

Title: "Migration Dynamics of Northern Saw-whet Owls in the Inner Piedmont of Central Virginia"

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Abstract. Migration studies provide useful data such as volume, timing, sex and age ratios that are helpful in determining the overall health and status of a species, migration cues and timing, and much more. This study, conducted from 2002-2007, and 2012-2017, explores the fall migration dynamics of the Northern Saw-whet Owl (*Aegolius acadicus*) in the inner piedmont of central Virginia. This species breeds primarily in the boreal forests of Canada and the northern and western United States. Those along the eastern reaches of its range migrate in the fall to the east-central United States, and less commonly to the southernmost states. Its small size and nocturnal migration have kept this owl's presence secretive. This study utilized mist nets and an audio-lure broadcasting a male advertisement call to capture these owls at Camp Hydaway in Campbell County, Virginia from late October to mid-December. Captured owls were aged using feather molt criteria, sexed using a mass-discriminant function, and banded with aluminum United States Fish and Wildlife Service bands. Throughout the study, there was great variability in owl migration volume from year to year, ranging from 4 to 102 Saw-whets. With the exception of high-volume (irruptive) years, adults were most commonly captured, the majority of which were females. Irruptive years (2002 and 2012) were characterized by higher migration volumes and a greater frequency of juveniles, likely due to weather and cyclical dynamics of mast producing trees that cause fluctuations in populations of woodland mice (*Peromyscus spp.*), primary constituents of the Saw-whets' diet. As a result of this study, the use of central Virginia's piedmont by Northern Saw-whet Owls as a significant migratory route has been well documented.