

2007 Field Season Summary

February 25, 2008

Background:

The Maine Owl Monitoring Program (MOMP) began in 2004 after an initial research project by Maine Audubon and the Maine Department of Fisheries and Wildlife in 2002 and 2003 that investigated the effects of different survey protocols on owl detections. The primary goals of MOMP are to document the distribution and abundance of Maine's owls, including both common and rare species; to examine habitat, weather, and other variables that may relate to owl distribution and abundance; and to engage citizen scientists in a unique research opportunity.

MOMP surveys are conducted on established road routes, with ten stops per route, and a 13-minute listening period at each stop. From 2004-2006, audiotapes with 20-second owl calls were played after three minutes of passive listening (Northern Saw-whet Owl call), at minute five (Barred Owl call) and at minute 11 (Great Horned Owl call). Surveys started no earlier than midnight and usually ended by 4 a.m.

In 2007, the protocol was changed slightly to include Long-eared Owls, a species of special concern in the state whose abundance and distribution has never been well documented. The Northern Saw-whet call in the playback series was replaced with the Long-eared call. All other aspects of the protocol remained the same.

Another change for the 2007 season was an additional summer survey for both owls and Whip-poor-wills on established MOMP routes. The summer surveys were shortened to only six minutes, with three minutes of passive listening followed by the Northern Saw-whet Owl call and three more minutes of listening. Surveys were conducted during nights when the full moon was visible above the horizon to maximize the detection of Whip-poor-wills. Because Northern Saw-whet Owls are later breeders, and because winter surveys may detect both resident birds and those migrating through Maine, the summer survey window may better assess the breeding population of this species. A secondary goal of the survey was to locate calling Whip-poor-wills, another nocturnal species of special concern that call at night in June and July.

Field Season Summary:

More than 110 dedicated volunteers completed MOMP surveys in 2007, and the summary of the number of owls detected since 2004 is shown in Table 1. The number of routes surveyed in 2007 was slightly higher compared to other years of MOMP due to some additional recruitment at the beginning of the season. A power analysis to determine a target number of owl monitoring routes for the state is still needed.

Table 1. Summary of owl detections

	2004	2005	2006	Winter 2007	Summer 2007
# Routes Run	71	56	70	84	25
# Routes With Owls	63	43	61	76	20
# of Owls Detected:	325	314	442	404	100
Barred (BARR)	197	164	257	225	63
Great Horned (GHOW)	66	33	59	75	4
Northern Saw-whet (NSWO)	49	108	118	83	11
Eastern Screech (EASO)	1	2	1	1	1
Long-eared (LEOW)	2	2	1	15	3
Short-eared (SEOW)	1	0	2	0	0
Unknown (UNKN)	3	0	4	5	1

Note: Totals have changed from previous summaries due to additional data.

Winter Surveys: Most routes (90%) had at least one owl detected during the 2007 survey, which is comparable to previous years. More GHOW were detected in 2007 than in previous winters, though the number of BARR and NSWO detections both decreased from 2006. The most notable result is the marked increase in LEOW detections, many orders of magnitude higher than in any previous survey year.

Most routes (n=42) had between one and three owls detected over the course of a survey. Fewer routes (n=22) had from four to nine owls per survey, and the fewest (n=12) had more than ten. The highest number of individual owls detected on a single route was 25 on a route in northern Maine. However, there remains an owl “hot spot” in central/southern Maine (Figure 1). This may be correlated with snowfall and snow cover, which averages higher in this same geographic area. Again, a more detailed analysis of weather covariates like average snow depth is needed.

Table 2. Owl detection rates (# Owls/Route)

	2004	2005	2006	Winter 2007	Summer 2007
Barred (BARR)	2.74	2.34	3.57	2.68	2.52*
Great Horned (GHOW)	0.92	0.47	0.82	0.87	0.16*
Northern Saw-whet (NSWO)	0.68	0.68	1.64	0.99	0.44*
All Owls	4.51	4.49	6.14	4.89	4.00*

