

STATUS: HIGH CONSERVATION PRIORITY IN IOWA

Bobolink

Dolichonyx oryzivorus

Introduction

The Bobolink is a species that has long been familiar to many Iowa landowners, and it is one of the most distinctive birds of Iowa grasslands. During spring and summer the brightly colored male is easily recognized with overall black appearance, large patches of white on wings and down middle of back, and tawny yellow nape, or back of neck. Males are especially conspicuous during the nesting season as they perch high on plant stems and sing a long bubbly song during aerial displays – in helicopter-like flight – over the grassland. Females are duller colored and more secretive.

Bobolinks have one of the longest migration journeys of any Iowa songbird, wintering on grasslands in southern South America. One female known to be at least nine years old presumably made this trip annually, a total distance equal to traveling 4.5 times around the earth at the equator!

Bobolinks have been shot as agricultural pests in the southern United States, trapped and sold as pets in Argentina, and collected as food in Jamaica. The species is not as abundant as it was several decades ago, primarily because of changing land-use practices here where it reproduces, especially detrimental are the decline of meadows and hay fields. The combination of losses on the wintering grounds and destruction of many of the grasslands in Iowa has led to an overall decline in their numbers in Iowa.

LINK TO IOWA IBA: BOBOLINK

Habitat Preferences

The Bobolink is a species of the Tallgrass Prairie Ecosystem. It prefers habitat with moderate to tall vegetation, moderate to dense vegetation, and moderately deep litter without the presence of woody vegetation. Bobolinks originally nested in tall-grass or mixed-grass prairie. Most of this habitat came under intense agricultural pressure more than a century ago.

Presently in Iowa this species is found in old fields, pastures, wet meadows, and prairie. It seems to especially use old hayfields that are comprised of a mixture of grasses and broad-leaved forbs. Population density is significantly higher in fields with relatively low amounts of total vegetative cover, low alfalfa cover, and low total legume cover but with high litter cover and high grass-to-legume ratios relative to other nearby fields.

Bobolinks also breed in habitats similar to grass-sedge fields along river bottomland habitat, and sometimes in irrigated meadows.

Feeding Habits

In Iowa, during nesting, adult Bobolink feed on weed seeds, a variety of larval and adult insects, spiders, and harvestmen. The young are fed exclusively invertebrates. In migration this species feeds on wild and domesticated rice, oats, other small grains, weed seeds, and occasionally on insects.

Bobolinks forage on seeds at the tops of forbs interspersed within expanses of grasses or sedges. They glean insects and spiders from mid-growth and bases of forbs, grasses, and sedges. The preferred foraging height is 2 to 6 inches above ground. Occasionally foraging is for invertebrates in trees and shrubs adjacent to or within nesting sites. Providing grassland habitats for feeding is recommended.

Bobolinks feed primarily as they walk slowly on the ground or as they ascend into lower levels of vegetation. When foraging on seeds, they often perch near the top of vegetation to extract and ingest seeds. Foraging occurs throughout daylight hours. During the breeding season, they are solitary foragers. In post-fledging groups on nesting fields and during migration and winter, Bobolinks join intra-specific flocks, which have highly social feeding behavior.

Breeding Biology

In three well-studied populations, the majority of males that establish initial territories normally arrive suddenly on breeding grounds in early May, and depart slowly from July to early September. Older males generally precede yearlings by several days in spring. Females normally begin arriving 4 to 8 days after the initial group of territorial males. Earliest returning females also tend to be the oldest.

This species tends to return to areas where it has nested successfully before, and both sexes exhibit high breeding-site fidelity. Bobolinks are widespread and fairly evenly distributed in Iowa, and tend to occur wherever suitable grassland habitat is provided.

Females returning to the same breeding habitat often settle with a male within hours of returning, occasionally re-pairing with same male of a previous year. During early courtship phases, males devote complete courtship attention to the female. After a second day of courtship, and always by first day of the copulation period, males attempts to attract unpaired females. This species is polygynous with the males forming pair bonds with more than one female. Polygynous males often pair with second mates 3 to 8 days after initial pairing occurs. Pair formation within a population is highly synchronous, with most males that are successful in becoming

paired, attracting their first females within a few days.

Nest construction takes place in the second or third week of May and is completed in 1 to 2 days. Food abundance may influence timing of nesting events. One egg is laid each day, starting within 1 to 2 days of nest completion. There are usually 5 to 6 eggs laid, but the number may vary from 3 to 7. Incubation is by the female only. An average incubation period is approximately 12 days. Undisturbed young fledge 10 to 11 days after hatching.

The norm is one brood per season. Bobolink nests tend to be located in wet habitats, transitional between drier soils and areas providing poor drainage. Nests are always on the ground, and often at base of a large forb. Shading and temperature modulation at the nest appear to be important to nesting females.

