

***A Survey of Bobolink
in East Leverett Meadow
June 2004***

Molly Hale

Background

East Leverett Meadow (ELM) is a 30-acre grass and forb meadow owned by the Rattlesnake Gutter Trust and located in Leverett, Massachusetts. Bobolinks (*Dolichonyx oryzivorus*) currently nest in ELM but this species has declined regionally since the early 1990's due in part to the loss of nesting habitat and early mowing for hay. For these reasons the Trust is trying to encourage successful bobolink nesting at this site by studying bobolink use of ELM and by altering the mowing regime.

To accomplish these goals, annual surveys to assess bobolink activity in ELM have been conducted from 2000 to 2003. Aaron Eilers conducted the 2000-2002 surveys and I conducted last year's survey. The specific stated goals of these surveys were 1.) to identify the preferred habitat locations of bobolinks within ELM; 2.) to estimate the approximate number of bobolinks using ELM; and 3.) to compare data between years to determine whether the population is changing.

The ultimate purpose of the surveys is to plan and assess a mowing regime that will cause the least mortality to nesting bobolinks in ELM. Specifically the Trust is interested in knowing in which section of the meadow bobolink nests are located; how early ELM can be mowed or hayed without causing bobolink mortality, and whether the bobolink numbers each year are related to the mowing regime.

2004 Methodology

In order to make comparisons between years useful, I used essentially the same survey method as last year. Some additional points were used, and some of the point locations were changed to minimize crossing through the meadow and to thoroughly assess the east section of the meadow.

The survey took place from 7:50 to 10:25 a.m. June 14. I used binoculars to help spot birds. I began by observing the meadow for 25 minutes from Point 1, along the south edge of the field at the corner of the Kusmeski Conservation Restriction (see map). From here I got a good view of the east half of the meadow and could also see some bobolink activity in the west end of the meadow. Part of the time I spent scanning with binoculars from one side of the meadow to the other, and could see bobolinks perched on the grass or flying. By scanning I could determine a minimum total number of male bobolinks because they were visible simultaneously or in distinct parts of the meadow. The second observation technique I used was to observe where individual bobolinks were perched and map their locations by using compass bearings and estimating distances. I also mapped as many of the movements of individuals as possible.

Next I conducted point counts from six additional points at the meadow's edge or within the meadow. At each of these points I again used binoculars and compass to observe and map

estimated bobolink locations and movements. I did not assume that birds at one point were different individuals than those at another point. Instead from each point I made a separate count that I could compare against the others like snapshots from different angles and points in time.

Point 2 was located at the hickory along the south edge of the meadow. Point 3 was in the middle of the west edge. Point 4 was halfway between the Point 2 and the electrical tower directly north. Point 5 was at that electrical tower. Point 6 was halfway between the 2 electrical towers near the southern corners of North Meadow. Point 7 was directly north of Point 1, halfway between that point and the electrical tower. No points were located east of Point 7 because no bobolinks were observed there from any other point. Instead I concentrated my efforts on the West and Central Meadow to try to better assess numbers there.

Results

Interpretation of maps

To aid in describing the different sections of the meadow, I divided a map of ELM into 6 sections: northwest, southwest, north-central, mid-central, south-central, and east (see map). Separate maps of the observations from each point are also included in this report. The maps show where birds were observed perched. Movements of a bobolink that I knew was a single individual are connected a straight line. Symbols not connected by a straight line indicate either separate individuals or possibly an already observed individual that got counted more than once. Also, the straight lines are not the actual flight path. In many cases, the flight paths of males looped over large sections of the meadow.

Point 1: 25 minute observation

The maximum number of male bobolinks that was visible during a single scan was 4. This number was obtained from birds that were in flight simultaneously. No bobolinks were observed in the east or central sections of the meadow. 1 perched male was observed in the southwest section.

Point 2: 15 minute observation

1 male in the central section. 1-3 males in the southwest section and 1 male in the northwest and mid-central sections. 2 females observed: 1 in the southwest section and 1 flying between the southwest and northwest sections.

Point 3: 15 minute observation

1 male each observed in the northwest and mid-central sections. 2-3 males and 2 females observed in the southwest section.

