Birds of Dry-Mesic and Dry Prairies in Wisconsin

by David W. Sample and Randy M. Hoffman

An introduction to the birdlife of Wisconsin’s wet-mesic and wet prairies was presented in a recent issue of The Passenger Pigeon (Hoffman and Sample 1988). The present, complementary article focuses on the other half of the prairie continuum: dry-mesic and dry prairies. Mesic prairies are not being considered in these articles, because no large, high-quality examples remain in the state. The structure and species composition of the vegetation in dry-mesic and dry prairies differ from those in wet-mesic and wet prairies, and the bird communities are different as a consequence. Because of their specific habitat requirements, some bird species may occur in only one prairie type, and those which occur in more than one type are usually more abundant in one type than in another.

Historically, dry-mesic and dry prairies were found primarily on the dry slopes and ridges of the Driftless Area in southwestern Wisconsin. They also occurred in sandy river corridors, glacial outwash plains, and areas of thin-soiled glacial till deposits in many southern, central, and western counties. The primary factor influencing the vegetation in these communities is a lack of moisture, which may be caused by excessively drained soils that are thin, sandy, gravelly, or rocky, or by steep southwest-facing bluff conditions with their associated high temperatures and winds. Condensation is often a major source of moisture for dry prairie vegetation (Curtis 1959).

Curtis (1959) described the plant species composition of Wisconsin’s dry-mesic and dry prairies. The ten most prevalent plant species in dry-mesic prairies in descending order are: big bluestem (Andropogon gerardii), little bluestem (Andropogon scoparius), flowering spurge (Euphorbia corollata), porcupine grass (Stipa spartea), leadplant (Amorpha canescens), gray goldenrod (Solidago nemoralis), rose (Rosa sp.), purple prairie clover (Petalostemum purpureum), aster (Aster ericoides), rough blazing star (Liatris aspera). The ten most prevalent plant species in dry prairies, in descending order, are: little bluestem (Andropogon scoparius), side-oats grama (Bouteloua curtipendula), leadplant (Amorpha canescens), purple prairie clover (Petalostemum purpu-
reum), flowering spurge (Euphorbia corollata), gray goldenrod (Solidago nemoralis), silky aster (Aster sericeus), big bluestem (Andropogon gerardii), pasque flower (Anemone patens), whorled milkweed (Asclepias verticillata). Over 100 plant species occur in dry-mesic prairies, and over 60 occur in dry prairies. The total number of species present in dry-mesic and dry prairies is roughly similar to that of wet-mesic and wet prairies, but the species composition is different; see Hoffman and Sample (1988).

Dry-mesic prairies are characterized by tall and mid-sized grasses such as big bluestem, northern dropseed (Sporobolus heterolepis), side-oats grama, and also by showy forbs, especially members of the composite, legume, rose, and milkweed families. The vegetation is not as tall and dense as that in wet-mesic and wet prairies. In addition to the dominant species the following species are found more often in dry-mesic prairies than anywhere else: azure aster (Aster azureus), a panic grass (Panicum oligosanthes), blue-eyed grass (Sisyrinchium campestrum), indian grass (Sorghastrum nutans), prairie violet (Viola pedatifida), satin-grass (Muhlenbergia cuspidata) and the state-threatened prairie thistle (Cirsium hillii).

Dry prairies occur on thinner, drier soils than dry-mesic prairies and have even shorter, sparser vegetation structure. Plant species unique to dry prairies are innately shorter in stature than species found on dry-mesic prairies; and prairie grasses and forbs common to both prairie types (such as big bluestem and flowering spurge) are typically shorter on dry prairies than on dry-mesic sites. The common grasses include little bluestem, side-oats grama, big bluestem, northern dropseed, and long-stalked prairie grass (Panicum pretlongatum). Several forbs are conspicuous early spring bloomers, such as pasque flower and prairie smoke (Geum triflorum). In addition to these species and the dominants Curtis found the following species more often in dry prairies than anywhere else: green milkweed (Asclepias viridiflora), Plains ragweed (Ambrosia artemisiifolia), sand wort (Arenaria stricta), wormwood (Artemisia caudata), stiff aster (Aster parnicoide), aromatic aster (Aster oblongifolius), yellow painted-cup (Castilleja sessilifolia), coreopsis (Coreopsis palmata), daisy fleabane (Erigeron strigosus), false boneset (Kuhnia eupatorioides), dwarf blazingstar (Liatriis cynthreca), puccoon (Lithospermum incisum), clamy ground cherry (Physalis heterophylla), and hoary vervain (Verbena stricta).