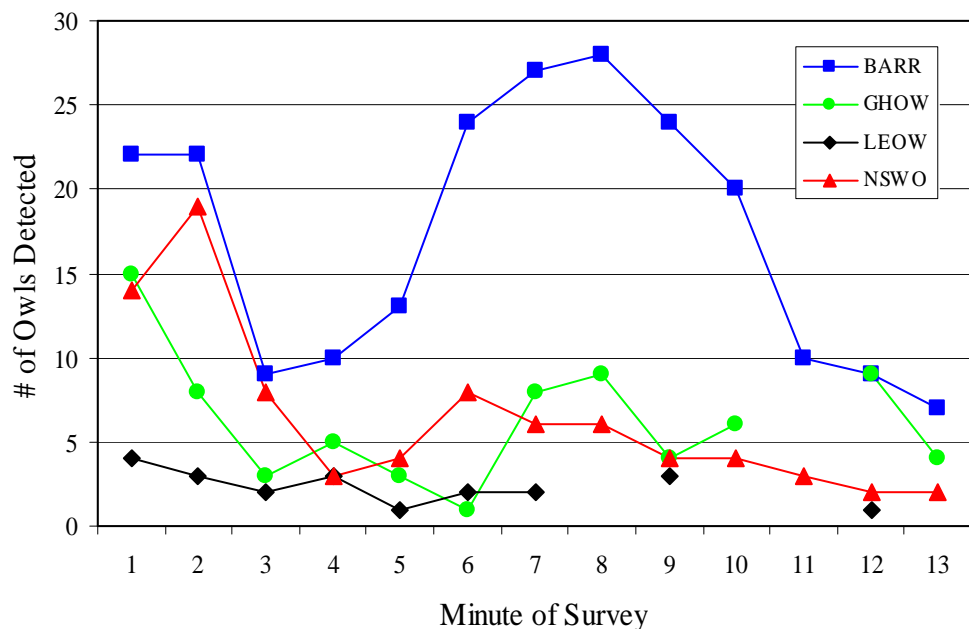
*Summer 2007 surveys were 6 rather than 13 minutes long.

To compare the results from year to year, when the number of routes is different, we calculated the number of owls detected per route by species (Table 2). The number of owls detected per route dropped for both BARR and NSWO from the previous year but increased slightly for GHOW. The drop in NSWO detections makes

sense, given that there was no playback for this species during the winter surveys. Making sense of other changes across years is difficult. Both the winters of 2006 and 2007 had little or no snow cover in much of the state for at least the first half of the winter, which would potentially make prey more available to owls. In fact, snow cover in the southern part of the state in 2007 was lacking until the very end of the season, when late March and early April snowstorms brought the first significant snow of the winter. In contrast, the winter of 2005 had high snowfall starting early in the season throughout the state, and the number of owls detected during MOMP that year were much lower. A more detailed analysis of winter weather, snow cover, and latitude as they relate to owl abundance is needed to both make sense of the data we have collected and set our course for future owl monitoring efforts.

An analysis of the timing for the first response of each owl (Figure 1) shows several things. Like in years past, BARR clearly respond to their own playbacks, but not immediately. For the first time, we see a clear drop off in BARR detections after minute eight. Because of the loss of the NSWO playback, there is no obvious peak for this species during the 13-minute

Figure 1. Timing of First Owl Detections by species for winter 2007 surveys



period. In contrast, NSWO detections appear to drop off after both of the bigger species' calls. Interestingly, the LEOW playback may have played less of a role in LEOW detections than we first expected. There were quite a few LEOW detections in the first three minutes of surveys, leading us to believe that detection may be attributed to more skilled volunteers who have learned the LEOW call. Another season using the LEOW playback in 2008 will provide more information about LEOW detections.

				70	66	67	68	69		
			60	61 8.00 n=2	62	63	64	65 7.00 n=1		
		54	55	56 6.00 n=3	57	58	59			
	47	48	49	50 8.67 n=6	51	52	53			
38	39	40	41 7.75 n=4	42	43 1.71 n=7	44 3.86 n=7	45	46		
28 2.50 n=4	29 1.75 n=4	30 6.33 n=3	31 4.29 n=7	32 9.17 n=6	33 4.50 n=12	34 7.00 n=2	35 4.67 n=3	36 9.00 n=3	37 4.33 n=3	
18 7.00 n=3	19 2.00 n=5	20 3.15 n=13	21 10.4 n=15	22 8.31 n=16	23 7.00 n=7	24 3.92 n=12	25 5.00 n=1	26	27 5.33 n=3	
10 4.00 n=8	11 0.89 n=9	12 4.24 n=17	13 5.27 n=11	14 5.14 n=21	15 4.53 n=19	16 0.50 n=4	17			
4 7.29 n=7	5 3.65 n=17	6 3.85 n=13	7 3.00 n=7	8 5.33 n=3	9					
2 3.33 n=3	3 2.00 n=5									
1 5.50 n=4										

Figure 2. Spatial distribution of owl detections. Numbers represent the DeLorme Gazetteer map number (first line), the number of owls/route within the block (in bold), and the number of routes run in the block (n). The data from 2004 to 2007 have been combined.

reported one Whip-poor-will each. Surveys conducted on two amphibian monitoring routes and a targeted Whip-poor-will route detected an additional 10 birds. Whip-poor-wills are closely tied to dry sandy soils, which are not common in the state. Randomly distributed routes like the MOMP routes do not appear appropriate for this species, though another season of data collection will help confirm this finding.