Point 4: 15 minute observation

1-3 males in the mid-central section, 1 male in the south-central section and 2-3 males in the southwest section. 1 female in the southwest section and 1 female in the northwest section. 1 of the females was observed carrying a caterpillar. This is a likely indicator that eggs had hatched by this date and young were being fed.

15 minutes of heavy rain occurred between these 2 points when observations were not made.

Point 5: 15 minute observation

Observations resumed after rain stopped. Many of the bobolinks were perched on grass preening following the rain. 1-5 males and 1 female in the mid-central section. 2 females in the northwest section and 1 male in the southwest section.

Point 6: 15 minute observation

3 males and 2 females in the north-central section. 1 female in the northwest section.

Point 7: 15 minute observation

1 female in the south-central section, 1 male between south-central and mid-central sections and 1 male in the southwest section.

Discussion

Sections of ELM used by bobolinks:

Bobolinks were never observed perching in or flying over the north-central and east sections of ELM, or within 100 feet of the south edge. A lack of bobolinks in these areas was also found in surveys from the 4 previous years. The south-central section had low activity, with only 1 female and 1 male observed perching there. This also agrees with last year's survey, though Eilers found more activity in this area in his surveys. Like last year, most of the bobolinks were observed perching in and flying over the southwest, northwest, and mid-central sections. Activity this year extended farther east in the mid-central section than it did last year, almost as far as the electrical tower next to the hickory tree. The most activity overall was within about 300 feet of Point 4, which is at the corner of 4 quadrants.

Estimated number of bobolinks:

At least 4 different males and 2 different females were present in the whole meadow. In contrast to last year when the minimum estimate was obtained by scanning for perched birds, this year the minimum was obtained when males were in flight simultaneously. My subjective impression was that the males during this year's study spent less time conspicuously perched than last year. It's important to note that the number of bird observations recorded for any one point do not necessarily indicate different birds. This year it was impossible to get a good estimate of the maximum number of males because few were ever seen perching simultaneously. After perching they would often disappear into the grass. When my back was turned, they may have flown to a different area and been counted again. Individuals were certainly counted more than once from separate points, and may have been counted more than once from the same point. However, the highest number of observations of males counted from a single point was 7 at Point 4. If these were all different males, this probably approaches a maximum for males because all sections of ELM were visible from this point. Nevertheless, some males may have been hidden during this entire 15 minute observation period.

Only 2 different females were confirmed this year, but females were observed perching in all except the east and the north-central sections. Because bobolinks are polygynous and females tend to stay hidden in the grass, more females were likely present than were observed.

Last year I found a minimum of 5 males and 2 females, and a maximum of 7 or 8 different males. This year's numbers are about the same. Eilers did not extract an estimate of bobolink numbers from his data from 2000 or 2001. While the map from his 2001 study appears to indicate more bobolink activity than in 2003 or 2004, the different methods used preclude a comparison with my studies.

Implications for mowing or haying:

This year's data indicates that bobolink nests were not likely to be located in the east and north-central sections and a 100 ft. zone along the south edge. However, even though no bobolinks were observed flying into these areas, it is undetermined whether cutting here would impact the bobolinks' food supply. Also, this study did not focus on other bird species that may

use this and other parts of the meadow. Red-winged blackbirds were definitely nesting in ELM, but I did not observe which areas they were using.

As for the active bobolink area of ELM, the decision of when to cut and whether to cut each year is complex and inexact. If hay quality is not an issue, then the earliest cutting should occur is August 15. While earlier cuts may not kill all young, they likely would kill at least some due to differences in fledge dates within the population and due to re-nesting of bobolinks whose nests failed the first time. The mid-August date also allows time for fledglings to learn how to find food, hide and survive before their food and cover is removed. Many useful references addressing this issue have been compiled by Sheila Seaman of the Rattlesnake Gutter Trust. I refer you to these documents rather than redundantly addressing them here.

The question of whether one year's mowing regime at ELM affects the next year's nesting cannot be answered because there are too many other factors that influence the bobolinks' survival from year to year. These include habitat conditions on their wintering grounds and mortality during migration. Also, it is impossible to tell if the same individuals are returning each year, or if they are being replaced with birds displaced from another breeding site.

Submitted by
Molly Hale, Wildlife Biologist
96 Oak Street
Florence, MA 01062
(413)585-0791