Dry prairies that occur on steep slopes with thin soil over fractured limestone bedrock are often called “goat prairies” (or dry lime prairies). The name originates from settlers who believed that the only good use of such sites was as pasture for goats. Many of the dry prairie remnants in Wisconsin are goat prairies.

Dry prairies that occur on very sandy soils are sometimes referred to as dry sand prairies. Some plant species, including blazing star (Liatriis aspera), pasque flower, and prairie thistle are particularly well-adapted to such sandy sites.

Dry-mesic and dry prairies are rare in present-day Wisconsin, and few of them have escaped disturbance of one form or another. Like wet-mesic and wet prairies, they have been extensively fragmented by conversion to agriculture. However, because dry prairies tend to occur on poorer soils
and steeper slopes than wet-mesic and wet prairies (often on unplowable ridgetops, for example), they were used as pastures or left to be invaded by woody vegetation more often than they were cultivated. Invasion by red cedar (*Juniperus virginiana*) is the primary cause of degradation in most remnant dry prairies in certain areas of the state (such as the Wisconsin River valley); in other areas prairie degradation is most commonly caused by heavy grazing or encroachment of deciduous trees and shrubs.

Curtis (1959) estimated that 630,500 acres of dry-mesic prairie and 105,000 acres of dry prairie were present at the time of settlement in Wisconsin. Currently, the Wisconsin Natural Heritage Inventory (WNHI) has identified about 400 remaining acres of dry-mesic prairie and 1,500 acres of dry prairies, comprising a total of 207 sites; however, this inventory identifies only the best and largest examples of these communities. Preliminary results from an air photo interpretation of portions of the Driftless Area in the southwest part of the state indicate there may be as many as 7,000 to 8,000 “potential” acres of dry prairie in Wisconsin, including many small, steep, and degraded areas (R. Hoffman, unpublished data). Most of these “potential” sites have, to varying degrees, some remaining dry prairie vegetation.

The average size of the dry-mesic and dry prairies on the WNHI list is nine acres; and only 10 sites are larger than 25 acres. If all the “potential” acreage is included, the average prairie size drops to three to four acres, and less than five areas larger than 25 acres are added. While the total number of large dry and dry-mesic remnants (> 25 acres) identified by the WNHI is greater than for wet-mesic and wet prairies, the total acreage is smaller. Of the 15 largest prairies identified by the WNHI, 11 are mostly confined to steep bluffs in the Driftless Area.

It is impossible to get a complete picture of the bird communities of the original dry prairies in Wisconsin. However, recent surveys have shown what birds commonly occur in remnant prairies. Data are available from two major sources: the Natural Areas Breeding Bird Survey (Mossman and Matthiae 1988), and the Wisconsin Department of Natural Resources (WDNR) grassland bird study (see Hoffman and Sample 1988).

In the WDNR study, breeding birds were censused in 21 grassland habitat types, ranging from agricultural crops to native prairies. Included in the study were six 2-hectare (4.94 acre) study plots in dry prairies. Censuses were conducted three times on each plot, and lasted an average of 20 minutes each. These prairies were small remnants located in agricultural landscapes in southern Wisconsin (Iowa, Green, Sauk, and Grant Counties). Dry prairie was defined in this study as any site with >14% cover of little bluestem, <7% cover of big bluestem, and presence of other dry prairie indicator species. No attempt was made to separate dry from dry-mesic prairies in this study.

