

Grassland Birds of Pheasant Branch Conservancy

Dane County Unit - Case Study

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Pheasant Branch Conservancy Bird Monitoring Project Participants 2020-2024

The Bird Monitoring Project developed out of capstone presentations by Deb Turski and Sherry Caves, participants in the Friends' 2019 Master Naturalist Class. These students worked with Janet Kane, Master Naturalist Instructor and Chair of the Restoration and Management Committee. The plan was piloted for 5 weeks in the summer of 2019, with participation from Master Naturalists and birders recruited by Deb and Sherry. The full project began in 2020 and continues through 2024, coordinated by Deb Turski and Gail Smith. Sincere thanks to these dedicated birders who've submitted eBird checklists and made improvements to the project for 1 or more years (listed alphabetically by first name).

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Introduction

There was only the enormous, empty prairie, with grasses blowing in waves of light and shadow across it, and the great blue sky above it, and birds flying up from it and singing with joy because the sun was rising. And on the whole enormous prairie there was no sign that any other human being had ever been there. -- Laura Ingalls Wilder, Little House on the Prairie

The oldest task in human history: to live on a piece of land without spoiling it. -- Aldo Leopold

What do you think when you hear the word, *extinction*? You may think of the Dodo, a bird that disappeared in the 1600s. Or perhaps the Passenger Pigeon comes to mind. John Muir described “flocks streaming south in the fall so large that they were flowing over from horizon to horizon in an almost continuous stream all day long ... like a mighty river in the sky...” Or maybe it’s the Ivory-billed Woodpecker. What do these extinctions have in common? They all occurred in the past. And that’s how some think of extinction – something that happened long ago. Unfortunately, extinctions are very much today’s problem.

According to a recent UN report on biodiversity, extinctions are occurring today at an unprecedented and accelerating rate. The report lists five extinction causes. All of which are of human origin:

1. Changes in land and sea use
2. Direct exploitation of organisms
3. Climate change
4. Pollution
5. Invasive species

All of these contribute to habitat loss, which negatively affects wildlife populations in Wisconsin (and the world), especially birds. Habitat loss includes the following:

- Habitat destruction – A prairie is paved over for a building or parking lot, or a wetland is filled in.
- Habitat fragmentation – Habitat is carved up into very small pieces by roads, development, trails, etc. Fragmented habitats are too small to support viable wildlife populations.
- Habitat degradation – Introduction of invasive species or application of chemicals can degrade habitats, so they don’t support wildlife.

Scientists and bird watchers have long known of bird species population declines. Thanks to recent scientific studies and to the growing number of bird watchers, these declines are in the spotlight. According to these studies habitat loss is a key driver of declines in bird species’ populations. Birds are disappearing because they’re losing their homes. But there’s hope.

Every day there’s more evidence that habitat restoration is linked to healthier bird populations. In fact, there are examples of restorations that demonstrate this linkage. Good habitat means more birds.

Pheasant Branch Conservancy (PBC) in Middleton, Wisconsin offers a case study, which demonstrates the habitat-birds linkage. At PBC Wisconsin bird watchers noticed a decline in grassland bird species. As a result, changes were made to improve habitat for these birds. A monitoring program was put in place, which generated data showing species population trends. The results have been promising, as some bird species began to return.

North America's Vanishing Birds

My bird feeder was busy this morning with what I call “urban birds.” These are the city-dwellers – mainly Northern Cardinals, American Goldfinches, Blue Jays, and the like. It's different on a nearby trail. On my hikes the forest echoes with at least three species of woodpecker, nuthatches and a scolding Tufted Titmouse or two. Birds seem to be everywhere. This may be true for the urban birds, but for some species, things have changed.

People's fascination with birds has a deep history. In the 1800s, bird collection was popular. Collection meant killing birds to study their skins. At the time, this is how ornithology was done. As early as 1898 this began to change (Birkhead 2022).

Edmund Selous, an avid bird skin collector, had an epiphany. After observing Nightjars, he wrote, “I must confess that I once belonged to this great, poor army of killers, though, happily, a bad shot, a most fatigable collector, and a poor half-hearted bungler, generally. But now that I have watched birds closely, the killing of them seems to me as something monstrous and horrible” (Birkhead 2022). Bird watching was born.

Bird watching took root and took off. Eventually it became “one of the most popular pastimes globally, eventually making birding scientific and playing a pivotal role in the animals' conservation” (Birkhead 2022). Birders swelled into the millions, and many began to participate in organized bird counts. The first of these, the annual [Christmas Bird Count](#), occurred in 1900. It's still going strong. In 1966, the North American Breeding Bird Survey started. Over the years, bird watchers created a wealth of knowledge. When combined with today's technology, this knowledge is a growing storehouse of data that helps us understand our avian friends.

Technology such as *eBird* and sophisticated radar tracking of migrating birds takes our knowledge about bird populations and ranges to another level. This technology, combined with historical records means we know a lot about birds. Sadly, these also tell a troubling story. While knowledge of birds has grown, the number of birds has shrunk (Birkhead 2022).

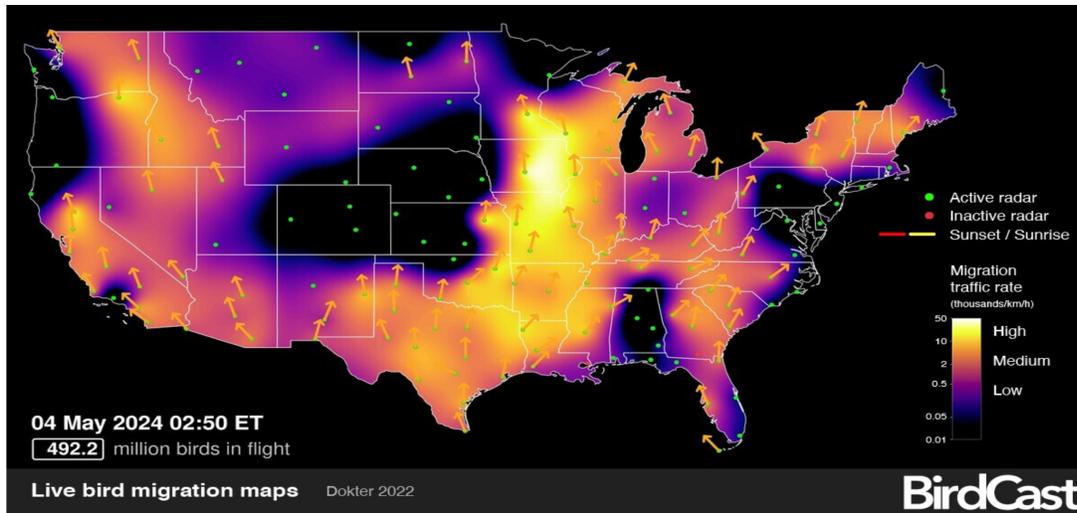


Image from Cornell Birdcast showing 492 million birds in flight on May 4, 2024.

Bird Population Declines

Three billion birds lost - 1 in 4 breeding birds have been lost from the United States and Canada in the past 50 years. 2022 State of the Birds Report

We're losing our birds. Scientists have long been aware of bird population declines, (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997), but a recent *Journal Science* study created a new sense of urgency. Rather than looking at extinctions, the study focused on the rapid decline of *still common* bird species (Rosenberg 2019). The premise: we must work proactively to stem population declines before birds reach the point of extinction.

According to the authors of the *Science* study, almost 3 billion North American birds have vanished since 1970. This is a 30% decline in a single human lifetime. Grassland birds have fared the worst: 720 million, or 53% have disappeared (Rosenberg 2019). The trend has been confirmed by the [2022 State of the Birds Report](#). This report notes “the decline of grassland birds outpaces that of any other landbird group in the U.S. and Canada” (American Bird Conservancy 2022). It calls for proactive work to stem the population declines - before it's too late. Moreover, the report points to several species deemed *tipping point* species. These are species whose populations have fallen by two-thirds in the last fifty years and are poised to decline another 50% in the next 50 years. One-quarter of tipping point species are grassland birds, including the Henlow's Sparrow and Bobolink (American Bird Conservancy 2022).

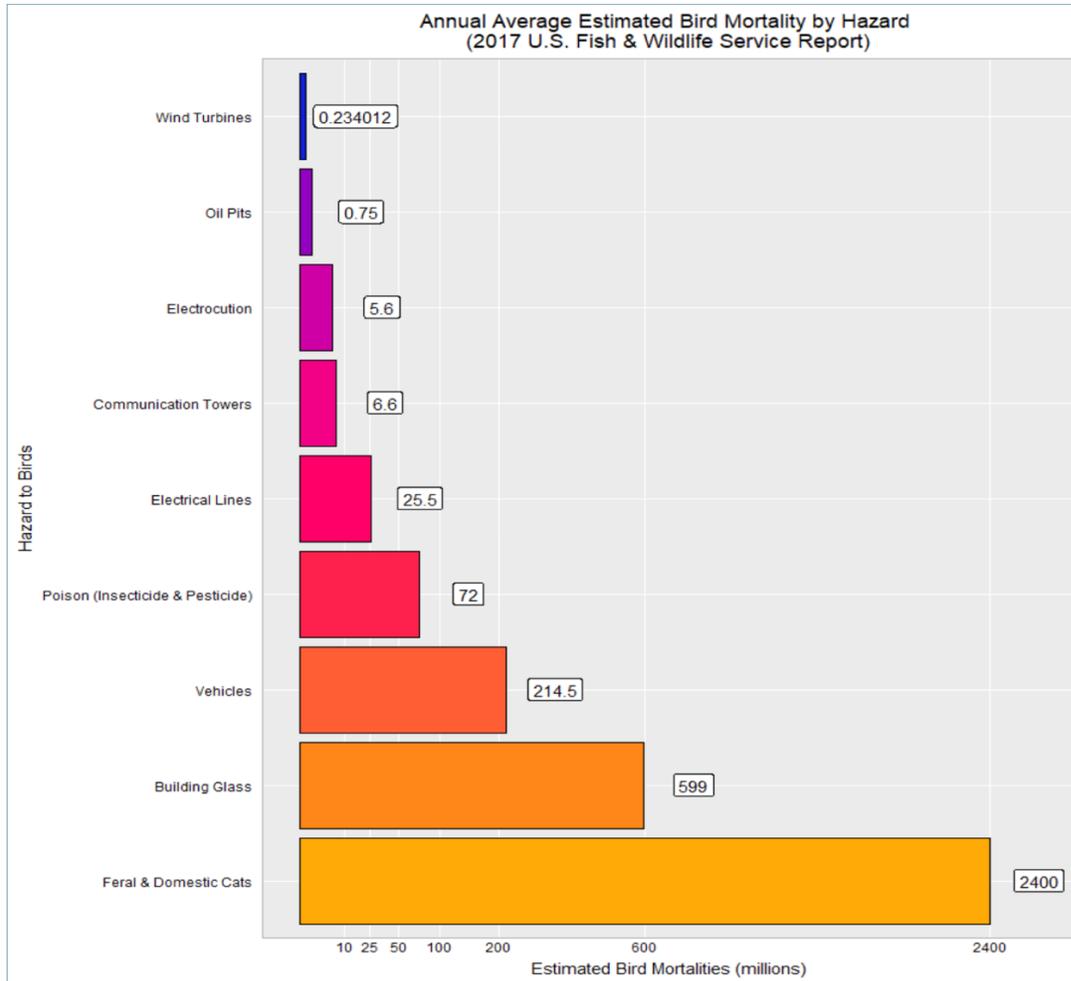
A figure like 3 billion birds is hard to conceptualize. Here are a couple facts from [UC Berkley](#) to put the number into perspective:

- It takes 95 years for a person to count to 1 billion
- A hike of a billion steps would circle the Earth 15 times – at the equator!