Nest construction activity is often intensive. It is important to note that nests discovered early in construction are often immediately abandoned. For this reason, great care should be taken when walking through grasslands that support Bobolinks from mid to late-May, and perhaps later. Surveys for IBA purposes can usually be accomplished effectively from a distance, and this is partly because singing males are so obvious during this time of year.

After approximately 12 days of incubation and 4 days of brooding after hatching, brooding frequency declines markedly and temperature regulation probably commences about this time. Young have left the nest and running capability develops by 7 days after hatching.

Feeding begins within 1 hour after first nestling hatches; and continues until fledglings become independent. Nestlings are fed exclusively invertebrates. Brood parasitism by Brown-headed Cowbirds is known to occur, but is evidently not frequent.

Undisturbed Bobolink young leave the nest on day 10 or 11. They move as much as 200 feet the first day out of nest, thus the size of overall grassland habitats is important. Adults divide labor of feeding, each parent concentrating on specific fledglings.

Until flight capability is developed at approximately 13 days of age, birds generally remain in thick vegetation, relying on cryptic coloration for concealment. By 16 days of age, the young are capable of sustained flights of over 500 feet. Within flocks, adults continue feeding their own young, for at least 28 days after birds leave the nest. Flocks leave breeding vicinities soon after immatures gain independence.

Concerns and Limiting Factors

Breeding Bird Survey data for 1966-2004 show a significant decreasing trend of –1.7%/year over the Bobolink's range and –4.1%/year within Iowa during that same period. In the Midwest, the primary reason for this population decline is habitat loss.

Bobolinks appear to be area specific, preferring large grassland areas over smaller habitats. One researcher reported that the minimum area on which Bobolinks were found was 25 to 75 acres in prairie fragments, and Bobolink abundance in these fragments was positively related to the size of the area.

Research has shown that Bobolinks prefer hayfields with high grass-to-forb ratios and avoid hayfields with high legume-to-grass ratios. A serious downside for Bobolinks nesting in hayfields is that mowing accounted for significant nest losses.

The presence of woody vegetation within and along the edge of grasslands can have a negative impact on Bobolinks. Nest depredation and Brown-headed Cowbird brood parasitism increase near woody edges, and nest depredation rates were

lower in larger (325-1215 acre) grasslands, than on smaller (40-80 acre) grasslands.

Lower rates of nest depredation on Bobolink nests occurred in areas burned within the last three years, where woody vegetation and deep litter were reduced by fire. Nest productivity was highest and the probability of encountering Bobolinks was also highest one year after burning.

Habitat Management Recommendations

The combination of destruction, fragmentation, and degradation of grassland nesting habitats in the state has led to an overall decline in Bobolink numbers over several decades of time.

The keys to Bobolink management are providing large areas of suitable habitat (native and tame grasslands of moderate height and density, with high grass to forb ratios and adequate litter), controlling succession, and protecting nesting habitat from disturbance during the breeding season. Avoid disturbing (e.g., haying, burning, moderately or heavily grazing) nesting habitat during the breeding season, early May to early August. Treatments can be done in early spring, several weeks prior to the arrival of adults on the breeding grounds in early May, or in the fall after the breeding season.

It is also recommended that habitat be managed in patches larger than 25 to 75 acres, and woody edges are minimized whenever possible to decrease Brown-headed Cowbird brood parasitism.

When managing prairie or old fields for Bobolinks, a rotating treatment schedule on several adjacent grassland fragments should be used to make a variety of successional stages available. Burn within areas that are at least 200 acres in total size. A rotational burning system with subunits of at least 75 acres in size, or about 20 to 30% of the total area, can be treated each year. In small, isolated grassland fragments, burning less than 50 to 60% of the total area at a time is recommended. Mow or burn patches every two to three years to prevent excessive encroachment of woody vegetation.

To create Bobolink nesting habitat where grazing occurs, grazing should be at moderate levels to provide diverse grass heights and densities in areas where the average height of vegetation is 6 to 12 inches. Also, graze using a rotational system of two or more grazing units. This will increase the variation in grass heights and densities within and between units. To maintain plant vigor, do not graze warm-season grasses in tallgrass prairie to a height of less than 10 inches during the growing season.

Nest disturbances during early stages of incubation present serious problems for this species. Females may abandon nests during early incubation if nest is visited; but rarely abandons nest after day 3 of incubation.

The primary disturbance to nesting sites is hay-cropping. In one study, 100% of nests with eggs or young nestlings affected by mowing were abandoned or destroyed. However, the proportion of young that were lost declined with increasing age of nestlings.

Fields should be mowed annually to maintain breeding habitat, but mowing should be delayed until at least late July or early August in order to minimize negative impacts on fledglings. Later mowing would be better, especially when re-nesting attempts are being made.

For general information about habitat management for Bobolink, see the sections on Grassland Management for Birds. For more specific details see Recommended Grassland Management Practices. Each of these sections is found in Part 3.

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