

Northern Saw-whet Owl Monitoring at Big Bald Mountain, Cherokee National Forest, Unicoi County, Tennessee and Pisgah National Forest, Yancey County, North Carolina

2010 Annual Report

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Introduction

The 2010 season is the sixth autumn that systematic Northern Saw-whet Owl trapping has been conducted at Big Bald Banding Station (BBBS). Northern Saw-whet Owl (NSWO) has been documented at Big Bald through aural surveys since 2001 and by incidental diurnal capture in passerine mist nets since the autumn of 2003. Data gathered at BBBS in 2005 prompted the Cherokee National Forest to install owl nest boxes on the northern flanks of Big Bald Mountain in 2006. In 2010, NSWO monitoring effort expanded to include playback surveys during spring and summer, nocturnal trapping samples during summer and autumn, and the application of radio telemetry for tracking NSWO use of the Big Bald Mountain habitat.

BBBS, operated by volunteers from Southern Appalachian Raptor Research (SARR), bands approximately 2000 passerines every autumn of some 50 species. A raptor trap station was staffed in 2004 and has operated each autumn season, luring and banding approximately 100 birds of prey of 10 different species. The Big Bald Hawk Watch documents the passage of 15 different species of raptors annually. From 2003-2010, Big Bald Hawk Watch has counted a total of 14,644 birds of prey, averaging 2107 migrating raptors each season.

Location

Big Bald Banding Station (BBBS) is located high on Little Bald Mountain at 5390 feet above sea level (1643 m), inside the Appalachian Trail corridor in Cherokee National Forest, Unicoi County, Tennessee and Pisgah National Forest, Yancey County, North Carolina.

The habitat is an edge transition mix of exotic and native grasses, growth-limited northern hardwood forest, a few scattered red spruce, white pine trees and native shrub thickets.

Monitoring Methods

Trapping of NSWOW is conducted during appropriate weather windows from sundown to a variable end time during the night. The BBBS passerine banding station, consisting of 16 mist nets in permanent locations, are most often used as traps for migrating owls. During the summer and late autumn, NSWOW trapping was conducted in Big Stamp Gap, located 1 kilometer from BBBS. All trapping is done following protocols set by the US Bird Banding Lab and the North American Banding Council. Captured owls are processed in the established manner for small raptors, with age determined from flight feather observations (Pyle, 1997). Gender is determined using the wing-mass data chart developed by David F. Brinker (Project OwlNet, 2005).

Playback call surveys of the NSWOW are broadcast as audio lures using a boom-box with MP3 recordings. NSWOW calls are broadcast for 2.5 minutes, after which, surveyors listen for response for another 2.5 minutes. The sequence is repeated two times at each of six listening positions within a 3 km area trail around the Big Bald habitat.

Nest box checks are conducted by climbing a ladder to a position that allows safe observation of the box contents. Nest boxes are secured to a tree approximately 7 meters above the forest floor.

Radio transmitters and a radio receiver were procured in 2010 to monitor NSWOW movements and evaluate the extent of Big Bald Mountain habitat use by NSWOW.

Results and Discussion

A total of seven NSWOW were trapped during autumn at BBBS, totaling 74 owls banded in the past six autumns, 2005- 2010 (Table 1). Trapping for Northern Saw-whet Owls was attempted on 14 nights at BBBS between July 23 and December 6, 2010 (Table 2), totaling 217 net hours of effort. The 2010 NSWOW totals are the lowest annual totals since BBBS began autumn trapping at Little Bald.

Table 1. Age and Gender of Northern Saw-whet Owl trapped at Big Bald Banding Station, Cherokee National Forest, Tennessee. 2005-2010.

YEAR	HY-M	HY-F	HY-U	AHY-U	AHY-M	AHY-F	TOTALS NEW	RETURNS	SY-M	SY-F
2005	5	2	5				12			
2006	1	1	3			3	8	2	2	
2007	3	11	8		1		23			
2008	4	4	3	1	1	1	14	2	1	1
2009	1	4	5	1		1	10	2		2
2010	2		1		1	3	7			
TOTALS	16	22	25	2	3	8	74	6	3	3

HY=hatch year, AHY=after hatch year, SY=second year, F=female, M=male, U=undetermined,
TOTALS NEW=birds banded for the first time, RETURNS= recaptured birds banded in previous years at BBBS

Table 2. Trapping dates, effort and results for Northern Saw-whet Owls during 2010. Big Bald Banding Station, Cherokee National Forest, Unicoi County, Tennessee.