Dry prairie study plots were characterized by sparse vegetation of low height and density, and had substantial amounts of dead herbaceous vegetation on the ground. Of the 21 habitats in the study, dry prairies had above average cover of woody vegetation, most of which was less than 1 meter tall. The most common woody species invading the prairies were red cedar, cherries
(Prunus spp.), sumacs (Rhus spp.), and oaks (Quercus spp.).

Among the 21 habitat types, dry prairie was intermediate in bird species richness, with an average of 5.3 species per study plot. A number of native and disturbed habitats, including wet and mesic prairies, pastures, and oldfields, were higher in species richness than dry prairies. Bird density in dry prairies was very low, with 7.7 pairs per study plot; the only habitats with lower bird densities than this were small grains and row crops. Relatively short and sparse vegetation may limit the number of pairs that can coexist in dry prairies.

A total of 16 bird species occurred on the dry prairie study plots (Table 1). The species composition of dry prairie was different from any other habitat in the study. Grasshopper Sparrow was the most abundant species in dry prairie (where it also reached its highest density). The next most common species were Vesper Sparrows and Field Sparrows. Some of the species occurring in dry prairies, such as Eastern Meadowlarks and Savannah Sparrows and Song Sparrows, are habitat generalists that occurred in a wide variety of habitats in this study.

Of the 16 species in Table 1, nine (56%) can be considered edge or brush species attracted to the woody vegetation found in, or adjacent to, the study plots (note that many of the species in the site lists—Table 2—are also edge species). The other seven species are less dependent upon woody vegetation than the brush species, are generally ground-nesters, and may be considered true grassland species: Horned Lark, Eastern Meadowlark, Dickcissel, and Vesper Sparrow, Savannah Sparrow, Grasshopper Sparrow, and Lark Sparrow. Thus, without woody cover in or near the study plots, the total number of species in dry prairie would have been reduced. The small size of the prairie remnants in Wisconsin, and their usual proximity to hedgerows, woodlots, or brushy areas, provide ample habitat for a variety of edge species that use the prairies for foraging or nesting, especially when woody vegetation is present. The impacts on grassland species of competition from edge species are poorly known.

Each species found in dry prairies has different habitat requirements, although these differences are sometimes slight. In general, most dry prairie birds are adapted to shortgrass habitats. We have chosen a few species as examples for discussion.

The Grasshopper Sparrow is a ground-nesting species primarily found

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Table 1. Birds Found on WDNR Grassland Bird Study Plots.

<table>
<thead>
<tr>
<th>Species</th>
<th>Status on Study Plots</th>
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<tbody>
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<td>Northern Bobwhite</td>
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<td>Mourning Dove</td>
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<td>Brown Thrasher</td>
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</tr>
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<td>Dickcissel</td>
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<td>Rufous-sided Towhee</td>
<td>rare</td>
</tr>
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<td>Field Sparrow</td>
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<td>Lark Sparrow</td>
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</tr>
<tr>
<td>Song Sparrow</td>
<td>uncommon</td>
</tr>
<tr>
<td>Eastern Meadowlark</td>
<td>uncommon</td>
</tr>
</tbody>
</table>

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1Breeding population declining in Wisconsin (USFWS 1988).
2Considered a brush or savanna species.
3Common: greater than 16 pairs per 100 acres; uncommon: between 3.4 and 16 pairs per 100 acres; rare: less than 3.4 pairs per 100 acres.
Table 2. Comparison of species presence during the breeding season on four dry prairie remnants.

<table>
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<th>Species</th>
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<th>Dewey Heights</th>
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<td>Gray Catbird</td>
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<td>American Goldfinch</td>
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in dry habitats with relatively short, patchy vegetation; these habitats include dry prairies, upland pastures, oldfields, and weedy hayfields. It is a locally distributed species, and may even be loosely colonial. It is often found in areas with some bare ground, but requires some dead ground vegetation for nesting. This species tolerates, but does not require, woody vegetation. It often sings from tall forbs, fences, or low woody plants.

The Vesper Sparrow also prefers dry habitats with short, sparse vegetation. It is strongly attracted to habitats with bare ground, which explains the fact that in addition to dry prairies and sandy barrens (its historical habitats in the state), this species also occurs in plowed fields and rowcrops. It is a ground-nesting species; but it usually nests near a hedgerow or other woody cover such as shrubs, saplings, or trees (usually 3 meters high or taller), which serve as song perches.

