

Citizen Science Program: Monitoring Flammulated Owls in Western Montana- 2009 Results



M Seidensticker photo



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We thank the hard-working volunteers who donated their time and late nights to this citizen science effort!

For more information or a copy of this report see <http://mtaudubon.org/birds/citizen.html>

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Overview of this Citizen Monitoring Program

Over the past three summers Montana Audubon and the Avian Science Center together have developed a successful citizen science program: Monitoring Flammulated Owls in Western Montana. Little is known about the long term status and site fidelity of Flammulated Owls in western Montana, and this program uses citizen scientists to help provide such information. Through this program volunteers sign up to “adopt” a survey route that they complete twice between the 3rd week of May and the middle of July. Volunteers conduct nighttime surveys using GPS units to navigate to pre-established points along roads. At each point volunteers play a Flammulated Owl call using a broadcast caller and record any responses from owls. We now have surveys established on forested lands near Missoula, in the Bitterroot valley, and near Helena, Montana.

Amy Cilimburg (Montana Audubon) took the lead in designing this program, working with Megan Fyiling (Avian Science Center; ASC) to coordinate survey efforts on the three National Forests, train over 65 citizen scientists, and develop a system for sharing field equipment and maintaining data quality. Montana Audubon and the ASC, have collaborated to run this project in 2009, and we hope to continue the collaborative program to provide the region with long-term data.

In the Helena area this program was co-lead with biologist Denise Pengeroth of the Helena National Forest. This program was made possible with financial support from Montana Fish Wildlife and Parks, the dedication & enthusiasm of citizen scientists from the Five Valleys and Last Chance Audubon Society chapters and the local communities, and with help from Birds & Beasley’s of Helena and Le Petit Outre in Missoula.

2009 Results from Citizen Monitoring for Flammulated Owls

During the summer of 2009 we continued our citizen science monitoring effort for Flammulated Owls in the Greater Missoula Area and on the Helena National Forest. Twenty-eight volunteers surveyed 11 transects in the Missoula area, detecting a total of 43 owls across 7 transects. In the Helena area, 14 volunteers surveyed 8 transects, detecting a total of 9 owls on 2 transects. Table 1 and 2 and Figures 1 and 2 show where these transects are located and owls detected. Overall, at least one Flammulated owl was detected on 47% of transects (9 of 19) and on five transects, owls were detected at three or more points, suggesting that these areas support multiple owls.

In the Missoula area, where several routes were surveyed in all three years, we observed substantial differences in the proportion of points that produced Flammulated Owl detections between years. In 2007 and 2009 owls were detected on about a quarter of the survey points: 27% of points (35 out of 128 pts) in 2007 and 22% of points (21 out of 96 pts) in 2009. In contrast, owls were detected on only 8% of points (5 out of 59 pts) in 2008. With a limited sample size and only three years of data it is difficult to ascertain the factors most responsible for these differences between years, the cold and wet conditions experienced in 2008 may have affected our ability to detect owls. Other factors such as low site fidelity, variable survival, or variable breeding patterns may also explain differences. In addition, fewer transects were surveyed overall in the greater

Missoula area during that year. Such variation points to the value of continued survey efforts over time.

In the Helena area, Flammulated owls were detected on 6% of points (5 of 80) versus 14% of points in 2008. Many of the Helena area surveys were carried out relatively late in the season which may explain the decrease in detections in 2009. Flammulated owls are detected most reliably during the month of June (Barnes and Belthoff 2008, Cilimburg *pers. observation*). Only one route that was surveyed in both years did not have any responses from owls in 2009, but it is possible that the owls were less vocal at the time of the survey (July 10th).