Looked at another way, information from timeanddate.com combined with some simple math 3 billion lost birds translates to 114 birds **per minute** from 1970-2019.¹ Sobering statistics.

Causes of Bird Population Declines

Bird population declines have myriad causes, which are interconnected and sometimes complex. Direct anthropogenic (human) causes include cat predation, building/window collisions, automobiles, power lines, communication towers, agricultural chemicals, and wind turbines. Direct causes of bird mortality appear below (Loss, Will and Marra 2015):



This chart was prepared by Matt Lomicka (thanks!) from data in a 2017 USFWS report

Source - Sibleyguides.com - <https://www.sibleyguides.com/conservation/causes-of-bird-mortality/>

Other causes of bird mortality are indirect. These don't directly kill birds. Rather they take away what birds need to survive. Important indirect causes include climate change and habitat loss.

¹ There were 18,262 days, 438,288 hours, and 26,297,280 minutes. Now, using some simple math to combine these numbers with the sad statistic of 3 billion birds lost I derive the following:

- We lost 164,276 birds per day
- We lost 6,845 birds per hour
- **We lost 114 birds per minute**

Climate change clearly belongs on the list. Although its impact on birds is yet to be fully understood, it's clear that birds are suffering from changing patterns of food availability (Mesa 2024) brought on by changes in global climate. Whether direct or indirect, these are all things people can control. This includes loss of suitable habitat, which stands out as the main cause of declining abundance of birds.²

If we don't have good habitat, we don't have birds. Unfortunately, habitat loss affects all aspects of birds' lives, regardless of where they are. Habitats are being destroyed on wintering and breeding grounds as well as along bird migration routes. Birds' homelands are shrinking. Migratory stopovers are being converted to agriculture. Expanding and intensifying agriculture along with urban expansion are key factors in the declines. This all seems clear, but why should we invest resources to save birds? In other words, what's so important about birds?

Why Birds?

Three concepts underscore the importance of birds to their habitats and to people.

1. Birds provide *ecosystem services*.
2. Birds are *ecological indicators*.
3. Birds measure the effectiveness of *habitat restoration*.

Birds are more than just a joy to watch. They are also key parts of any ecosystem. As such birds provide ecological benefits, or ecosystem services, to people and the environment. Some birds pollinate plants. Others consume and cache seeds to help plants survive. Most birds are insectivores who consume “untold billions of leaf-eating insect larvae,” and “respond rapidly to outbreaks of damaging insect pests such as gypsy moths,³ tent caterpillars, and spruce budworms” (Lovette 2016, 629). Birds also tell us about the health of ecosystems where they reside.

Birds are easily seen and heard, especially during breeding season when they're often brightly colored and singing. This makes them excellent *ecological indicators*, able to tell us if something is wrong with the environment. We can easily see if there are lots of birds, or very few. Large numbers of birds indicate quality habitat and a well-functioning ecosystem. Conversely, bird disappearances warn us that something harmful may be present. And if something harms birds, chances are it also harms people. For example, declining bird populations in freshwater habitats may point to problems with water quality (Lovette 2016). Birds call attention to such problems so we can identify and fix them. One way we can do this is through habitat restoration.

Once habitat is restored, birds tell us whether the restoration is effective. In other words, if bird population declines can point to habitat loss as a primary cause, bird population increases can result from habitat improvements (Lovette 2016). If birds come back, it's a good sign that

² For more information on climate change and birds see Audubon, *Survival by Degrees: 389 Bird Species on the Brink*. <https://www.audubon.org/climate/survivalbydegrees>

³ *Lymantria dispar* – now called North American Spongy Moth

something was done right. Although it may be difficult to connect habitat restoration to bird population health, substantial evidence supports this connection.

Grassland Bird Habitats

Knowing what defines a quality habitat is essential to any habitat restoration plan. With limited resources available for habitat restoration, this knowledge improves the odds of helping birds. According to Culbert, *with limited resources for habitat conservation, the accurate identification of high-value avian habitat is crucial. Habitat affects avian biodiversity but is difficult to quantify over broad extents* (Culbert, et al. 2013). Habitat understanding begins with a definition of habitat and includes habitat characteristics that are favorable to birds.

Habitat Defined

Habitat is “the physical and biological conditions that can support...viable populations of a species” (Hanski 2016, 2). For bird species, Lovette describes a population as groups of birds of the same species that live and breed together in the same place and at the same time (Lovette 2016). Habitats therefore have conditions – physical, biological, and geographic – that a bird population requires to survive (Lovette 2016) and reproduce. A list of habitat characteristics that improve the habitat design appears in Lovette (2016, 612-613):

- Bigger habitats are better.
- Round or square shaped habitats minimize impact of edge effects (see below).
- Multiple habitat reserves are better because they reduce chances that a single event can kill an entire species.
- One large reserve in a habitat network can act as a source of new birds, should they be wiped out in smaller areas.
- Distance between habitat reserves should be minimized. Habitat corridors can connect habitat reserves, allowing birds to disperse.
- Two-dimensional landscapes are better than linear ones. This underscores the importance of habitat structure – both horizontal and vertical – in the creation of high-value bird habitat.⁴ When combined, both types of habitat structure are positively correlated with bird biodiversity (Culbert, et al. 2013).

Over millions of years birds have evolved to thrive in their surrounding habitats. Some species are habitat specialists, which have co-evolved alongside specific insects and plants. Specialists may require very specific habitat types. For example, Dickcissels are a grassland bird that needs dense grass cover and taller vegetation, or forest specialists may require a specific type of tree. Specialists do very well in their “matched” habitats. However, if destruction compromises these habitat features, the specialists may disappear. Other species are generalists that do moderately well in varied habitats. Generalists can more readily adapt should features of a habitat be destroyed.

⁴ For a detailed discussion on the role of habitat structure in avian biodiversity, see Culbert et al, *The Influence of Vertical and Horizontal Habitat Structure on Nationwide Patterns of Avian Biodiversity*. The Auk 130 (4): 656-665/ The American Ornithologists’ Union. 2013. https://www.fs.usda.gov/rm/pubs_other/rmrs_2013_culbert_p001.pdf

Today, human activity has destroyed much of the habitat that birds need to survive. Large habitats that existed prior to European settlement have been reduced significantly. This applies to all habitat types, including forests, wetlands, coastal areas, and grasslands.

Grassland Habitats

Grasslands are dominated by herbaceous (non-woody) plants such as grasses, forbs, legumes, etc. Grasslands include prairies, pastures, and even corn fields (this report employs the terms, grassland and prairie interchangeably). In North America, grassland structure varies as rainfall amounts increase from west to east. Grasslands habitats are the home of grassland birds.

Sample and Mossman (1997, 8) define grasslands as follows:

...all native grasslands, from sedge meadows and open bogs to prairies, savannas, and barrens communities. We also include surrogate prairie grasslands (hereafter "surrogate grasslands"), which represent the vast majority of grassland habitat in the state. Surrogate grasslands are habitats that are similar to and replace the former prairie grasslands that historically occurred in Wisconsin.

Unfortunately for grassland birds, much of the grassland habitat that existed before European settlement has vanished. This is true on a global scale and Wisconsin's grassland prairies are no exception.

A History of Destruction

Since European settlement, agriculture has expanded across North America. This came at the expense of natural grasslands. Over the years most of our grasslands were plowed under and replaced by crops and livestock. Consequently, today's grasslands are among the most imperiled habitats on Earth.

The earliest settlers did not favor grasslands for farming. They interpreted the lack of trees to mean the land had little to offer farmers. However, those that tried farming quickly learned of the land's potential. But farming wasn't easy. The soil was hard and resisted the wooden plow. So farming was slow to take off but take off it did.

The invention of the steel plow was a game-changer (Curtis 1959). Now armed with a tool to cut the soil, farmers converted more and more prairie to farmland (Gammon 2021). In less than a century 97% of the original tallgrass prairie was gone. What little remains continues to disappear at alarming rates.

Life is getting more difficult for grassland birds. According to the Intergovernmental Panel on Climate Change's *Climate Change 2021* report, 2.6 million acres of North American grassland was plowed in 2019 to make way for row-crop agriculture expansion. This was an area "greater than Yellowstone National Park" (World Wildlife Fund 2021). It's no wonder bird populations are declining.

Today, very little grassland habitat has escaped human-caused disturbance. According to the Wisconsin DNR (Meister 2024):

- Agriculture covers 14 of Wisconsin's 35 million acres
- Approximately 500,000 acres of undeveloped prairie remains, down from an estimated 1 million acres 30 years ago and from 2.1 million acres at the time of European arrival.

The destruction continues unabated.

Wisconsin Prairies

Such beauty as no human tongue can describe. Early 1800s Illinois prairie settler (Schlenker 2021)

As I stand in a restored prairie, I try to picture a vast pre-settlement prairie stretching from horizon to horizon. Today I'm collecting native seeds off trail, surrounded by a wall of grass. This is mostly Big Bluestem with some Indian Grass blending in. The grass is punctuated by towering Compass Plants and big-leaved Prairie Dock. But in my mind, I picture an infinite sea of grass rolling forth in all directions. Then I'm jarred from my reverie by a passing truck and the endless prairie is lost.

Our Wisconsin prairies are rooted in a glacial past. As the glaciers receded over 10,000 years ago, the climate warmed. Over thousands of years a cold post-glacial tundra landscape was replaced by a succession of conifer and hardwood trees and ultimately the arrival of oak forests and prairies. Fertile prairies originally took root in a foundation of wind-blown sediments. These were loess soils created by the combination of glacial erosion and wind. Once established, prairies were highly productive creating deep, rich soil, which settlers found so alluring.