Field Sparrows are birds of dry to slightly mesic brushy habitats and edges. They are highly associated with woody cover, and would not have occurred in the dry prairie study plots were it not for the presence of woody vegetation in or near the plots. They are found in native or disturbed habitats (e.g., oldfields), but rarely, if ever, in agricultural habitats such as hayfields or other crops. Often the first nest of this species is placed on the ground, with later nests located off the ground in woody vegetation (Bent 1968).

The Lark Sparrow has perhaps the most striking habitat distribution of any avian inhabitant of dry prairies in Wisconsin. This rare western species is restricted to extremely dry sites with sparse vegetation, and it is usually associated with the presence of exposed sandy soil ("sand blows"). Some scattered woody vegetation, such as young red cedars or jack pines, is often present. It nests on the ground or sometimes in a shrub or small tree (Bent 1968).

The Horned Lark is likely to be found only on the most barren and shortgrass dry prairie sites. It is a species that prefers habitats with much bare soil and very sparse, if any, vegetation; hence it is well-adapted to and commonly found on plowed fields and rowcrops. In contrast, the Dickcissel is characteristic of disturbed or managed habitats with relatively lush, dense vegetation, including hayfields and mesic oldfields; as such, it is unlikely to occur frequently on dry prairie sites.

Other grassland species that may be found in dry prairies, but which were not found on the study plots, include Western Meadowlark, Upland Sandpiper, Bobolink (on dry-mesic sites), Short-Eared Owl, Northern Harrier, Greater Prairie-Chicken, and Common Nighthawk; when some woody vegetation is present, American Goldfinch and (especially in the northern two-thirds of the state) Clay-Colored Sparrow can be found. The Greater Prairie-Chicken is now found mostly in the central part of the state, primarily in specially managed areas such as the Prairie-Chicken Management Area in Portage County.

The Western Meadowlark is typically more characteristic of dry upland sites with short grass (such as dry prairies) than the Eastern Meadowlark, which prefers mesic sites (Lanyon 1953). However, the Eastern Meadowlark did occur in a number of dry habitats in the grassland bird study. Although the Western Meadowlark was uncommon
in Wisconsin prior to the early 1900's, it had become the dominant meadowlark species in south-central Wisconsin by the 1950's. It has declined severely in numbers in the last 20 years (USFWS 1988, John T. Emlen, personal communication). It is now far outnumbered by the Eastern Meadowlark, which appears to be replacing—possibly outcompeting—it.

The relatively low density of true grassland birds in dry prairies is caused partly by the sparseness and relatively low productivity of the vegetation. However, other important contributing factors include the facts that dry prairie remnants in Wisconsin are small, isolated, often on steep slopes, invaded by woody vegetation, and surrounded by large patches of suitable agricultural habitats. For example, although steep bluff-top prairies often harbor many prairie plants, they appear to provide little suitable habitat for most prairie birds, even when the sites are fairly large. Natural Areas surveys found that species such as the Grasshopper Sparrow were absent from these steep sites. In the Loess Hills of western Iowa, Howe et al. (1985) noted that small, steep-sloped dry prairie remnants had fewer grassland species than adjacent agricultural areas. They felt that ground-nesting species are likely to have difficulty nesting on steep sites.

Many species that were characteristic of dry prairie habitats prior to the settlement of the Midwest have adapted to agricultural habitats, and may even prefer them to native habitats (Birkenholz 1972), especially when native habitats are fragmented and degraded. Most of the species found on dry prairies in the WDNR grassland bird study occurred more abundantly in other habitats, such as hayfields, pastures, and oldfields, than in dry prairies. The adaptability of these birds has helped them survive in an agriculture-dominated landscape. However, agricultural habitats preferred by birds, such as pastures, are also disappearing from our landscape. In addition, some agricultural habitats can be ecological traps for nesting prairie birds. For example, birds nesting in hayfields (including Savannah Sparrow, Grasshopper Sparrow, Eastern Meadowlark, Dickcissel, and Upland Sandpiper) often lose nests or nestlings to harvesting operations. Vesper Sparrows nesting in rowcrop fields often have their nests destroyed by farm machinery (Rodenhause and Best 1983).