Table 1. In 2009 we surveyed 8 transects in the Helena area and Flammulated Owls were detected on 25% of these transects (2 of 8). 11 transects were surveyed in the Missoula area and owls were detected along 64% of these transects (7 of 11) (see also Figures 1 and 2).

| 2009 Season Results: | | | |
|-----------------------------|----------------------|---------------------|-----------------------------|
| Route Name | No. of Visits | Owl Detected | No. points with owls |
| MAGPIE | 1 | No | 0 |
| MOUNT HELENA CITY PARK | 2 | No | 0 |
| OWL GULCH | 1 | No | 0 |
| PARK LAKE | 1 | No | 0 |
| PRIEST PASS | 1 | No | 0 |
| TEN MILE | 1 | Yes | 1 |
| UNIONVILLE | 2 | Yes | 4 |
| YORK GULCH | 1 | No | 0 |
| Helena Totals | 8 transects | 2 transects | 5 |
| BLUE MOUNTAIN EAST | 2 | No | 0 |
| BLUE MOUNTAIN WEST | 2 | No | 0 |
| BREWSTER CREEK | 3 | Yes | 2 |
| BUTLER CREEK | 2 | Yes | 6 |
| CRAZY CANYON | 1 | Yes | 3 |
| FRENCH GULCH | 2 | Yes | 4 |
| HOLLOWMAN SCHWARTZ | 2 | Yes | 1 |
| MOCASSIN WEST | 1 | No | 0 |
| STARK MOUNTAIN | 2 | Yes | 2 |
| STONEY ROCK | 1 | No | 0 |
| WOODS GULCH | 2 | Yes | 3 |
| Missoula Area Totals | 11 transects | 7 transects | 21 |

Table 2. Transects surveyed in 2009 in the Helena and Missoula areas, survey date(s) and the number of points at which one or more Flammulated Owls were detected by visit. Totals represent the total number of points, summed across all visits, at which one or more owls were detected. Note that this is not a tally of the numbers of owls, as some owls were likely detected at greater than one point.

| 2009 Season Results: | | Number of points with owls: | | | |
|-----------------------------|---------------------|------------------------------------|----------------|----------------|--------------|
| Route Name | Survey Dates | Visit 1 | Visit 2 | Visit 3 | Total |
| MAGPIE | 7/16 | 0 | - | - | 0 |
| MOUNT HELENA CITY PARK | 6/28 & 7/14 | 0 | 0 | - | 0 |
| OWL GULCH | 7/10 | 0 | - | - | 0 |
| PARK LAKE | 7/11 | 0 | - | - | 0 |
| PRIEST PASS | 7/10 | 0 | - | - | 0 |
| TEN MILE | 7/24 | 1 | - | - | 1 |
| UNIONVILLE | 7/15 & 7/19 | 1 | 4 | - | 5 |
| YORK GULCH | 7/16 | 0 | - | - | 0 |
| Helena Totals | | 2 | 4 | - | 6 |
| BLUE MOUNTAIN EAST | 5/30 & 7/10 | 0 | 0 | - | 0 |
| BLUE MOUNTAIN WEST | 5/30 & 6/14 | 0 | 0 | - | 0 |
| BREWSTER CREEK | 6/22, 7/06, & 7/17 | 1 | 1 | 0 | 2 |
| BUTLER CREEK | 6/06 & 7/08 | 5 | 5 | - | 10 |
| CRAZY CANYON | 6/09 | 3 | - | - | 3 |
| FRENCH GULCH | 6/11 & 7/01 | 4 | 0 | - | 4 |
| HOLLOWMAN SCHWARTZ | 6/04 & 7/19 | 1 | 0 | - | 1 |
| MOCASSIN WEST | 6/10 | 0 | - | - | 0 |
| STARK MOUNTAIN | 6/30 & 7/09 | 1 | 2 | - | 3 |
| STONEY ROCK | 6/29 | 0 | - | - | 0 |
| WOODS GULCH | 5/30 & 6/27 | 3 | 3 | - | 6 |
| Missoula Area Totals | | 18 | 11 | 0 | 29 |

Summary

This monitoring effort continues to add to our understanding of Flammulated Owl presence and persistence over time. It is set up to be continued, and the strength of the results and our abilities to apply them to effective conservation will increase over time. Citizen science efforts such as these have benefits beyond the data themselves. These efforts educate volunteers about owl natural history and the process of science. We hope to secure further funding to continue this program.

For results of previous years' efforts, including Forest Service studies in 2005 and 2008, see http://avianscience.dbs.umt.edu/projects/flammulated_owl.php

Barnes, K P and J R Belthoff. Probability of detection of Flammulated owls using nocturnal broadcast surveys. *Journal of Field Ornithology*. 79: 321-328.