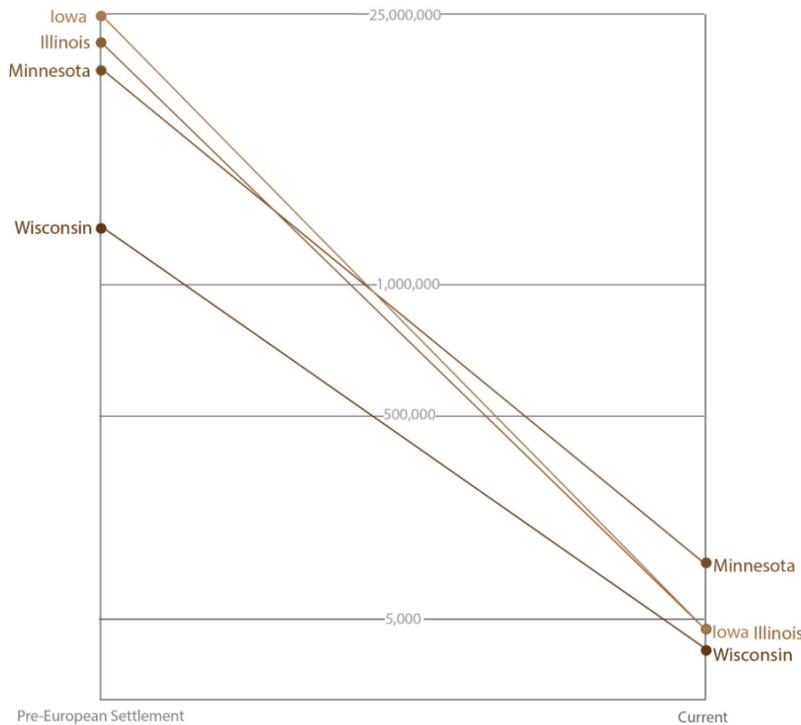
A warmer post-glacial climate brought Native People to Wisconsin. They were moving northward likely in pursuit of wild game. Soon Native People began to use fire to clear land for hunting and farming.

Native Americans called these Wisconsin prairies home for thousands of years prior to European arrival - for time immemorial. However, many written descriptions come from early European settlers. For them, prairies were places of awe and wonder, frequently compared to oceans (Curtis 1959). According to one early settler (Curtis 1959, 259):

The view from this mound...beggars all description. An ocean of prairie surrounds the spectator whose vision is not limited to less than thirty or forty miles. This great sea of verdure is interspersed with delightfully varying undulations, like the vast waves of the ocean, and every here and there, sinking in the hollows or cresting the swells, appears spots of trees, as if planted by the hand of art for the purpose of ornamenting this naturally splendid scene.

For the settlers prairies also became places of opportunity. They soon learned to plow the fertile land and plant crops. Once Europeans arrived, they pushed Native People off their land and began to plow.

In the 1800s farmers began plowing and never stopped. As time passed vast native prairies succumbed to agriculture and urban development. In undeveloped areas, fire suppression allowed forests to replace grasslands. Agriculture development intensified, accompanied by fire suppression and extensive clear-cut logging. Today, fire has returned as a restoration and prairie management tool (see Pheasant Branch Conservancy discussion below).



Prairie lost since European settlement (Selvey, 2012)

It's misleading to describe Wisconsin prairies as if they remain in their natural state. When I venture out I see farm fields with only the occasional patch of true prairie. The small prairie is likely the outcome of a successful restoration creating a tiny green jewel in an endless sea of uniformity. Although much of Wisconsin's original prairies have disappeared (Hoffman 2002), it's important to understand what our prairies once were. This gives us a template for restoration.

Southern Wisconsin sits on northern and eastern fringes of the North American grasslands. It is considered a

prairie-oak transition zone where prairies are interspersed with hardwood trees (Savage 2020) and various savanna communities (grasslands with scattered trees and shrubs).⁵ For thousands of years this ecosystem held plants with deep roots, which produced fertile soils. These prairies contain more species richness than western prairies, which are dominated mainly by grasses.

What little true Wisconsin grassland remains is characterized by warm and cool season grasses, flowering plants (forbs), grassland shrub, prairie (ranging from dry to mesic to wet), agricultural (fallow field, row crop, hay, pasture, etc.). Each has uniform vegetation and soil accumulated over thousands of years. These grasslands once supported large populations for grassland bird species from the Rockies to east of the Mississippi River.

Unfortunately for grassland birds, prairie destruction has caused populations to decline. In fact, habitat loss ranks highest among the [factors](#) that drive bird mortality.

⁵ For a detailed description and definitions of Wisconsin prairies see (Curtis 1959) or (Hoffman 2002).

Habitat Fragmentation and Prairie Islands

Bigger is Better

Ecologists refer to the *species-area relationship* (Hanski 2016) to describe the relationship of species diversity to habitat size. Generally, bigger usually means better. Sadly, for grassland birds, bigger is also rarer. Agriculture has replaced all but the smallest fragments of our once vast prairies. Scientists often refer to these habitat fragments as islands. They are separated by large areas of land unsuitable for birds.

According to Lovette et al, “virtually all continental habitats around the world now are subdivided into patchworks of landscapes designed for our own use, humans create *habitat islands* of different sizes, at differing distances from one another, and separated by different intervening habitats than would occur naturally” (Lovette 2016, 595). Studies⁶ show that small island species are vulnerable to random events such as storms, floods, or droughts. In these areas, such events can easily drive these species to extinction.

Conversely, large islands may contain diverse habitats with many niches to support species diversity. Moreover, large areas provide *refugia*, or safe areas for some species to escape random events, such as storms or fires. Larger habitats have food, shelter, and ample room to forage, establish territories and build nests. It’s important to understand the causes of fragmentation so we can improve bird habitats.

Causes of Habitat Fragmentation

Centuries of human-caused habitat destruction have led to global habitat fragmentation. The main drivers are:

- Agricultural and urban expansion
 - o Plowing native prairie to plant crops or farm livestock
 - o Converting pasture or small grain land to row crops
 - o Applying chemicals such as fertilizer and pesticide. These are poisonous to birds and indiscriminately kill insects that birds rely on for food, especially during nesting. Chemical application also changes soil organic and physical structure leading to poor water absorption, erosion, drought intolerance, and poor water quality (Meister 2024).
- Destroying habitat for building or recreation.
- Creating barriers that fracture large habitats and create habitat edges.

Edge Effects

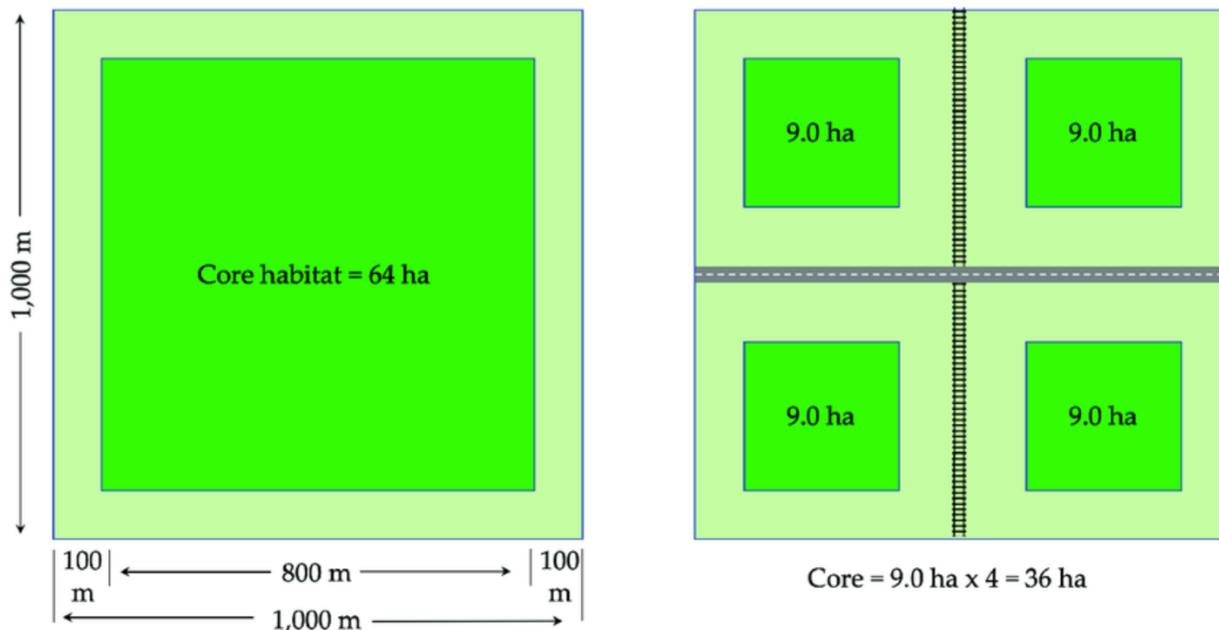
Habitat edges are where we see some of the worst effects of fragmentation. These are known as *edge effects* and include the following (Lovette 2016):

⁶ *The Theory of Island Biogeography* written by ecologist Robert MacArthur and biologist E.O. Wilson (Princeton University Press. 1967) showed that species richness on islands. The theory has been extended to include habitat islands such prairies and forest fragments surrounded lands altered by humans (Norman 2024).

- Environmental differences such as changes in sunlight, temperature and humidity affects the plant composition, habitat structure, and prey abundance near and edge.
- Edge portals for invasive plants and animals to enter a habitat
- Increased habitat disturbance such as fire
- Larger number of predators such as raccoons or cats with access to vulnerable species.
- Higher levels of brood parasitism (see below)

Edge effects are most pronounced smaller habitat fragments, which have a higher ratio of edge to interior habitat. Interior habitats far from edges are considered safer zones for birds. Larger habitat areas have a higher ratio of interior to edge habitat, which minimizes edge effects and maximizes suitable habitat availability (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997). Although some bird species can thrive in edge habitats, many grassland bird species require core areas, which are insulated from edge effects. Hiking trails are a common source of edge effects in restored areas.

Hiking trails invite people to interact with nature. They allow people to be “in” nature and may thus increase their engagement with conservation. There are many positive aspects of trails. But trails also create edge effects, especially if heavily used or poorly designed. Trails slice through larger habitats and can make them small. According to Audubon, “Trails often fragment forests and other habitats. Many species need large, intact expanses of habitat.”



3 An illustration showing how habitat fragmentation and edge effects reduce habitat area. (A) A 100-ha forest patch, where edge effects (grey) penetrate 100 m into the forest: approximately 64 ha of the forest is still core habitat suitable for forest interior species. (B) The same 100-ha forest patch now bisected by a road and a railway. Although the road and railway take up very little area, it increases the patch's perimeter: area ratio. The resulting edge effects leave more than half of the forest unsuitable for interior species. After Primack, 2012, CC BY 4.0.

Wilson, John & Primack, Richard. (2019). 5. The Scramble for Space. 10.11647/OBP.0177.05.

“Trails...can mean more disturbance, noise and trash” (Blackburn 2023). However, trails can be designed in ways that minimize negative effects, while preserving opportunities for people to engage with nature. For example, trails can be developed to go around habitats, rather than through them.

