

Shorter Contributions

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OBSERVATION OF AN EXTERNALLY SITUATED SOUTHERN FLYING SQUIRREL (*GLAUCOMYS VOLANS*) NEST DEPREDATED BY A RAT SNAKE (*ELAPHE ALLEGANIENSIS*) IN SOUTHWESTERN VIRGINIA. -- Accounts of externally situated southern flying squirrel (*Glaucomys volans*) nests are rare (Snyder, 1921; Sollberger, 1943). Sollberger (1943) found only three outside nests occupied by *G. volans* over six years of surveying in Ohio and Pennsylvania. Only one of these external nests was used for rearing young, whereas 35 nursery nests were found in tree cavities (Sollberger, 1943). Pearson (1954) reported second-hand the only other direct observation of southern flying squirrel depredation by a snake.

We witnessed an eastern rat snake (*Elaphe alleganiensis*) dislodge a southern flying squirrel nest from an eastern hemlock tree (*Tsuga canadensis*) on 14 August 2003. The event occurred between 1700 and 1800 h in Mount Rogers National Recreation Area, Grayson County, Virginia, along Fox Creek near Fairwood Cemetery, elevation 970 m. The snake, which we later estimated to be 150 cm in total length, was wrapped around the nest and fell to the bare ground of the hemlock grove with an audible thud. It constricted the nest for nearly 15 minutes before it began eating an adult squirrel. We observed the event for 30 min and the snake regurgitated the squirrel and fled when we inadvertently disturbed it while attempting to obtain a photograph.

Uhler et al. (1939) surveyed the stomach contents of 18 species of snakes in the Virginia Piedmont and found *G. volans* in *E. alleganiensis*, the timber rattlesnake (*Crotalus horridus*), and the black racer (*Coluber constrictor*). More recently, Mitchell (1994) also documented *G. volans* in the diet of *E. alleganiensis*. The propensity of *E. alleganiensis* to climb trees for the purpose of securing prey is well documented (Uhler et al. 1939; Neal et al., 1993; Mitchell, 1994; Saenz et al., 1999).

The adult squirrel killed by the snake was the mother of three hairless nestlings that we found in the nest. All three young were males; two weighed 7.6 g and the other 8.0 g. All had sealed eyes, and we estimated their age to be less than 10 days based on mass and pelage state (Booth, 1946; Linzey & Linzey, 1979). It is likely that this was the female's second litter of that year; biannual parturition in the southern flying squirrel has long been recognized (Sollberger, 1943;

Dolan & Carter, 1977). The largest neonate survived to adulthood and is currently being used as a live exhibit in a flying squirrel public education program sponsored by Virginia Commonwealth University, Mount Rogers National Recreation Area, and the Virginia Department of Conservation and Recreation.

The flying squirrel's nest was woven from shredded hemlock bark and appears to have been externally situated, as the surface was free of debris. Although at first irregularly shaped because of the constriction, the nest was easily reshaped to a ball-like form with a slight vase-like neck aperture (Fig. 1). The outer layer of the nest was 18 cm in diameter and approximately 2 cm thick. The outer layer was constructed of coarsely shredded bark in lengths of 30 to 50 cm and was 0.5 to 1.0 cm wide. The interior chamber, comprised of finely shredded bark, formed a cup-shaped depression 7 cm in diameter. The inner layer was also about 2 cm thick. The finely shredded bark was 10 to 15 cm long and 0.05 to 0.2 cm wide; it was situated nearly opposite the opening and concealed the three young squirrels. The bedding was slightly damp and had the odor of urine. The base of the nest, which appears to have been the only contact point with the tree, was flattened and compressed. Snyder (1921) described a similar nest composed of red cedar (*Juniperus virginiana*) bark that contained a single juvenile *G. volans* in Ontario, Canada.

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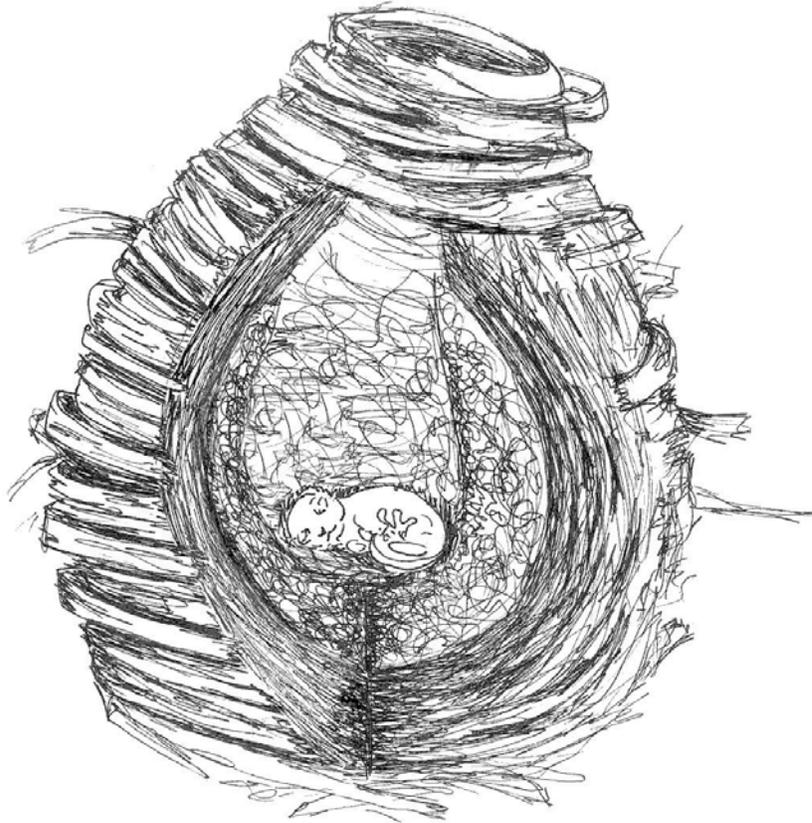


Fig. 1. A schematized drawing of the reshaped southern flying squirrel (*Glaucomys volans*) nest from Grayson County, Virginia; the scale is relative to a single neonate (drawing by Lynne Hassel).

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