Of the 16 species in Table 2, seven (44%) are declining significantly in numbers in Wisconsin, as determined by the Federal Breeding Bird Survey (USFWS 1988); with the exceptions of the Rufous-sided Towhee and Field Sparrow, all of these are true grassland species. Only three of the species in Table 2 are increasing significantly (Bobwhite, Mourning Dove, American Robin), and none of these are primarily grassland species. The declines of grassland species may have been caused by a number of factors, including the loss of prairie and other uncultivated habitat, lowered nest productivity (due to a variety of factors), and overwinter mortality (Temple 1988, Hoffman and Sample 1988).

The fragmentation and degradation of all prairie habitats in Wisconsin is undoubtedly an important cause of declining grassland bird populations statewide. Few large, continuous grassland habitats—native or agricultural—remain in the patchwork landscape of Wisconsin. Wide-ranging species such
as the Greater Prairie-Chicken, Short-eared Owl, Upland Sandpiper, and Northern Harrier have been lost as elements of dry prairie avifauna, in part due to the lack of large expanses of open prairie habitat. Other grassland species have been shown to require a minimum habitat size in which to maintain a viable population. For example, Samson (1980) estimated that dry prairie species such as Vesper Sparrows and Lark Sparrows, and Upland Sandpipers require a minimum habitat size of 25 to 250 acres. Given that the average dry or dry-mesic prairie remnant in Wisconsin is only nine acres, these habitat size requirements are not being fulfilled. To make matters worse, it is known that prairie habitats less than 45 meters from a woody edge have reduced nest productivity due to increased predation and parasitism (Johnson and Temple 1986). Thus, on a prairie less than ten acres in size surrounded by woody edge, most or all breeding birds are likely to be influenced by edge effects. Very few of the remnant dry prairies in Wisconsin are large enough to be free of these edge effects. The protection, restoration, and management of large acreages of prairie, or of prairie-like habitat with non-native vegetation, may be crucial to the survival of some grassland birds. A healthy, functioning grassland ecosystem consists of more than a few, scattered prairie remnants.

Despite the various factors that have reduced the suitability of prairies and related agricultural habitats for grassland birds, surviving prairie remnants are being managed to offset those trends. The primary management activities in dry prairies are burning (to discourage exotic grasses and forbs) and brush removal. Bird species will respond to burning in various ways. For example, Horned Larks, Lark Sparrows, and other species preferring barren habitats may be attracted to recently burned dry prairies, while species such as the Eastern Meadowlark that require ample dead ground vegetation, are likely to avoid areas burned in the current growing season. In Minnesota prairies, nest productivity for five grassland bird species (all of which require some residual vegetation cover) was the highest one full growing season after a burn (Johnson and Temple 1986). The removal of woody vegetation from prairies is crucial to favoring dry prairie birds over brush and edge species.

Although dry-mesic and dry prairies of Wisconsin harbor relatively few bird species, other animal groups use these areas quite heavily, regardless of slope. These include several rare or uncommon reptiles such as blue racer, six-lined racerunner, slender glass lizard, bull snake, and eastern box turtle. Rapid warming of dry-mesic and dry prairies with southwestern exposure provides for long daily periods of activity for these cold-blooded vertebrates. Butterflies are also found abundantly in dry-mesic and dry prairies; there are as many as 12 species which require relatively undisturbed dry prairie, including the state-threatened regal fritillary.

**Sites**

We have chosen four sites to exemplify the dry-mesic and dry prairies of Wisconsin. They are all relatively large sites with good access and parking. However, due to the lack of large, high-quality dry prairies on level terrain, two of the sites described here are
bluff top prairies. The Prairie Chicken Management Area in Portage County, a large expanse (over 11,000 acres) of grassland habitat, is one of the best areas in the state for viewing many of the dry prairie birds mentioned in this article. The management area consists of a variety of grassland habitats, including two State Natural Areas (one of which is a dry prairie), pastures, and many oldfields that are gradually being invaded by native dry prairie vegetation. It is not included here; it will, however, be discussed in a forthcoming article on Sharp-tailed Grouse and Greater Prairie-Chicken habitat.