As shown above there are many ways human expansion into native habitats has caused habitats to fragment. This creates habitat islands, which are often too small to support viable bird populations. This is especially true in grasslands.

Inter-species Competition

Birds compete with other birds for resources. Competition can be intra-specific – within the same species – or inter-specific – with different species. Both intraspecific and interspecific competition are normal. However, competition may be intensified if resources become scarce as may occur in smaller habitats. Grassland birds compete with native and non-native species such as Brown-headed Cowbirds or European Starlings, respectively. All call PBC home at one time or another.



Juvenile Brown-headed Cowbirds at Pheasant Branch
- Photo by David Kelly

During breeding season, invasive European Starlings (*Sturnus vulgaris*) are found at PBC in large flocks, which compete with target birds for food and nest space.

Brown-headed Cowbirds (*Molothrus ater*) are widespread in Wisconsin where they breed. They are successful *brood parasites*, meaning they lay eggs in other species' nests. The “host” species is tricked into raising the cowbird's young, usually to the detriment of the host's offspring. According to Audubon, “heavy parasitism by cowbirds has pushed some (bird) species to the status of ‘endangered’ and has probably hurt populations of some others” (Audubon.org 2023). Cowbird parasitism can be up to 70% of potential host nests, particularly in fragmented areas (Rosenberg 2019).

Brown headed cowbirds are regularly seen by the monitors at PBC. In 2023, bird monitors reported 307

Brown-headed cowbirds on 41 checklists, averaging 7.49 birds per list. Additionally, 1,324 European Starlings on 46 checklists, an average of 29.78 birds!

Restoring Bird Habitat

The most pervasive cause of avian population declines worldwide is the loss of suitable habitat - (Rosenberg 2019, 594).

Four decades of wetlands conservation have generated spectacular comebacks of ducks and geese—and improved water quality for people. Applying this winning formula in more habitats will help our nation’s birds and natural resources rebound.
(American Bird Conservancy 2022)

Sadly, very little remnant prairie exists in Wisconsin today. A *remnant* prairie has experienced little disturbance and remains close to its original state. Restored prairies create a ray of hope for grassland birds. Restored prairies arise from efforts to rebuild prairie from land that was once changed to another use.

Ideally, restored prairie habitats provide grassland bird species food, water, shelter, and room to roam. If properly managed, they support plants and insects on which 96% of these birds depend (Gaumnitz Fall 2020). Ample shelter, food, and protection are especially important during the critical breeding period.

There are many restored prairies across Wisconsin. These prairies are close their natural state. As such they help birds. In fact, there is ample evidence to prove the link between restored areas and expanding populations of bird species.

- Improvements in populations of raptors (Bald Eagle, Peregrine Falcon), waterfowl, and turkeys are testimonials to what we can accomplish by investing in bird habitat restoration (Axelson 2019).
- Decades of investment in wetland birds reversed staggering losses due to market-hunting in the early 20th century and serve as a model for a proactive approach to saving grassland and other bird species (Rosenberg 2019). Such investment produced strong gains in birds such as geese, swans, and dabbling ducks (North American Birds Conservation Initiative. State of the Birds 2022).
- A rebound in northern Wisconsin forests has led to bird population improvements. This bucks the broader trend of forest bird declines (Wisconsin Department of Natural Resources 2005).
- Conservation Reserve Program (CRP) – a USDA program where in exchange for rental payments, farmers can voluntarily remove environmentally sensitive land from production in 10-15 year increments. They then plant species that help improve the environment. (In Wisconsin, after peaking at over 700,000 enrolled acres, enrollment in CRP has declined steadily. This is mainly due to commodity prices.)
- Increased usage of conservation, or managed grazing where farmers and the DNR partner in bringing livestock grazing to maintain grassland health (Meister 2024).
- Grassland 2.0 – a grassroots effort with public and private sector cooperation to restore prairie function to transform livestock agriculture in the Midwest from grain-fed to grassland-fed (Meister 2024).

In a recent study of the effectiveness of conservation, Langhammer et al found that in most cases, conservation either improved biodiversity or at least slowed its decline (Langhammer 2024). Specific actions that had the most benefit included sustainable management of ecosystems, habitat loss reduction and restoration, and invasive species control (Langhammer 2024).

To save the birds we must rebuild their homes through habitat restoration. “Conservation works when we give birds and nature a chance. Let’s do more to save our nation’s birds and benefit people in every state” (North American Birds Conservation Initiative. State of the Birds 2022, 4). At Pheasant Branch Conservancy prairie restoration creates opportunities to study the connections between habitat and birds. It’s a case study pointing to a positive correlation between habitat restoration and bird species health. Is it enough for grassland birds?

Grassland Birds

Across breeding biomes, grassland birds showed the largest magnitude of total population loss since 1970—more than 700 million breeding individuals across 31 species—and the largest proportional loss (53%); 74% of grassland species are declining.
(Rosenberg 2019)

Grassland bird species are defined by their relationship to grassland habitats. They “use these grassland habitats during the breeding season for courtship, nesting, foraging, rearing young, and roosting or resting” (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997, 8). Some grassland birds are *obligate grassland species*, meaning they require grasslands during their breeding cycle. Other grassland species are habitat generalists that occur commonly or uncommonly in grassland habitats (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997). For either type, a high quality grassland can support high bird densities and high nest productivity during the breeding cycle. Find a good grassland and you’ll find a variety of bird species. Grassland bird species found in Wisconsin include the Dickcissel, Eastern Meadowlark, Grasshopper Sparrow, Bobolink, Savannah Sparrow (USDA Vermont Natural Resources Conservation Service 2014). Other grassland birds include Henslow’s Sparrow (USDA Vermont Natural Resources Conservation Service 2014) (USDA Vermont Natural Resources Conservation Service 2014), Grasshopper Sparrow, Clay-colored Sparrow, Sedge Wren, and Willow Flycatcher. Most of these birds are grassland obligates. But different birds like different things: “Grassland birds do not all have the same habitat requirements. Some, like the bobolink..., prefer longer grass while some species, like the Eastern Meadowlark do fine with shorter grass” (USDA Vermont Natural Resources Conservation Service 2014).

With the exception of the Savannah Sparrow, these birds are considered Wisconsin [Priority Species](#) identified by the Wisconsin Bird Conservation Initiative.⁷ Priority species are defined as

⁷ This initiative compiles information from multiple sources to summarize conservation information on bird species in the state.

those in greatest need of conservation in the state. More information on these birds is included in the Pheasant Branch case study below.

A Case Study - Pheasant Branch Conservancy

As I walk the trails at Pheasant Branch I'm surrounded by sounds. A warm breeze ruffles the Indian Grass and mixes with a melody of birdsong. Beneath the oak trees on Frederick's Hill, I pause to hear the *pzzz* call of the Blue-Gray Gnatcatcher or the *fitz-bew* of the Willow Flycatcher. These are ingredients in an acoustical soup of birdsong, which includes three species of woodpecker, Northern Cardinals and a distant *see-you, see-yeeer* of the Eastern Meadowlark. Today I'm a bird monitor, tallying birds and dutifully submitting my *eBird* report in the name of citizen science. I think to myself if the birds disappear forever, these bird counts will exist only to tell us what we've lost. We need places like Pheasant Branch to prevent that from happening.

Pheasant Branch Conservancy (PBC) is a 682-acre⁸ protected natural area located in Middleton, Wisconsin. It has a long [history](#) of conservation and restoration. PBC's topography and natural springs evoke a glacial past, while conical and linear mounds, built by the area's original inhabitants tell of a rich cultural history in what remains a sacred area for today's Native People⁹. Today, PBC's prairies¹⁰, marshes, woodlands, and a variety of wildlife are a green jewel surrounded by suburban and agricultural development. Farms occupy the northern edge of the conservancy, while the rest is constrained by residential and commercial development. Many bird species call the diverse habitats at PBC home. In the northern sections, restored prairie welcomes many grassland birds.

Proximity to town makes PBC accessible. It's a great place for people to visit and enjoy nature. According to the City of Middleton, PBC hosts up to 30,000 visitors a year. Soon, a large residential development will be built adjacent to the conservancy. This means the human presence will grow significantly and increase pressure on PBC's wildlife.

[Dane County Unit of PBC](#)

Chronology

The north area of the conservancy is the Dane County Unit. The unit occupies over 300-acres of the conservancy in the Town of Springfield, adjacent to the City of Middleton. It includes the Fredericks farm acquired by Dane County and the Wisconsin Department of Natural Resources in the early 1990's. Initially, the area was called Bellefontaine Conservancy but later it was

⁸ [Source - Dane County Parks website](#)

⁹ Conical and effigy mounds built a thousand years ago exist at the top of Frederick's Hill. Bird-shaped effigy mounds built further down the hill were destroyed by agriculture. These mounds connect Pheasant Branch to the Ho-Chunk people who are believed to be their builders. They resided in area they called DeJope (Four Lakes) in an area that includes where Madison and Middleton sit today. See Pheasant Branch Conservancy website for more information from Amy Rosebrough with the Wisconsin Historical Society. <https://pheasantbranch.org/effigy/>

¹⁰ The planted prairies at PBC have been described as mesic with some dry-mesic mixed in. See [Friend of Pheasant Branch Website](#) for details. Curtis (276-284) offers detailed listing of mesic and dry-mesic prairie characteristics, including detailed tables containing representative species.

permanently named Pheasant Branch Conservancy – Dane County Unit and designated as a Natural Resource Area.

The Dane County Parks website describes this classification:

Dane County Natural Resource Areas are lands designated for the protection of a valuable natural environment, wildlife habitat, open space, and/or greenbelt corridor. Recreation at Natural Resource Areas is a secondary objective, with limited to no developed facilities -- users are encouraged to enjoy the resource as is.

In 1996, Dane County Parks began converting the farmland to prairie by clearing non-native/invasive plants and seeding areas with native prairie species.

In 2019, the County acquired the Acker farm at the northern boundary of the conservancy, adding 160 acres to the Dane County Unit. The primary purpose for the acquisition was to improve the water quality of Pheasant Branch Creek and, ultimately, Lake Mendota. Additional benefits included:

- Expanded bird and other wildlife habitat.
- Enhanced groundwater recharge through establishment of permanent prairie vegetative cover.
- Added greenspace corridor between the urbanizing areas of the City of Middleton and the Village of Waunakee.
- Reduced large storm event downstream discharge through prairie restoration and storm water management features.
- Enhanced outdoor access and opportunities for public use including educational opportunities.

<https://www.danecountyparks.com/documents/PDFs/projects/Pheasant-Branch/Acker-Pheasant-Branch-Property-Plan-Report-Jan-2021-Update.pdf>

In 2020, the Dane County Water Resources Department and Dane County Parks completed a major wetland restoration and storm water management project to reduce runoff from the parcel and provide flood control for Pheasant Branch Creek. From 2021-2024, they established trails for hiking and biking and converted crop fields to restored prairie. Prairie seeding was done with a 4-year phased approach starting with the southeast area in the winter of 2021 and finishing with the northeast area in 2024.