MONTH	DATE	OPEN	CLOSE	NEW	RECAP	RETURN
JUL	23	2200	2300	0	0	0
JUL	27	2200	0030	0	0	0
JUL	30	2130	2230	0	0	0
AUG	7	2130	2245	0	0	0
AUG	8	2145	2345	0	0	0
AUG	10	2130	2300	0	0	0
SEP	14	2100	2330	3	0	0
SEP	20	2100	2300	2	2	0
OCT	18	2030	2200	0	1	0
OCT	22	2100	2300	1	0	0
NOV	01	0445	0730	1	0	0
NOV	29	1800	2000	0	0	0
DEC	02	1800	2200	0	0	0
DEC	06	1800	2200	0	0	0

All seven NSWO trapped in 2010 were new captures, with three owls recaptured during the autumn season. No NSWO return captures (owls banded in past years) were trapped in 2010. Three of the seven new captures were aged as immature (hatch-year) and four owls were determined to be adults (after hatch-year). The 2010 season is the first in six years of trapping at BBBS that more adult NSWO were trapped than immature. Of the four adult owls captured, one was male and three were female. Two immature owls were male and the gender of one immature owl was not possible to determine (Table 3).

Table 3. Descriptive banding measurements of Northern Saw-whet Owls, autumn 2010. Big Bald Banding Station, Cherokee National Forest, Unicoi County, TN.

MONTH	DATE	SPP	AGE	SEX	WT	TAIL	HAL	WING	CUL	TIME	STATUS
SEP	14	NSWO	HY	M	77	67	7.8	130	15.1	22:10	NEW
SEP	14	NSWO	AHY	M	81	68	8.0	130	12.4	23:35	NEW
SEP	14	NSWO	AHY	F	105	71	8.6	139	13.5	23:45	NEW
SEP	20	NSWO	AHY	F	98	74	8.6	142	14.4	22:00	NEW
SEP	20	NSWO	HY	M	80	67	8.2	130	11.8	22:00	NEW
OCT	22	NSWO	HY	U	86	68	8.0	131		22:25	NEW
NOV	01	NSWO	AHY	F	101	65	8.9	136	12.8	7:00	NEW

The small sample of NSWO trapped in 2010 limited opportunity to gather preliminary data on NSWO movement and territory via radio transmitters. Only one radio transmitter was deployed on an adult female NSWO trapped on November 1, 2010 (Figure 1). After release, she roosted in a large Rhododendron shrub, approximately 2 meters off the forest floor and 75 meters from BBBS on the east side of Little Bald Mountain. The following evening she was located as a moving, distant signal to the west; follow-up searches over the next several days were in vain. Minimal data on roost and habitat use were gathered from this encounter, but valuable experience using our newest monitoring equipment was accrued.



Figure 1. Adult female Northern Saw-whet Owl with radio transmitter attached. November 1st, 2010. Big Bald Banding Station, Cherokee National Forest, Tennessee.

Eighteen nest boxes on the northern flanks of Little Bald, approximately 1 km from the Big Bald Banding Station, were checked seven times during the 2010 breeding season for NSWO activity (Table 4). No evidence of NSWO nest box use was detected. Evidence of nest box use by NSWO has been gathered from two boxes (2008) since the boxes were distributed in 2006. The nest boxes were cleaned and checked on a more regular schedule in 2010 than in previous seasons.

Playback surveys were conducted nine times, between February 20 and August 15, 2010. NSWO were detected by call response seven times from February into early June. The playback surveys from late June through mid-August yielded no NSWO call detections (Table 4). Playback call surveys and trapping conducted in 2010 confirm the presence of NSWO in the Big Bald habitat for ten months, from late winter until late autumn.

Table 4. Northern Saw-whet Owl nest box and playback survey dates and responses for 2010. Big Bald Banding Station, Cherokee National Forest, Unicoi County, TN.

YEAR	MONTH	DATE	NEST BOX CHECK	PLAYBACK RESPONSE
2010	FEB	20		YES
2010	MAR	24		YES (2)
2010	APR	02	NO USE	YES
2010	APR	22	NO USE	YES
2010	MAY	06		YES
2010	MAY	20	NO USE	YES (2)
2010	JUN	08	NO USE	YES (2)
2010	JUN	24	NO USE	
2010	JUN	29		NO
2010	JUL	22	NO USE	NO
2010	AUG	15	NO USE	

Returning second year owls, originally banded at Big Bald and returning in 2006, 2008 and 2009, demonstrate site fidelity. Return captures indicate that adult birds either remain on territory or nearby during the winter or return to the Big Bald habitat in late spring to use their natal area for breeding. These data, and the capture of immature birds in late summer and early autumn, continue to support the possibility of resident NSWO nesting in the Big Bald habitat.

Efforts and Recommendations for the 2011 Season

- Continue to monitor for adult NSWOW presence or absence during the early nesting season
- Monitor USFS nest boxes regularly for nesting activity through the season
- Trap spring and summer residents and use radio tracking to determine habitat use and locate nests
- Expand habitat parameter measurements
- Continue trapping and banding during the autumn migration season
- Radio track early autumn hatch-year captures to determine dispersal and survivorship
- Develop education materials for the public to raise awareness of the NSWOW habitat

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