RUSH CREEK STATE NATURAL AREA

**Location.**—Northwestern Crawford County.

**Size.**—This 1,200 acre State Natural Area contains about 95 acres of steep bluff prairie. The remainder is southern dry to dry-mesic forest and flood plain forest.

**Access.**—From State Hwy 35 and County Hwy B northwest of Ferryville, take Hwy 35 west and north 1.2 miles. Turn right on Rush Creek Road, and continue about 0.8 miles to the parking lot. Trail to the bluff top begins here, and ascends 400 feet.

**Description.**—The outstanding feature of this natural area is a series of dry lime prairies on the steep limestone-capped bluffs paralleling the Mississippi River (Figure 1). These prairie remnants are part of the most extensive series of “goat prairies” left in the state, and host a nearly complete range of dry to dry-mesic prairie plant species. Bluffs without southwest exposures are forested with red and white oak, and some black walnut, hickory, basswood, silver maple, and aspen. A lowland forest of silver and red maples, elm, cottonwood, river birch, and willow grows along Rush Creek. In the floodplain is a small sedge-reed canary marsh. Soils range from Dubuque and Fayette silt loams on the bluff tops to Orion silt loams and alluvial soils in the bottom of Rush Creek valley.

**Birds.**—The birds listed for this site (Table 2) were recorded on two Natural Area Breeding Bird Surveys run on the prairie portion of the State Natural Area. The surveys were conducted away from woods edges, and were an average of 2.5 hours in length. We initially anticipated that the large prairie acreage would have a good complement of dry prairie bird species. However, the steep slope and presence of scattered birch trees apparently precluded all true grassland birds other than the Vesper Sparrow, which occurred on the relatively level bluff top, and Common Nighthawk. Most of the species found on the site are characteristic of the surrounding forest edge and shrub habitats; they used the prairie primarily for foraging. Several are aerial foragers (e.g., swallows) were also present. Management plans call for the removal of all birches and other woody vegetation from the prairie.

DEWEY HEIGHTS STATE NATURAL AREA

**Location.**—Western Grant County, within Nelson Dewey State Park.

**Size.**—Contains 14 acres of bluff top prairie (the Natural Area itself is 27 acres).
Access.—Easy access from within Nelson Dewey State Park. From Cassville, junction of Hwy 133 and County Hwy VV, go west on VV 1.2 miles to Nelson Dewey State Park entrance. Follow park road to the bluff summit.

Description.—Dewey Heights Prairie is a dry lime (or "goat") prairie on a southwest-facing Mississippi River bluff (Figure 2). Elevations of the bluff range between 800 and 870 feet, slightly less than 300 feet above the Mississippi River. The cap rock is Ordovician-age dolomite, covered partially by thin soil, and is exposed in places. There are a number of ledges and cliffs at the site. The prairie is dominated by big and little bluestems, side-oats grama, hairy grama (Boueloua hirsuta), June grass (Koeleria cristata), Indian grass, and porcupine grass. There are many seasonally-flowering native prairie forbs, including pasque flower and wood betony (Pedicularis canadensis) in the spring, butterfly weed (Asclepias tuberosa) and compass plant (Silphium lacinatum) in the summer, and asters and goldenrods in the fall. This site is going to be gradually restored to an open bluff prairie from bluff base to ridge top.

Birds.—Birds were recorded on this site during seven different Natural Area Breeding Bird Surveys of the State Natural Area (Table 2). Each survey took about one hour. The open prairie is currently surrounded by woods, which is responsible for the predominance of edge and woods species. However, some open prairie species do use the site, including the Lark Sparrow. With further reduction of woody
encroachment through management, more open prairie habitat will be created.