Today, the Acker property is in various stages of restoration. Recently planted parcels are mowed in the spring to keep invasive species from setting seed. Mowing tends to favor the shorter grasses that are preferred by grassland birds such as Dickcissels and Eastern Meadowlarks. As the prairie matures, prescribed burning replaces mowing. Tall grasses, spurred by spring burns, are not necessarily preferred by these grassland species. A mix of fall and spring burns, along with mowing, can produce a diverse set of habitats for grassland birds. Ongoing management is necessary to have suitable nesting habitat for grassland birds.

Habitat Management

Rob Schubert, the PBC Land Manager, was employed by Dane County Parks to implement the existing management plan for the area purchased in the 1990s. In 2024, after the County

completed seeding of the Acker property, his work expanded to the new parcel. He organized volunteer work groups to control invasives in the new prairies and made plans for mowing, overseeding, and prescribed burns. More details about these activities are listed below:

- Mowing – newly acquired areas are restored to native prairie by mowing and seeding. Mowing occurs for 2-3 seasons to control weeds and invasive plants. Once prairie plants are established, mowing becomes sporadic and prescribed burning begins.
- Prescribed burns – periodic, rotational burns are done in spring and fall. The timing of burns has important implications for habitats, and ultimately birds.
 - o Spring burns occur early in the season, ideally prior to bird nesting. However, due to complexities of scheduling and weather, burns may chase early nesters away temporarily. When this happens, birds seek *refugia*, or protected areas where they remain until the burned area is again suitable. Ideally, burning happens early enough for birds to restart nesting. Spring burns favor tall, warm-season grasses such as Indian Grass and Big Bluestem. These grasses are not ideal habitat for the grassland bird species that prefer shorter, cool- season grasses, and varied or mosaic habitats.
 - o Fall burns do not occur in the breeding season to minimize negative impacts on birds. Fall burns favor shorter, cool-season grasses such as Prairie Dropseed and bunch grass. These grasses tend to be part of a mosaic landscape of shorter and higher vegetation preferred by some grassland birds. Shorter grasses may be more representative of true native prairies found at the time of European settlement.⁸ PBC plans to overseed with shorter grasses and increase the proportion of fall season burns, with the following objectives:
 - Creating more habitat structure for birds – mosaic landscapes with open areas for foraging and denser areas for safety. Schubert equates these landscapes to the rooms of a house, each with a function beneficial to birds and other wildlife.
 - Eliminating impact to birds during the critical breeding period (territory establishment, nesting, fledging)
 - Favoring bunch grasses, which are preferred by ground nesting birds and overwintering bees.
 - Reducing risk to reptiles and amphibians, which are more active in spring. This also supports a goal to restore Blanding’s Turtle in the area.
 - Reducing risk to spring pollinators, such as the state-endangered Rusty- patch Bumble bee. Their queens emerge in spring seeking flowering plants like Blue-eyed Grass, Pasque Flower, and Prairie Shooting Star. Spring burns set these back.

[Spring vs. Fall Burns](#)

Spring Burns	Fall Burns
Done in early spring with some impact to ground nesting birds	Done in fall with no impact to ground nesting birds
Favors tall, warm-season grasses (Big Bluestem, Indian Grass). These become dominant vegetation type. (Historically, prairies tended to have shorter grasses).	Good preparation and set up for fall and winter seeding Favors shorter cool-season grasses (prairie dropseed, bunchgrasses, porcupine grass, sedges), mosaics. Cool season grasses that are missing from restorations today (sets back dominant grasses)

	Favors bunchgrasses (good structure, overwintering bees, bird nest habitat in spring)
	Favors sedges (Dicknels, Liberg's Panic Grass, others that have few seed sources today) – and less favorable to exotic invasives like Kentucky Bluegrass, Brome.
	Better for reptiles, amphibians, pollinators (due to their spring activity)

Grassland Birds at PBC

Spring means the arrival of grassland birds to PBC. They've spent the long winter in warmer places and come to PBC to breed. Some species venture to the southern US or as far south as Central and South America. Others are shorter distance migrants going to where it's just warm enough to survive. In spring if conditions are right these birds may return to the same area at PBC where they bred the year before. When birds return to the same place each year they are exhibiting site fidelity, sometimes called philopatry (Lovette 2016).



Prescribed burn at PBC - Photo from Friends of Pheasant Branch Conservancy website

Spring is a critical breeding period when bird species are vulnerable. In a few months, birds must establish territories, find mates, build nests, lay eggs, and raise young. Failure during this time – inability find territory to nest, nest destruction, and mortality – can significantly reduce bird populations. A suitable habitat is a precursor for a successful breeding season..



Frederick's Hill oaks with native prairie in the foreground - Photo by David Kelly

During the breeding period, birds' diets consist mainly of insects. Insects in turn depend on native plants for survival. A good habitat has plenty of both for birds to feed themselves and their young. There must be adequate amounts of space and ground cover to keep birds secure. However, once breeding season ends, the work isn't over.

Over thousands of years the co-evolution of birds, plants and insects has created a masterpiece of synchronized timing and mutual dependencies that all need to survive. During breeding season, birds depend on insects to feed their young. Insects are present in spring, at just the right time to make this happen. After breeding, birds' diets may transition to include more seeds. The switch coincides with flowering and seeding periods of native plants, proving again the importance of these plants and their ecological connections to birds. Birds need the added nutrition to build fat stores and support physiological changes that occur prior to migration. This relationship – birds, insects, and plants - is the proverbial three-legged stool: remove one leg and it all falls apart. Today for grassland birds, the relationship is precarious. Many grassland bird species are specialists. They depend on specific food resources provided by native insects and plants. When abundant, these resources allow specialist birds to be highly successful. Conversely, when resources become scarce or unreliable – as they do in fragmented habitats – birds will disperse or starve. These species lack flexibility to seek alternative food sources.

Flexibility is a trait enjoyed by generalist bird species. When one food source becomes scarce, they can find alternatives. In periods of scarcity, generalists compete successfully with specialists. This competition produces increased pressure on specialist bird populations.

Gray Coneflower at PBC - photo by David Kelly

The Quest for Space

According to Cornell grassland birds are *area sensitive*. This means that the probability of their success increases with the size of their habitat (Lovette 2016) (see appendix for individual species habitat and space needs and previous discussion on the species-area relationship). This is especially problematic in today's era of habitat fragmentation. Birds need room to roam. In small spaces, they are short term residents at best. This raises an important question about PBC birds. Is PBC large enough to support stable or growing grassland bird populations?

This can only be answered with time and through observation: seeing whether birds return to PBC each spring and whether they remain at PBC through the summer. Bird monitors have begun to observe positive results. Perhaps PBCs restoration and growth is helping by (1) adding more habitat acres, (2) providing more space to add more plant and shrub diversity to restored areas, and (3) providing refugia should catastrophic events arise.¹¹ So there is reason for hope.

PBC Bird Monitoring

In 2017 birdwatchers reported declining populations of grassland bird species at PBC. This was not happening at nearby sites. So why PBC? Birders pointed to a lack of suitable habitat as a possible cause. To attract birds to PBC, in 2019 the Friends of Pheasant Branch and Dane County Parks improved nesting habitat. This included:

- Trail closures to reduce edge effects and other habitat disturbances.
- Renewed emphasis on dog leashing rules.
- Signage containing information about protecting ground nesting birds.

In addition, the county added acreage to expand available bird habitat. To measure effectiveness of these improvements, Friends of Pheasant Branch and Wisconsin Master Naturalists started a formal bird monitoring program in 2020. The intent was to determine whether these improvements would reverse the observed decline in bird populations.

Monitors have tracked birds annually through 2024. Data from monitoring is enhanced by records from prior years, creating a more comprehensive dataset.

In 2020, bird monitors surveyed part of the Dane County Unit, including the oak savanna and remnant dry prairie on Frederick's Hill and the restored prairies to the west. In subsequent years, trail construction and prairie restoration allowed the monitor program to expand to the newly acquired Acker parcel.

Bird monitors initially targeted eight species. These were selected from recommendations of concerned birders, restoration and management volunteers, and participants in a Friends' Master Naturalist class. Monitors added Savannah Sparrows and Bobolinks to the target species list. The following is the target species list, categorized by habitat preferences.

¹¹ Population ecologists' study metapopulations. These are spatially separated populations connected by dispersal of individual population members (Lovette 2016). Nearby habitats could be visited by birds seen at PBC. These include Wisdom Prairie and Governor Nelson State Park.

Target Species Habitat Preferences

Species	Preferred Habitat Features	Preferred Habitat Size
Classic Grassland Species¹²		
Eastern Meadowlark	Obligate ¹³ grassland species - Idle Cool-season (Watemolen, McDowell and Trochlell 2003) Grassland, Idle Warm-season Grasslands, Hay, Pasture, Fallow Field, Dry Prairie, Dry-mesic Prairie, Wet-mesic Prairie, Oak Opening, Grassland-shrub, Southern Sedge Meadow, and Marsh.	Found in areas <20 acres, but larger needed to sustain populations Present at PBC March-Oct
Dickcissel	Obligate grassland species - Fallow Field, Dry Prairie, Dry-mesic Prairie, Wet-mesic Prairie, Idle Cool-season Grasses, Idle Warm-season Grasses, Hay, Oak Opening.	Greater than 25-acres Present at PBC May-July
Clay-colored Sparrow	Non-obligate grassland species - Pine Barrens, Idle Cool-season Grasses, Pasture, Grassland-shrub, Sand Barrens, Dry Prairie, young conifer plantations.	Present at PBC April, May, and Sept
Savannah Sparrow (target added 2021)	Obligate grassland species - Added on recommendation of monitors.	Present at PBC Apr-Sept
Bobolink (added 2023)	Obligate grassland species - Small Grains, Fallow Field, Hay, Pasture, Idle Cool-season Grasses, Idle Warm-season Grasses, Dry-mesic Prairie, Wet-mesic Prairie, Wet Prairie, Oak Opening, Southern Sedge Meadow and Marsh, Northern Sedge Meadow Marsh, Bog-Muskeg.	Approximately 25-acres Present at PBC May-August
Oak Savanna and Wetland Meadow Birds		
Sedge Wren	Obligate grassland species - Northern Sedge Meadow and Marsh, Southern Sedge Meadow and Marsh, Idle Cool-season Grasses, Idle Warm-season Grasses, Wet-mesic Prairie, Wet Prairie, Forested Ridge and Swale, Bog-Muskeg.	Present at PBC May-Sept
Willow Flycatcher	Generalist species found in grasslands - Shrub-Carr, Southern Sedge Meadow and Marsh, Grassland-shrub, Forested Ridge and Swale, Dry-Mesic Prairie, and Wet-Mesic Prairie with a shrub component; shrubby lowlands.	Present at PBC May-Aug
Grassland birds known to nest occasionally at PBC		
Grasshopper Sparrow	Obligate grassland species - Dry Prairie, Dry-mesic Prairie, Hay, Pasture, Fallow Field, Idle Cool-season Grasses, Idle Warm-season	Larger tracts (Vickery 1996) and moderately area sensitive

¹² Unless otherwise noted habitat information derived from Kreitinger. (Kreitinger 2013). See appendices for detailed habitat information. PBC present dates from (Watemolen, McDowell and Trochlell 2003)

¹³ Obligate grassland species are those that require grassland for all or part of their breeding cycle (Sample and Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997)

	Grasses, Pine Barrens, Sand Barrens, Oak Opening.	(DeChant et al. 2003, Herkert et al. 1993).
Vesper Sparrow	Obligate grassland species - Dry Sand Prairie, Dry-mesic Prairie, Grassland-shrub, Idle Cool-season Grasses, Idle Warm-season Grasses, Pine Barrens, Fallow Fields, Small Grains.	Present at PBC April, May, Sept
Henslow's Sparrow	Obligate grassland species - Dry-mesic Prairie, Wet-mesic Prairie, Wet Prairie, Idle Cool-season Grasses, Idle Warm-season Grasses, Oak Opening, Southern Sedge Meadow and Marsh, Open Bog-Muskeg.	May be moderately area sensitive (Sample and Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997) are more likely to be seen in larger grassland areas and therefore may require larger habitats (Herkert 2003).

