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## Red-shouldered Hawk (*Buteo lineatus*) predation on North American Racer (*Coluber constrictor*) in the Arkansas Ozarks

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Running Title: Hawk preys on racer

The Red-shouldered Hawk (*Buteo lineatus*) has a catholic diet that includes small mammals, snakes, lizards, turtles, anurans, salamanders, birds, insects, crayfish, and other terrestrial and freshwater invertebrates (Bent 1937; Dykstra *et al.* 2003; Fisher 1893; Fitch 1963; Howell and Chapman 1998; McAtee 1935; Platt and Rainwater 2019; Portnoy and Dodge 1979; Roble 2013; Strobel and Boal 2010). Roble (2013) compiled Red-shouldered Hawk predation records for 27 species of snakes, including reports of the North American Racer (*Coluber constrictor*) from Georgia (Howell and Chapman 1998) and Massachusetts, Maine, and Florida (Fitch 1963). These reports were based on prey items recovered from stomachs and observations of prey brought to nests. Regional variation in ophiophagy in Red-shouldered Hawk populations is poorly known. Here I report two observations of Red-shouldered Hawk preying on North American Racers in Arkansas.

On 19 April 2018, I photographed an adult Red-shouldered Hawk after it captured a mature racer in Izard County, Arkansas (36° 9.43' N; 92° 9.32' W). The hawk dropped from an elevated perch along a fence line and caught the racer in the adjacent pasture. After manipulating it on the ground for several minutes, the hawk carried the writhing racer about 230 m (measured with Google Earth Pro) to a barbwire fence along the road (Fig. 1). The racer's head was severely damaged and bloodied but its slowly twisting body made it difficult for the hawk to balance on the wire. The hawk paused on the wire for ~15 seconds before carrying the racer over the distant tree line (175 m).

The snake's large size and slate-gray dorsum shading gradually to an unmottled pale bluish-white venter identified it as a North American Racer, most likely *C. constrictor priapus* based on geography (Trauth *et al.* 2004). The unusually pale venter suggests it may represent an intergrade with *C. constrictor flaviventris*, which occurs in the northern

tier of counties in Arkansas east to Fulton County (Trauth *et al.*, 2004).

A second instance of possible predation was recorded on 27 April 2017 (13:20 h), when Jerald Britten observed an adult Red-shouldered Hawk struggling with a large racer (~ 1.2 m in length) in Marion County, Arkansas (36° 15.48' N; 92° 34.75' W). By the time Britten retrieved his camera (13:31 h), both hawk and snake appeared exhausted and were nearly motionless (Fig. 2, top panel). The photograph in the



Figure 1. Red-shouldered Hawk (*Buteo lineatus*) grasping a North American Racer (*Coluber constrictor*) in Izard County, Arkansas (Photograph: Gary R. Graves).



Figure 2. Red-shouldered Hawk (*Buteo lineatus*) grappling with a North American Racer (*Coluber constrictor*) in Marion County, Arkansas (photographs: Jerald A. Britten).

bottom panel (Fig. 2) was taken at 13:35 h. The hawk was on its back and gripped the racer with one foot. Britten left the scene at 13:47 h to avoid stressing the hawk. When he returned at 14:20 h, the hawk had righted itself (Fig. 2, middle panel). Bloody abrasions and cuts were visible on the racer's head and body. Britten again left the scene. When he returned at 15:05 h, both hawk and snake were gone. The predation attempt was probably unsuccessful because a large racer with fresh cuts on its head and body was observed in the area on 29 April.

These observations represent the first predation reports from Arkansas for Red-shouldered Hawk on

North American Racer. Interactions between these species are probably common given their statewide occurrence and similar habitat preferences.

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