Bedford Audubon Society
Bobolink Recovery Project

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Abstract: The Bobolink, *Dolichonyx oryzivorus,* is a small grassland bird that has suffered a 50% decline in population across the United States due a combination of increased development of former farmlands and haying that is taking place earlier in the season because of global warming. In response to this dramatic decline, the Bedford Audubon Society (BAS) launched the Bobolink Recovery Project, an educational program attempting to save the remaining populations of Bobolink and other once common grassland birds. Focusing strictly on Bobolinks, BAS reviewed fourteen aerial photographs of northern Westchester County and then conducted fourteen follow-up field bird surveys in May, 2009, finding **23 adult male Bobolinks in North Salem**. No other Bobolinks were found anywhere else in Westchester. The Bobolinks identified were all found on grasslands larger than 25 acres, and most were found on land that is privately owned. Many landowners hay these fields early in the summer, which destroys nearly 100% of Bobolink eggs and newly hatched chicks, which cannot fly for cover or food (fledge) until the beginning of July. BAS sent letters to the owners of large fields urging them to delay cutting until mid July, allowing enough time for the young Bobolinks to fledge. Four landowners agreed to postpone mowing on a total of 170 acres. The study area was then surveyed in mid July and **116 Bobolinks were found.** These results indicate that education is an effective way to conserve Bobolink and other grassland species. The results show that when late haying is implemented, Bobolink populations will increase dramatically.

Key Words: Bobolinks; North Salem; Bedford Audubon Society; grassland birds; haying.

Introduction:

The Bedford Audubon Society recently embarked on an effort to save the dwindling population of Bobolink in Northern Westchester. Bobolinks are grassland birds that depend on large acreages of open fields for hunting, breeding and nesting. In recent years, the population of Bobolinks has suffered a dramatic 50% decrease across the United States due to development, climate change, and earlier and more intensive haying of the few remaining grasslands. Across New York State, farms have been subdivided into small privately owned lands. Secondary succession of abandoned fields has resulted in a further loss of grassland habitat. This combination has resulted in significant habitat loss for grassland birds including Bobolink. North Salem is one of the last towns in Westchester to have large enough fields (25 acres or more) to support Bobolink populations. In the study area, the few remaining Bobolinks are failing to nest successfully because of early mowing of grasslands. Our prediction is that Bobolink populations will increase dramatically if mowing is delayed until mid July.

Problem:

Throughout the United States, urbanization and development have resulted in a dramatic disappearance of farmland. Across the Northeast, conversion of farmlands to residential development has reduced grassland habitat by ninety-five per cent in the last fifty years (Herkert, 1997).

The critical problem is that Bobolinks have fewer areas of grassland to nest in and when suitable habitat is found, Bobolink young must remain undisturbed until they fledge sometime in July. In addition to the overall loss of grassland habitat, Bobolinks also suffer as landowners hay their fields earlier in the season, with first cuts taking place in

early June and sometimes even earlier in May, killing young Bobolinks. The combination of habitat loss and earlier mowing has resulted in a decline of Bobolink populations of fifty per cent across the United States in the past fifty years (Sauer, 2005).

Climate change is a contributing factor in the decline of Bobolinks. As global temperatures increase, grasses grow earlier and quicker. “Increasing global temperatures has led to progressively earlier cutting dates. The median date of hay cutting has increased by fourteen to twenty-one days in the past fifty years, and now overlaps directly with peak nesting of grassland birds in most regions” (Martin and Gavin, 1995; Herket, 1997). As grasses grow earlier due to warmer conditions, landowners are now mowing before the young grassland birds can fledge.

The conservation and management of grasslands is critical to the future of grassland birds such as the Bobolink. Grassland habitat is made up of conservation land and private land. The majority of North Salem grassland habitat is privately owned. Some private landowners in North Salem are forced to mow early to maximize income derived from agriculture to qualify for agricultural tax incentives. While agricultural tax incentives are effective in keeping land as open space and not developed, in some cases these incentives inadvertently contribute to the decline of Bobolink as landowners are incentivized to hay their fields early in the season to guarantee quality hay with a higher market value and to hay earlier so that several cuttings can be done during the haying season. Delayed mowing can reduce hay protein by up to twenty per cent, lowering revenues (Nocera, 2005). By haying early and often, landowners generate more money and are able to generate enough revenue to qualify for agricultural tax exemptions. Offsetting the potential revenue loss due to lower protein content is the fact that “delayed hay cutting allows field curing conditions to improve as summer progresses and

significantly increases total annual yields in one cut systems" (Mason and Lachance, 1983). In these instances, it is economically beneficial for farmers to delay cutting.

By educating landowners and farmers about the critical condition of the Bobolink, by recommending certain haying management practices and by helping landowners receive federal payments to help compensate for hay protein loss or the loss of other tax incentives due to delayed mowing, the future of Bobolinks can be dramatically improved.