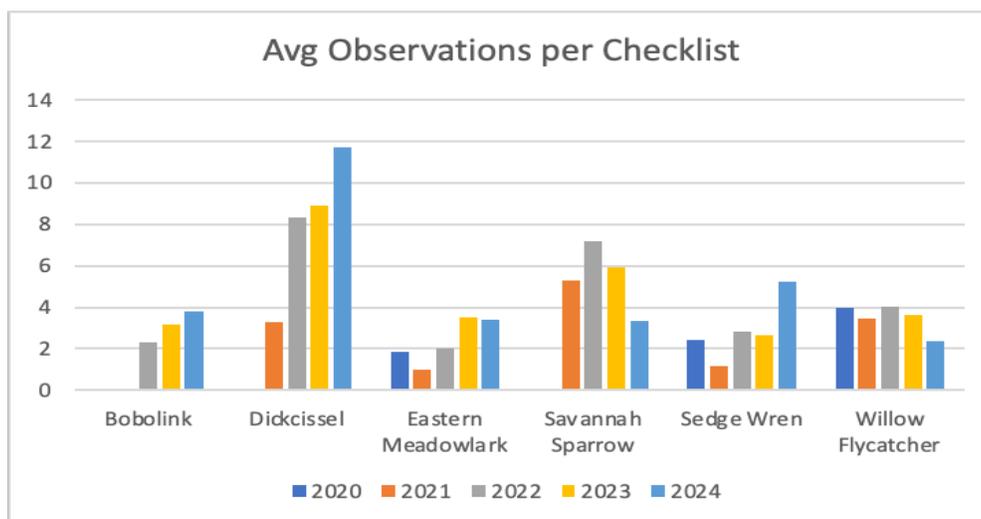
Apart from the Sedge Wren, Savannah Sparrow and Willow Flycatcher, these birds' populations have declined significantly across North America, primarily due to habitat loss and to other reasons described in the appendix. All 10 target species are migrants generally occurring in PBC habitats.

Ideally, monitoring results would provide data to help answer two important questions.

- Does PBC provide adequate habitat for target species to survive?
- If not, can a plan be developed to ensure sufficient habitat to improve their survival odds?

Monitoring Results

The chart below shows 2020-2024 monitoring results. The average used to track populations is the total number of reported birds divided by the number of checklists that reported at least one observation of the species. This index was recommended by eBird advisors to make year-to-year comparisons.



No observations or infrequent (non-nesting) visitors to PBC - Clay-colored Sparrow, Grasshopper Sparrow, Henslow's Sparrow, Vesper Sparrow

The data shows the following trends:

- Population growth – Bobolinks, Dickcissels, Eastern Meadowlarks.
- Population growth followed by declines in 2023 and 2024 – Savannah Sparrows, Willow Flycatchers
- Low numbers in 2021 may have been caused by a major winter storm affecting late spring migrants such as Sedge Wrens.
- No gains - despite the habitat improvements, gains for the remaining target species proved elusive

These promising trends provide empirical support for continued habitat improvements. In short, for birds, *if you build it, they will come*. It should be noted that restoration of recent land acquisitions, including the Acker property, increase habitat size and likely play a major role in birds returning to PBC.

What's Next for PBC Birds?

There is reason for optimism that habitat restoration can lure birds back to PBC. Continued restoration is key to ensure optimal habitat. Additionally, changes to habitat management may make habitat more suitable for all target species. However, the future is uncertain.

An expanding human presence at PBC will create more problems for birds. More people mean more invasive plants, more fertilizer and pesticide runoff, and more unleashed dogs. To effectively meet these challenges PBC should adopt proactive approaches today. These approaches should build on lessons from the PBC case study as well as from other successful restorations across the state. This means maintaining some existing habitat practices and changing others. It also means potential further restoration efforts at PBC to minimize human impacts, with bird protection in mind.

Habitat Maintenance

Habitat management today includes periodic mowing and prescribed burns. Mowing is most important early in the restoration process. Burning takes over once native plants are established. Ongoing maintenance also includes selective removal of aggressive invasive plants and seeding of selective species to add diversity to the prairie.

The timing and location of mowing and burning is critical. Target birds use the same time windows and occupy the same areas when they establish territories, breed, and raise young. If mowing or burning overlap these critical periods, good bird habitat becomes an *ecological trap* in which birds can't survive. Mowing during nesting season can destroy nests and kill birds. To protect grassland birds, mowing should occur in summer after ground nesting birds have fledged. Additionally, mowers should be adjusted to minimize impact on later nesting birds.

- Set mower heights high to avoid ground nesters
- Use sweep bars
- Establish mowing patterns – avoid nesting areas after fledging (this requires knowledge of where birds are known to nest).

This guide provides guidance on best management practices to protect grassland birds:
<http://aldervillesavanna.ca/wp-content/uploads/2020/09/GrasslandBirdsWorkbook.pdf>

Burning occurs on a regular basis, in early spring and in fall in areas where bird species breed. Spring burning supports taller grasses, while fall season burning supports shorter, cool season grasses favored by most of the targeted grassland species. Should tall grasses replace shorter grasses in restored areas, positive trends in target species populations could reverse for those birds preferring shorter grass habitats. Therefore, the timing of prescribed burns is an important consideration to increase the chances of retaining these populations.

Human Impacts

Bird habitat requirements must be balanced with human needs. At PBC, growing urbanization drives greater need for human accessibility and recreational opportunities. This can increase the potential for conflict between human and bird needs. Specifically,

- More people – more potential to disrupt bird activities; more people on the trail increases fragmentation and exacerbates edge effects
- More off-leash dogs – breeding cycle disruption, bird mortality
- Increased use of pesticides and fertilizers in residential areas can find their way into PBC
- Increased use of ornamental (non-native) plants – leads to potential for more invasive plants spreading to PBC.

Additionally, bird populations can be affected by occurrences outside PBC such as the poisoning of birds on their wintering grounds, storms, or destruction of habitat outside PBC.¹⁴

Conclusion

Although many North American bird species have declined, grassland species have suffered the worst losses. Habitat loss stands out the primary cause. According to Cornell (Rosenberg 2019, 494), “the most pervasive cause of avian populations declines worldwide is the loss of suitable habitat.” Quite simply grassland species have fewer places to live.

Since European settlement, prairies and grasslands have all but disappeared. The little that remains continues to shrink, succumbing to urban and agricultural expansion. Although restoration provides relief, it may only slow the inevitable decline. We may soon reach a tipping point, a point of no return from which these imperiled species can no longer recover. Perhaps we’re already there. But there is hope that we can, at a minimum, slow the decline.

¹⁴ Although the focus of this paper is on Wisconsin bird conservation, most bird species spend more time in non-breeding/overwintering areas than in their breeding areas. In their winter homes they face many of the same challenges, including habitat loss. They also face extermination in agricultural areas, and hunting. They also face threats during their migration to and from wintering grounds.

Restoration Works

There is solid evidence that habitat restoration and effective maintenance attracts birds. We've seen wetland restoration produce a resurgence of ducks, geese and other wetland birds. We've seen clean-up of hazardous chemicals bring back Bald Eagles and other raptors. At PBC, extensive habitat restoration has led to bird monitors seeing more grassland birds. There is solid support for the connection between restoration and healthy bird populations.

Restoration means better habitat. And this means more birds. Moreover, better habitat is also a counterweight to pressure caused by urban development in areas adjacent to the conservancy.

Equating habitat improvement to bird returns underscores several hypotheses from which recommendations are derived. The following table lists specific habitat improvements, their impacts, and recommendations, that if implemented could improve or preserve habitat for the target species.

Recommendations to Improve PBC Bird Habitat

Habitat Changes	Hypothesis	Recommendation
Habitat improvements and restoration to improve habitat for nesting birds.	Targeted changes at PBC made it a more welcoming place for target birds.	<p>Continue habitat improvements for target species. Adjust mowing and burning practices where possible to align with critical periods for birds (nesting, foraging, fledging) and to create more suitable habitat.</p> <p>Better control of mowing practices – timing, bird-friendly mowing, etc.</p> <p>Increase autumn burning to promote short season grasses and more mosaic / structured habitat composition.</p> <p>Implement measure of restoration effectiveness – bird counts</p> <p>Communicate monitoring to key stakeholders and engage them in monitoring effort (possible funding source?)</p>
Reduce fragmentation from human encroachment	Closing trails through the prairie and siting trails at edges made PBC a more welcoming place for target birds and improved survival rate for young birds.	Investigate further closures or re-routes. Plan trails in new additions with birds in mind.
Emphasize leashing of dogs	Fewer off leash dogs meant less encroachment on nesting areas.	<p>Further emphasis on leashing. Stricter enforcement and more signs.</p> <p>Communicate with neighboring residential areas on need to leash dogs.</p> <p>Investigate impact of cats?</p>

<p>New housing development adjacent to PBC</p>	<p>Increased foot traffic at PBC will impede progress on bird populations.</p>	<p>Proactive communication to future residents about birds' needs at PBC.</p> <p><u>Engage residents</u> with PBC wherever possible:</p> <ul style="list-style-type: none"> - Continue bird monitoring - Friends of PBC membership drive - Promote volunteerism at PBC to build sense of ownership. - Communication to promote the benefits of Native Gardens in housing areas near PBC - FOBC naturalist classes – bird focused, native plant gardening, etc.
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Continued bird monitoring will identify long-term trends, which will help us understand the stability and viability of PBC bird populations. Monitoring could also be expanded to include nearby grassland habitats, such as Wisdom Prairie or Governor Nelson State Parks. Expansion would give a more comprehensive picture of population trends in the area.