Summary and Future Work:

In summary, the 2007 MOMP season was a success, both in terms of the number of volunteers who participated as well as the number of owls detected. Furthermore, this additional year of surveys adds greatly

MOMP routes were initially distributed state-wide, though the bulk of the routes have been run in the south and central part of the state (Figure 2). There continues to be a core area in central Maine where owl detections rates are higher (Figure 2, blocks 21, 22, 23 and 32). An analysis of snowfall in this area and other habitat variables (amount of pasture/agricultural land, for example) is needed.

Summer Surveys:

Summer surveys were designed to test the feasibility of surveying for both owls and Whip-poor-wills. Of particular interest during the surveys was the detection rate for Northern Saw-whet Owls, because there has been some question as to whether winter surveys adequately monitored the breeding population for this species. We believe that Maine has both resident and migratory individuals in winter.

Summer routes were successfully detected NSWO and BARR (Table 2), especially if detections are adjusted for a shorter survey (six minutes in summer vs. 13 minutes in winter). However, only three MOMP routes

to the value of our growing database of owl detections. After the 2008 season is complete, we will have five years of data to analyze in greater depth. After that is finished, we will need to assess the goals of MOMP, its utility in terms of land management and conservation action, and its viability as an on-going and sustainable program.

The success of MOMP depends entirely on dedicated volunteers who are willing to forego a night of sleep for the pleasure of hearing owls! Thanks to the following 2008 MOMP volunteers:

Brian Allen, Holly Anderson, Si Balch, Diane Bartholomew, Gladys Benshimol, John Berry, Rick Beverage, Ann Brayton, Matt Brown, Mac Browning, Steve Bumps, Murray Carpenter, Jim Colquhoun, Kat Coriell, Fred & Regina Costlow, Frank Daggett, Frank Davis, Jay (Mac) Davis, Simon Diaz, Mary Lou Dietrich, Henry Dillenback, Larry Dixley, Jim Dougherty, Richard Duddy, Michael Durant, Kathy Durrell, Mick & Mary Evans, Chris Fichtel, Pat Flynn, Steve Ftorek, Sherri Gee, Ed Hawkes, Susan Hayward, Mary Ann Hebert, Jean Hoekwater, Dixie Hummel, Jim Kenneally, Ed & Eileen Laine, Olga Lange, Leslie Latt, Kathy Lawrence, Nancy Light, Joe Longtin, Bill Mackowski, Bob MacLaughlin, Judith Marden, Amy Meehan, Karen Morris, Clark "Chip" Moseley, Gordon & Virginia Mott, Richard Moulton, J. Philip Murray, Kent Nelson, the Nichols Family, Noreen O'Brien, Susan Olds, Len Oliver, Tony Owens, Jennifer Perry, Kit Pfeiffer, Michael Peterson, Nancy & Rebecca Piston, Caro Poirier, Adam Pomeroy, Dave Potter, Maureen Raynes, Carol Redelsheimer, Cathy Rees, Don Reimer, Gary Roberts, Sally & Fred Rooney, Luke Seitz, Lindsay Seward, Tom Seymour, Mike Shannon, Lauren Simpson, Don Smith, Travis Sparks, Alan & Joann Stevens, Cathryn Thorup, Holly Torse, Lindsay Tudor, Ken Vencile, Kim Vogel, Jim Walker, Kathy Wall, Stella Walsh, Bob & Anne Watson, Shirley Wells, Beth White, Ted Whitham, Art & Sallie Wilder, Nancy Wright, Rebekah Woisard, Linda Woodard, Christine Wooley, Stacey Wyman, Steve Yates, Jay Young,

We tried our best to include everyone who has submitted data for MOMP. If for some reason your name has been inadvertently omitted, please let us know (781-6180 ext. 216).

Additional special thanks to Shirley Wells for another year of entering owl data, organizing files, printing and assembling packets for volunteers, and just generally being helpful and enthusiastic about the owl project. Thank you, Shirley!

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