Method:

BAS sought to delay cutting dates until mid July to determine if haying dates influence Bobolink populations. Beginning in early March, BAS reviewed aerial photographs and identified fourteen field complexes in Westchester County that were large enough (over 25 acres of treeless field) to potentially be suitable for Bobolink. BAS naturalist Tait Johansson then did ground surveys of these fields in May and June to determine the presence of nesting Bobolink. No Bobolinks were found in any of the towns except for North Salem. North Salem's approximately 1,500 acres of open fields supported only 23 male Bobolinks. In late May BAS sent letters to people who owned approximately 300 acres of fields that were determined by BAS to support Bobolinks. The letters conveyed the devastating effect that haying was having on local Bobolink survival and the important role that Bobolinks play in the biodiversity of North Salem. Responding to these letters and subsequent phone conversations, several landowners agreed to delay cutting until mid July.

Additionally, BAS and USDA Soil Conservationist David Mortensen conducted a hay quality survey in the five largest Bobolink fields that indicated that hay protein quality in the majority of fields was "medium to poor." Fields already low in protein lose some quality with later mowing but the economic loss is less significant than the loss that

occurs when high quality hay is mowed later. Landowners were informed about the quality of their hay, the potential loss of quality and the potential gains in volume if haying is delayed, and were advised to rotate fields for haying and to hay instead in fields smaller than 25 acres.

On July 8 and July 17, 2009, Tait Johansson did another survey of the fields. This survey counted male, female and fledgling Bobolink together.

Results: 185 acres of unmoved fields were surveyed. Five Bobolinks were found in one field while 111 Bobolinks were found in the largest, 90-acre complex of fields. Visual observations precluded exact identification of age and sex of birds observed. Assuming that the 23 nesting adult males observed in May successfully mated with an equal number of females and that each nest had an average of three chicks, it is possible that as many as 70 chicks may have successfully fledged. This is compared with a success rate of close to 0% in other studies of Bobolinks in fields that were hayed in the month of June.

Discussion of Results:

There are many reasons why Bobolink populations have declined in recent years. The BAS study confirms that the cutting date of grasslands plays a critical role in determining the fate of the Bobolink's reproductive success. At the beginning of the nesting season, there were 23 male Bobolinks found in North Salem. According to our results, the July 8 and 17 surveys suggest that there are now 116 Bobolink living in the same study area. Although it is difficult to distinguish females from fledglings, there was clearly a dramatic increase in Bobolinks as mowing was delayed.

Because Bobolinks are polygamous, it is difficult to obtain an accurate count of surviving fledgling populations. This study assumes an equal number of female and male Bobolinks, 23 males, 23 females, and therefore an estimated 70 fledglings. Although

these numbers are estimates, it is clear that regardless of exactly how many adult Bobolink nested at the beginning of the season, fledgling survivorship is increasing because of later cuts. These results may encourage other landowners to delay mowing until mid-July.

Further Recommendations:

The principal recommendation from this study for North Salem landowners is to hay no earlier than mid July in order to increase Bobolink populations. Educating landowners about the pivotal role that delayed haying can play for the future of the Bobolink is the primary method to use in the future. Landowners can also be given alternatives to delayed mowing including rotating fields, and replacing high quality habitat fields with fields that are not suitable for Bobolink, i.e. fields smaller than 25 acres. Fields smaller than 25 acres should be limed, fertilized and hayed earlier, while larger fields should be hayed after mid-July. This would provide quality hay while maintaining ideal habitat for Bobolink fledglings.

According to a report by the Cornell University Cooperative Extension, "when rotating hayfields for grassland birds, farmers should weigh the benefits (better grassy habitat, better drying conditions) with the disadvantages (hay quality loss). Hayfields cut late in the growing season may produce lower quality feed or mulch hay, but these do not have to result in an economic loss. Late cut hay still has value for poultry, horse, sheep, dairy heifers, and beef fed with supplements" (Ochterski, 2006).

Different cutting techniques and mowing patterns can also be used to conserve grassland birds. "If an entire hayfield will be mown, the equipment operator can sometimes mow straight to the center of the hayfield and then gradually work toward the edges. This encourages grassland nesting birds to scatter outwards through cover, rather

than into the open." Also, "If an unclipped pasture is adjacent to the hayfield, start farther from the pasture and work toward it, so birds can fly to the pasture or adjacent field as a refuge" (Ochterski, 2006). These two practices will not prevent nests from being destroyed, but may allow adult Bobolinks to escape.

Additionally, a new fund could be used to compensate owners for a potential loss of protein in hay so that those farmers who cannot rotate or switch fields can still afford to delay cutting, since monetary payments will offset any potential protein loss or any loss of agricultural tax exemptions. While federal incentives are available to landowners in northern New York, none are currently available in the study area. One recommendation is to lobby for state or federal grants for the study area.

Finally, citizen participation is imperative for the future of the Bobolink. Events such as Bobolink walks and talks can educate citizens about Bobolinks, allowing land owners to make informed decisions about mowing. Additionally, newspaper outreach and a town-wide mailing can further inform citizens about the importance that Bobolinks hold for the biodiversity and aesthetics of the town of North Salem. Supporting local agriculture could also help keep the few remaining grasslands intact. The citizens of North Salem will determine the future of Bobolinks in this region. According to the results of the BAS study, delaying haying is critical to the survival of Bobolinks in Westchester, Putnam and Rockland counties.

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