Today PBC's birds remain vulnerable, and many questions remain. Target species may require more space than PBC has available, causing them to move elsewhere. Although PBC occupies over 600-acres, only portions are suitable for grassland birds. There are forested and wetland areas as well, each suited to the species that call these habitats home. As of this writing there are a variety of grassland bird species present at PBC. Dickcissels, Bobolinks, and Savannah Sparrows are regularly seen and heard. Their presence creates optimism for the future. Dickcissels prefer larger areas, so their presence creates optimism. Are these populations viable long-term? This remains to be seen and will depend on habitat management practices and the impact of future development in the adjacent areas.

Urban development along the western edge of PBC could constrain target bird populations by increasing human presence in the preserve, including people and buildings. Human impacts could be mitigated by proactively communicating with residents on the need to leash dogs, keep cats indoors, stay on trails, etc.

As time passes challenges grow and birds must fight harder to survive. They'll need help. Nowadays, habitats can't maintain themselves. In other words, human intervention is a prerequisite for a suitable habitat. More work is needed to ensure PBC can welcome and retain birds that choose to call the conservancy home. For this to happen restoration goals must be aligned across all PBC stakeholders. Bird monitoring is one way to ensure restoration efforts are on target. If birds keep coming back to stay, we must be doing something right.

Questions Remain at PBC

Thanks to years of restoration, PBC is a beautiful place to visit. It's many habitats offer visitors the opportunity to see different types of wildlife in their natural settings. Stable or growing populations of grassland birds are proof of successful restoration efforts. Whether these populations endure depends on the answers to important questions.

- What is the likelihood that populations will remain given grassland species' very specific habitat needs?
- How will populations be impacted by future restoration?
- How will available habitat size at PBC impact grassland species' populations?
- Can mowing and other maintenance practices be changed to better suit nesting while effectively balancing invasive plant concerns?
- Will increased human activity at PBC drive out grassland birds currently nesting in the area?

Perhaps the answers to these questions will create a restoration plan that, if executed, will allow grassland species' populations to endure.

Appendix- Target Bird Species at Pheasant Branch

Dickcissel - *Spiza americana*

- PBC Trend – promising (note this is considered an erratic species so sudden fluctuations could occur)
- Concerns – urban sprawl, insufficient habitat size, mow timing.
- Wisconsin Status: Special Concern



Dickcissel - Photo by Judith Harackiewicz

Overview

Dickcissels are neotropical migrants that arrive in Wisconsin around late May. They are generally ground-feeders, nesting on or near the ground in dense grasses or forbs (Temple 2002). Eggs are laid late May to early August (Robbins 1991). According to Audubon, Dickcissel young leave the nests 7-10 days after hatching but are not immediately able to fly. Dickcissels feed mainly on seeds and insects found in their grassland habitats. They may also feed on cultivated grain.

Habitat Preferences and Availability

Dickcissels prefer grassland habitat densely covered with moderate to tall vegetation. This includes fallow fields, hayfields, and restored grasslands (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997) (Temple 2002). The birds are generally found in greater densities in tracts larger than 10 hectares (Temple 2002) (Dechant, et al. 2003). In southern Wisconsin Dickcissels are found in grasslands with low grass to forb ratios (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997). Dickcissels may use fallow fields adjacent to urban areas, but these are not considered suitable long-term habitat (Kreitinger 2013).

Population

Dickcissels were historically found only in Wisconsin's southern counties but followed agriculture northward. Dickcissels are prone to population shifts and irruptions (Robbins 1991). Their populations stabilized for a period after sharp declines in the 1960s and 1970s (Sauer, Hines and Fallon 2005).

Like other Wisconsin grassland species, Dickcissels populations have suffered from disappearing and fragmented habitats caused by agricultural and urban expansion, making it difficult for them to find habitat that meets their long-term needs, a challenge magnified by their preference for larger tracts.. The population declines may be attributable to early mowing of hayfields, which

leads to high nest failure rates (Igl 1991). Unfortunately, the Dickcissels also experience high mortality on wintering grounds in Venezuela, where they are deliberately killed as pests – sometimes in the thousands (Temple 2002).

Pheasant Branch

According to bird monitor results, Dickcissel sightings increased from zero in 2020, the first year of monitoring, to 8.3 birds per list in 2022, 8.9 birds per list in 2023, and up to 11.75 in 2024, a favorable trend for this section of PBC property. For now, perhaps Dickcissels have settled into the restored prairie and Ackers addition. Given propensity for irruptions and the upcoming development in the area, their long-term viability at PBC is in question.

Recommended Management (WBCI quote)

(Kreitinger 2013)

<http://www.wisconsinbirds.org/plan/species/dick.htm>

Management should focus on providing medium to tall vegetation with a significant component of forbs (Sample and Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997). Burning, mowing, or grazing can provide suitable Dickcissel habitat by controlling succession (Dechant, et al. 2003) but should be conducted after the breeding season (mid-August) (Sample and Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997). The Conservation Reserve Program (CRP) grasslands provide important breeding habitat for Dickcissels in some parts of their range (Dechant, et al. 2003) (S. R. Hull 1996) found Dickcissel abundance higher in CRP fields with a high occurrence of forbs. On the wintering grounds, major conservation efforts are necessary to control (Kreitinger 2013) the large-scale, illegal killing of this species (Temple 2002).

Conservation and management strategies for this species should be focused on the following Wisconsin ecological landscapes: Southwest Savanna, Western Prairie, and Central Sand Hills (Wisconsin Department of Natural Resources 2005). Within these landscapes, the best public lands to manage for midgrass species, such as the Dickcissel, are Thomson Prairie Grasslands, Star Prairie Pothole Grasslands, and Muralt/Monroe Grasslands.

Bobolink - *Dolichonyx oryzivorus*

- PBC Trend: positive trend 2022-2024
- Concerns: Urban sprawl, habitat size, mowing, climate change
- Wisconsin Status: Common, but declining (Sauer, Hines and Fallon 2005)
- 2022 State of the Birds Report: Tipping point species in rapid decline



Bobolink - Photo by Judith Harackiewicz

Overview

Bobolinks are neotropical migrants, which winter in the pampas of South America (Martin and Gavin 1995). In late April to late May, they arrive on their breeding grounds after migrating up to 12,500 miles. Like many grasslands birds Bobolinks nest on or near the ground and lay eggs mid-May to early July (Renfrew 2006). The young leave the nest 8-14 days after hatching, but before they can fly. They forage on the ground and in surrounding foliage.

Habitat Preferences and Availability

In Wisconsin Bobolinks breed in areas that include alfalfa, grass hay, pasture, idle medium height grassland, old field, mesic prairie, and northern sedge meadow (Sample and Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997). They prefer grassland patches > 10 hectares (Sample and Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997) (Knutson, et al. 2001). Some non-native grasslands preferred by Bobolinks still occur in Wisconsin. Consequently, Bobolinks too are broadly distributed and considered common throughout the state. Unfortunately, old fields are vulnerable to conversion causing a threat to Bobolink habitat. In addition, alfalfa fields are considered “ecological traps” if mowed during the breeding season (Knutson, et al. 2001).

Population Trends

Although still found state-wide, loss of preferred habitat has caused Bobolink populations to decline by almost 2% annually (Sauer, Hines and Fallon 2005). According to WDNR (Wisconsin Department of Natural Resources 2005) loss of grassland habitat and agricultural intensification are concerns that warrant conservation efforts. Bobolinks are trapped as pests and sold in local pet trade on their wintering grounds.

Pheasant Branch

In 2022 Bobolinks returned to Pheasant Branch and were observed in the Acker property. A similar number was again reported in 2024. 2022 was the first record of nesting since 2013! Notably, this area may be too small for their liking (over 10 hectares of grassland). Given

Bobolink's nesting behavior and timing they may be vulnerable to mowing and pesticide applications in May or June - perhaps even into early July.

Recommended Management

(Kreitinger 2013)

< <http://www.wisconsinbirds.org/plan/species/bobo.htm> >

Bobolink conservation requires restoration and management of large grassland landscapes. Restorations should seek to create patch sizes greater than 10-30 hectares with little woody edge. Management of grassland patches through burning, mowing, or grazing should be done on a 3-6 year rotation in order to limit woody vegetation and provide adequate amounts of mid-successional grassland. Avoid disturbing more than 50% of smaller patches and 20% of larger patches on an annual basis (Dechant et al. 2003). Mowing should be delayed until after July 15 to protect fledglings and late nesters. If mowing cannot be delayed, one possible solution is to mow from inside out to provide fledglings an escape route. Also, idle lands adjacent to cut fields may allow for second nest attempts since bobolinks will abandon fields mowed during the breeding season.

Conservation and management strategies for this species should be focused in the following Wisconsin ecological landscapes: Southwest Savanna, Central Sand Plains, and Southeast Glacial Plains. Key sites include Buena Vista Wildlife Area, Thompson Prairie Grasslands, Muralt/Monroe Grasslands, Bong Recreation Area, and Crex Meadows Wildlife Area.

Eastern Meadowlark - *Sturnella magna*

- PBC Trend: consistent population growth – 2023 highest recorded count in monitoring period
- Concerns – urban sprawl, PBC habitat size
- Wisconsin Status: Significant decline (Federal Breeding Bird Survey – WI)
- 2022 State of the Birds Report - Declining

Overview

Eastern Meadowlarks are resident or short-distance migrants that arrive to Wisconsin in late February to March. They tend to nest from May to early July in dense vegetation on the ground. They feed on or near the ground from May to early July. Generally, they produce two broods per year with young leaving the nest after 11-12 days. Young cannot fly and require parent care for at least 2-weeks.



Eastern Meadowlark - Photo by Gary Sater

Habitat Preference and Availability

According to WBCI, Eastern Meadowlarks prefer pastures, short to medium height grasslands, old fields, grassland-shrub, dry-mesic prairie, and oak savanna. In open grasslands they may be found in areas as small as 20 acres, but larger areas are needed to sustain populations (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997).

Eastern Meadowlark habitats are vulnerable to development and agricultural conversion. The availability of suitable habitat depends on the level of agricultural conversion relative to the amount of land conservation. “The more intensive the agriculture (row crops, frequent hay cuttings, fewer fallow fields) the less available habitat there will be for Eastern Meadowlarks” (Kreitinger 2013)

Population Trends

Eastern Meadowlarks are found state-wide in areas of suitable habitat (Robbins 1991). However, according to Wisconsin breeding bird surveys, they’ve declined significantly since the 1960s (Sauer, Hines and Fallon 2005). This is due largely to increases in intensive agriculture and a lack of large native prairies for habitat (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997).

Pheasant Branch

PBC bird monitors have observed favorable trends in Eastern Meadowlark sightings at PBC. An average of 3.5 sightings in 2023 was higher than all years since 2009. A similar number of birds were observed in 2024.

