetes cayanensis*, one *M. granadensis*, one *Coereba flaveola*, one ♂ *Cyanerpes cyaneus*, one ♂ each of *Euphonia xanthogaster* and *E. laniirostris*, one *Thraupis episcopus*, at least three *T. palmarum*, and finally one female *Ramphocelus flammigerus*.

The snake continued to move around near the nest for at least 25 min more, constantly flicking its tongue. During this time, the ♂ *Thalurania colombica* came so close to it that we almost expected another attack. At 16:30 h the snake moved further up the palm, presumably searching for a quiet place to digest its prey.

Interestingly, *T. larvata* did not abandon that particular spot as a nesting site, since Wittmann and Jahn noted a fresh nesting attempt between

28 June and 3 July. The ♂ showed the same conspicuous behavior as in April. Two young left the nest during the second half of August. Accompanied by their parents, they were observed daily until 4 September in searching for food in flowering *Miconia-* (Melastomataceae) and *Inga*-trees (Mimosaceae) in the surroundings of their nest site.

Suitable nesting sites, such as the one here, are possibly so rare locally that the tanager continued visiting the site despite an early loss.

For further information on snake predation see Skutch (1954, 1976, 1985), Marchant (1960), Best (1978).

ACKNOWLEDGEMENTS

These observations were made during field studies supported by the Brehm-Foundation, the German Science Foundation (DFG) and the Gesellschaft für Technische Zusammenarbeit (GTZ). We thank the Instituto Ecuatoriano Forestal y de Areas Naturales y Vida Silvestre (INEFAN) for issue of research permits, and SUBIR, ECOCIENCIA and DED for logistical support. Yoshika Oniki and Edwin O. Willis critically read an earlier draft of the note.

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Accepted 15 December 1996.