**SPRING GREEN RESERVE STATE NATURAL AREA**

**Location.**—Southwestern Sauk County.

**Size.**—700 acres, 250 of which is a State Natural Area; the remainder is under a joint management agreement. The site includes about 250 acres of high quality dry sand prairie and bluff prairie.

**Access.**—From the junction of U.S. Hwy 14 and the Wisconsin River just east of Spring Green, go west on U.S. Hwy 14 1.75 miles to Davies Road, then north 0.75 mile to Jones Road, then east 0.25 mile to a crushed stone access lane next to a trailer residence, then north on access lane 0.1 mile to a parking area.

**Description.**—Spring Green Reserve contains the state’s largest example of dry sand prairie (Figure 3). This site, due to its exceedingly dry conditions and abundance of prickly pear cactus (*Opuntia compressa*), has been called “Wisconsin’s Desert.” The dry sand prairie is formed on a sandy slope running from the base of a limestone bluff on the north to agricultural lands to the south. The bluff prairie is on the steep south-facing slope overlooking the sand prairie. To the east are old fields that are gradually reverting back to dry prairie vegetation. The remainder of the site is covered with oak barrens and southern dry forest.
Throughout the prairie are scattered red cedars and black cherries. Proceeding upslope, the red cedars become very dense, producing an almost impenetrable thicket in places. The gradual invasion of the prairie by woody species has occurred in the last 60 to 80 years. Through active management, the former and current prairie areas on this site are being converted back to treeless habitat, to help restore the integrity of the grassland ecosystem.

**Birds.**—The bird list compiled for this site (Table 2) is the result of six Natural Area Breeding Bird Surveys, and 11 WDNR grassland bird study transect surveys. The total time spent on each Natural Area Survey varied from one to four hours; and the grassland bird study surveys averaged 20 minutes in length. Only those results from the dry sand prairie and oldfield areas were used in the compilation of the bird list. The first surveys were conducted before many of the pine windrows and plantations and scattered red cedars had been removed. This is the largest and most diverse dry prairie site in the state and consequently it is inhabited by the largest number of dry prairie bird species.

**Cautionary Note.**—This site is owned by The Nature Conservancy. If damage to the fragile plant communities occurs or signs of negligent behavior appear, the site may be closed to the public in order to insure access in the future.
MURALT BLUFF PRAIRIE STATE
NATURAL AREA

Location.—Green County.

Size.—62 acres, 45 of which are dry prairie.

Access.—From Albany, go 2 miles south and west on Hwy 59, then north and west on Hwy 39 for 1.8 miles to a parking lot at north end of tract. There is a small sign on the north side of Hwy 39 across from the parking lot, and a large sign just west of the parking lot.

Description.—Muralt Bluff occupies a long, sweeping ridge top in an area of old glacial drift about midway between the recently glaciated lands to the east and the Driftless Area to the west (Figure 4). The sandstone bluff is capped with a thin rocky layer of limestone on which the dry prairie has developed. Dominant grasses are little bluestem, side-oats grama, Indian grass, and northern dropseed. Outstanding displays of pasque flower, shooting star (Dodecatheon meadia), wood betony, and bird’s foot violet (Viola pedata) occur in spring; asters, goldenrods, blazing stars, and gentians flower in the fall. Several uncommon plants are present, including satingrass, prairie thistle, and cancer root (Orobanche uniflora).

Birds.—The bird list for this site (Table 2) was compiled from nine Natural Area Breeding Bird Surveys of the State Natural Area. Each survey lasted approximately 2.5 hours. Due to its long, irregular shape and extensive woody
edges, the bird community at Muralt Bluff is typical of shrubby communities. Extensive removal of woody fencerows and red cedar has opened the prairie significantly in recent years. Bell's Vireo has recently appeared as a nesting species at Muralt Bluff prairie. Its occurrence seems to coincide with the removal of fencerows, thereby creating small shrubby patches in the prairie landscape. Other responses of birds to the management of the prairie include a reduction in the number of nearly all edge species. To date, there have been notable declines in the abundances of Field Sparrows, Brown Thrashers, Catbirds, Rose-breasted Grosbeaks, and Indigo Buntings.

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