Figure 1. Map showing all Flammulated Owl routes and points, shown in yellow, visited by citizen volunteers in the Missoula area.

Missoula Area Flammulated Owl Routes

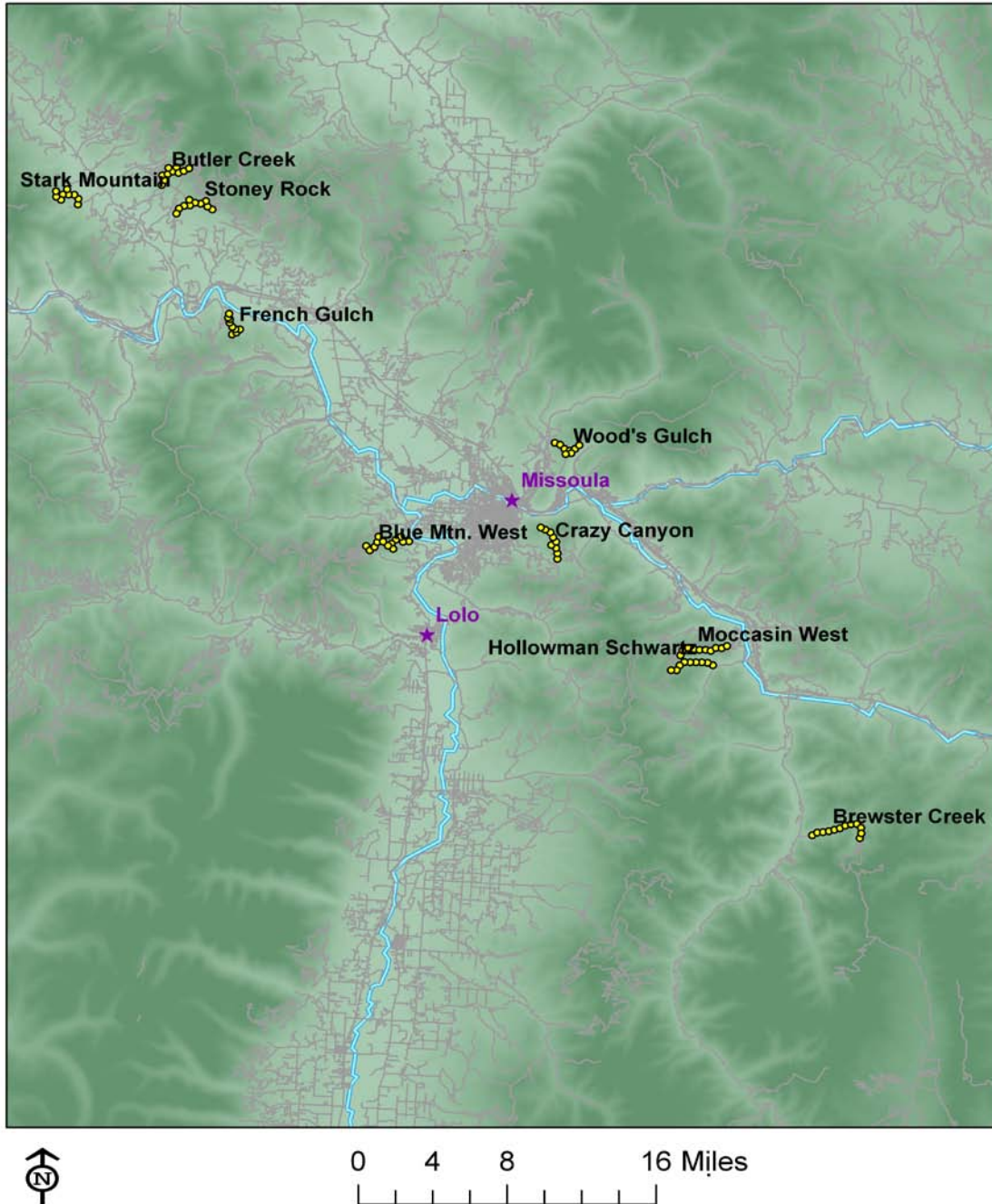


Figure 2. Map showing all Flammulated Owl routes and points, shown in yellow, visited by citizen volunteers in the Helena area.

Helena Area Flammulated Owl Routes

