

Northern Saw-whet Owl (*Aegolius acadicus*) banding during fall migration in eastern Nebraska (2019 pilot season)



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The Northern Saw-whet Owl (*Aegolius acadicus*; NSWO) is a small owl that breeds in forests in northern and western North America. Some NSWOs remain in breeding areas year round, but others migrate south or to lower elevations during fall and winter (Rasmussen et al. 2008). The species was once considered rare over much of the contiguous United States because it easily goes undetected. Targeted and relatively recent banding efforts have broadly improved the state of knowledge about the species' temporal occurrence, distribution and abundance. During late autumn, notable movements are annually detected by banders in eastern North America (Confer et al. 2014), especially around the Great Lakes (Rasmussen et al. 2008). Widespread movements by the species sometimes occur over large areas during some falls, with banding records as far south as Georgia and Oklahoma.

NSWO's status remains not well defined in many areas, especially in the central United States. In Nebraska, the NSWO is a species of greatest conservation need, but its status is poorly understood even following recent work by Mollhoff (2014, 2018) and Kim (2005). Mollhoff (2018) used nest boxes to document breeding activity in portions of the state. Kim (2005) captured and banded 14 NSWOs along the central Platte River during one fall (2004). Additional observations during fall and winter are few (Silcock and Jorgensen 2018). However, the Hitchcock banding station along the Missouri River bluffs in nearby western Iowa captures, bands, and releases NSWOs every year during autumn migration. Despite limited forested habitat in the eastern and central Nebraska, it is possible, if not likely, NSWOs regular migrate through the region in fall but go undetected. During the fall 2019, we conducted a pilot season of targeted, albeit limited, NSWO trapping and banding in eastern Nebraska to determine whether NSWOs are present.

METHODS

We operated at two main sites at Branched Oak and Pawnee Lake state recreation areas (SRAs) in Lancaster County, Nebraska. At each site, we erected two 9-meter mist nets (30 x 30 mm) centered on a nearby speaker (JBL Flip4) playing a NSWO call on a continuous loop. Playback began ~30 minutes after sunset each night and continued for 2-3 hours. All trapping and banding was done in accordance with state and federal laws under authority of the Nebraska Game and Parks Commission Nongame Bird Program's federal banding permit (#20259).

RESULTS

We operated for 21.5 net hours over five nights from October 29-November 19, 2019. We banded two hatch-year (HY) NSWO (1 HY male, 1 HY female) during fall 2019: one at Branched Oak SRA and one at Pawnee Lake SRA.

Nightly Summaries

10/29/19 – Branched Oak SRA. South side. 4 net hours.

The evening was cold with relatively calm winds at the beginning of the trapping period that picked up to 12-15 mph by the second hour. No owl activity heard or detected. Notable was the presence of a very large (500+ individual) American Robin roost very close to our net set-up throughout the trails on the south side. The presence of the American Robins (*Turdus migratorius*) may have affected our trapping efforts.

11/7/19 – Pawnee Lake SRA. Southwest corner. 4 net hours. Captured one HY male NSWO.

Conditions were cold but winds calm. We captured our first NSWOW of the season, which also represents the first documented NSWOW in fall for Lancaster County. The bird was in good condition with a fat score of '1' and healthy musculature across the sternum. We detected a Great-horned Owl (*Bubo virginianus*; GHOW) at net opening and heard a Barred Owl (*Strix varia*; BADO) and Eastern Screech-Owl (*Megascops asio*; EASO) at the northern portion of the lake in-between net checks.

11/14/19 – Branched Oak SRA. Southeast side. 5 net hours. Captured one HY female NSWOW.

Very cold at opening, but calm winds. Captured second NSWOW of season. Bird was in good condition. We detected a BADO and EASO at other points at Branched Oak SRA.

11/18/19 – Pawnee Lake SRA. Southwest corner. 4.5 hours.

Warm evening, calm opening but heavy wind picked up during second hour. The wind was very strong just outside of our banding set-up. We heard a single EASO.

11/19/19 – Branched Oak SRA. North side of Lieber’s Point. 4 net hours.

Cool but comfortable and calm wind. Detected first Long-eared Owl (*Asio otus*; LEOW) of the fall in nearby cedar stand. Unknown vocalization near net suggestive of NSWOW during second hour. LEOW later bounced off net coming into LEOW playback (switched after 2nd hour playing NSWOW).

Table 1. Total number of owls captured during fall 2019 pilot season. All measurements in millimeters.

Species	Age	Wing Chord	Mass	Sex
NSWO	HY	131	74.0	Male
NSWO	HY	143	87.0	Female

DISCUSSION

We entered this season with many unknowns about NSWOW movements in our region. The last targeted effort to band NSWOWs during fall in Nebraska occurred in 2004 (Kim 2005). This station operated for 370 net hours over 14 nights and captured 14 NSWOWs. Given the minimal amount of hours we operated per night, and the fact that we were using a smaller-than-recommended net size, it is promising that we were able to capture and detect any owls during this first year. We had success at multiple locations and captured two birds over just 21.5 net hours (1:11 owl to net hour ratio vs. 1:26 ratio in Hall County, 2004). We suspect small numbers of NSWOW move through our region in late fall every year.

Limited information suggests the primary migration window in central and eastern Nebraska is during the first two weeks of November. Kim (2005) caught 11 (79%) of the 14 owls during this time. Both of our owls were also banded in this timeframe as well. However, there are also records of wintering NSWOW from the Lincoln Christmas Bird Count during multiple years (Silcock and Jorgensen 2018). It remains unclear if the two individuals we captured in 2019 were migrants passing through the region or birds preparing to settle for the winter season. Additional studies of fall NSWOW movements should help illuminate any peak migratory window or potential wintering behavior of this species in the region. Therefore, we recommend this effort continue in the future.

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