Management Recommendation

(Kreitinger 2013)

<http://www.wisconsinbirds.org/plan/species/eame.htm>

A compromise between agricultural needs and the preservation of habitat is necessary to maintain the habitat needed for the population to stabilize or rebound.

Grassland restoration and management for Eastern Meadowlarks should seek to create large patches of habitat with a variety of successional stages and types (S. Hull 2003). It is best to delay mowing until mid to late July to avoid nest destruction (Sample and Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997). Fields left idle, like CRP fields, are good substitutes for native prairie. However, managers should periodically disturb these fields (3-5 years) to limit woody encroachment and to increase forb diversity (S. Hull 2003). Moderate grazing levels are compatible with this and other grassland bird species (S. Hull 2003) (Sample and Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997). Eastern Meadowlarks are susceptible to human disturbance at the nest especially during the incubation stage (Lanyon 1995).

Savannah Sparrow - *Passerculus sandwichensis*

- PBC Trend: Population growth followed by declines in 2023 and 2024. 2024 lowest reported since monitoring began
- Concerns: future development adjacent to PBC



Savannah Sparrow - Photo by Gail Smith

Overview

According to Audubon, Savannah Sparrows are ground nesters, typically laying 4 eggs in a cup-shaped nest. Young leave the nest 11 days after hatching. There are 1-2 broods per year (Audubon.org 2023).

Habitat Preference and Availability

In spring-summer, Savannah Sparrows can be found in open fields and meadows.

Population Trends

According to Audubon populations of the Savannah Sparrow are “abundant and widespread” (Audubon.org 2023).

According to Cutright et al, in Wisconsin, the Savannah Sparrow has always been widespread and abundant in all but the most densely forested and densely populated regions (Cutright 2006).

Pheasant Branch

After no observed occurrences of this species in 2020, observations per checklist over the 2021-2023 ranged from 5-7, a relatively stable presence. This favorable trend mirrors the overall stability in populations of Savannah Sparrows in southern Wisconsin. Notably numbers fell off slightly in 2024.

Willow Flycatcher - *Empidonax traillii*

- PBC Trend: Population growth followed by declines in 2023 and 2024
- Concerns: future development adjacent to PBC

Overview

Willow Flycatchers arrive in Wisconsin in early to late May (Robbins 1991). They feed while hovering and can be found perched on branches awaiting their insect prey. Their cup-shaped nests are seen in shrubs or trees 1-2 meters from the ground. They nest from early June to early July (Robbins 1991). Willow Flycatchers often nest in elderberry, dogwood, honeysuckle, or willow trees (McCabe 1991), sometimes over water (Sedgwick 2000).



Willow Flycatcher near Frederick's Hill - Photo by David Kelly

Habitat Preference and Availability

According to WBCI, in Wisconsin Willow Flycatchers occur in lowland and upland shrub areas (Sedgwick 2000). According to the Wisconsin DNR, some Willow Flycatchers' preferred habitats in southern Wisconsin, such as shrub-carr and southern sedge meadow, remain widespread while other preferred habitats – wet- and dry-mesic prairies, are virtually non-existent (Wisconsin Department of Natural Resources 2005).

Population Trends

Although population trends are variable across the range, according to WBCI,

in Wisconsin and other areas of the eastern U.S., the Willow Flycatcher populations appear to be increasing (Sauer, Hines and Fallon 2005). It is considered to be a fairly common summer resident in southern and central Wisconsin (Robbins 1991). During the six-year period (1995-2000) of the Wisconsin Breeding Bird Atlas, observers confirmed breeding in 12% of the surveyed quads (Schulz 2006).

Pheasant Branch

Willow Flycatcher populations have remained stable from 2020-2023. This is consistent with population trends in Wisconsin as a whole. Observations fell slightly in 2024.

Management Recommendation

(Kreitinger 2013)

<http://www.wisconsinbirds.org/plan/species/wifl.htm>

Conservation measures to protect wetlands in the southern half of the state will ensure breeding habitat for this species. Managers should work to maintain lowland shrub swamps, shrub-carr, and scattered patches of Grassland-shrubs in open grasslands/natural areas for this species (WDNR 2005). Conservation and management strategies for this species should be focused on the following ecological landscapes: Central Lake Michigan Coastal, Central Sand Hills, Central Sand Plains, Northern Lake Michigan Coastal, Southeast Glacial Plains, Southern Lake Michigan Coastal, Southwest Savanna, Western Coulee and Ridges, and Western Prairie (WDNR 2005).

Clay-colored Sparrow – *Spizella pallida*

- PBC Trend: No gains, birds not nesting at PBC
- Wisconsin Status: Significant decline (Federal Breeding Bird Survey – WI). Note that other surveys note CCSP status ranging from non-significant decline to significantly increasing.



Clay-colored Sparrow

Overview

Clay-colored Sparrows arrive in Wisconsin around May. They winter in southern Texas and Mexico. They are ground feeders and nest near the ground in low shrubs, which are required for them to nest. Young leave the nest in 7-9 days and run for cover, requiring another week before they can fly.

Habitat Preference and Availability

Clay-colored Sparrows are found in medium-height and density idle grasslands with some shrub cover (Sample and Mossman, *Managing Habitat for Grassland Birds: A*

Guide for Wisconsin. 1997). They may occur in barrens, clear-cuts, and recently burned sites. They can be found also in pastures and fields when there is sufficient shrub cover available for nesting. They can be found in areas smaller than 25 acres (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997)). If not maintained by fire or other disturbance, habitats preferred by Clay-colored Sparrows are vulnerable to succession.

Population Trends

Clay-colored Sparrows remain common in the northwest part of Wisconsin but can only be found in the south in remaining suitable habitats (Robbins 1991). As with other birds, they are vulnerable to agricultural conversion and development (Knapton 1994). According to Audubon, Clay-colored Sparrows have shown a slight decline in recent decades, with no apparent reason. Audubon note that their nests are often parasitized by Brown-headed Cowbirds. As with other birds in this report, concerns are with habitat loss, including loss of barrens and Jack Pines in the north.

Pheasant Branch

There have been no Clay-colored Sparrows sightings by bird monitors since 2020. This seems consistent with the noted disappearance from southern Wisconsin and preference for habitats further north. Additionally, PBC has a regular population of Brown-headed Cowbirds, which could impact the suitability of the PBC habitat for these birds.

Recommended Management

(Kreitinger 2013)

<http://www.wisconsinbirds.org/plan/species/ccsp.htm>

Managing for Clay-colored Sparrow and other grass/shrub birds requires maintaining scattered patches of shrubs within an open grassland or barrens landscape. Disturbance regimes should be longer for this and other grass-shrub species (DeChant et al. 2003) or managers should be careful to leave patches of shrubs after burns or mowing. Clear-cut harvest units can be arranged adjacent to other grassland/barrens openings to increase their effective size. Conifer plantations should not be placed within open grassland habitats because they will become an unsuitable edge when the trees grow over 10 feet (Sample and Mossman 1997). In areas where Sharp-tailed Grouse are intensively managed for Clay-colored Sparrow seem to respond well (Ryba 2002, Sample and Mossman 1997, Knapton 1994)

Vesper Sparrow - *Pooecetes gramineus*

- PBC Trend: no nesting populations observed at PBC.
- Concerns: future development at PBC
- 2022 State of the Birds Report - declining



Vesper Sparrow - Photo by Gail Smith

Overview

The Vesper Sparrow is another short-distance migrant arriving in April from as far south as Mexico. They nest on the ground in well-concealed nests. They have multiple broods per season with young leaving the nest in 1-2 weeks.

Habitat Preference and Availability

Vesper Sparrows are found in multiple habitat areas. These include:

- Row crops
- Fallow fields
- Dry sand prairie
- Barrens
- Cut or burned areas (studies have

shown high abundance one-year post burn (Krueger 1981, Herkert 1994, Vickery et al. 1999)

- Dry-mesic prairie
- Short/medium height idle grasslands
- Dry old fields
- Pastures (lightly, continuously or rotational)

(Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997)

Most Wisconsin habitats preferred by Vesper Sparrows are vulnerable to conversion, development, or succession, thus they are becoming rare and more fragmented. They do nest in row crops where they are vulnerable to predation or field operations (Rodenhouse 1983).

Population Trends

Vesper Sparrows remain common and widespread in the southern part of Wisconsin. However recent data (Breeding Bird Survey) indicated a declining trend across the state since the 1960s (Sauer, Hines and Fallon 2005). The cause is not known but may be attributable to habitat loss, agricultural pesticide use, and early hay cutting.

Pheasant Branch

There have been few sightings of Vesper Sparrows at PBC over the survey period. Most recently, however, an average of just over one Vesper Sparrow has been reported.

Recommended Management

(Kreitinger 2013)

<http://www.wisconsinbirds.org/plan/species/vesp.htm>

In prairies and other grasslands, Vesper Sparrows colonize new areas swiftly when habitat becomes suitable (Jones and Cornely 2002). Management activities such as mowing, grazing, and burning can create favorable nesting conditions for this species (Dechant et al. 2000). However, management activities should be performed outside the breeding season whenever possible to prevent nest loss. Conservation and management strategies for this species should be focused in the following Wisconsin ecological landscapes: Central Sand Plains, Northeast Sands, Northwest Sands, Southeast Glacial Plains, Southwest Savanna, and Western Coulee and Ridges (WDNR 2005). Within these landscapes, public lands important for the management of this species include Namekagon/Douglas County Barrens, Crex Meadows/Fish Lake Complex, and Necedah Barrens (David Sample, pers. comm.).

Since Vesper Sparrows nest in cropland and small grains, there are a number of things farmers can do to reduce nest loss and still maintain their crops. Reducing the number of passes tractors make through crop fields or increasing the time interval between passes will increase reproductive success in row crops. Passes greater than 3.5 weeks apart will allow time for Vesper Sparrows to complete their nesting cycle before the next tractor pass (Sample and Mossman 1997). No-tillage practices and an increase in crop residue will also increase nesting success and foraging opportunities (Dechant et al. 2000). Maintaining fencerows adjacent to cropland as well as increasing the proportion of fencerows that consist of both herbaceous and shrubby vegetation will likely benefit this species (Rodenhouse and Best 1983).

Sedge Wren - *Cistothorus platensis*

- PBC Trend: Stable with increased observations in 2024.
- 2022 State of the Birds Report - growing

Overview

The Sedge Wren is a mid-distance migrant, wintering in the southern US to Central Mexico. In Wisconsin they nest from late May through mid-July (Kreitinger 2013).

According to multiple sources, they are erratic in terms of nesting areas, appearing some years, and disappearing in others (Kreitinger 2013) (National Audubon Society 2023). Nesting area choices may be affected by rainfall conditions during nesting periods (Kreitinger 2013). Sedge Wrens may build dummy nests that are never used while the real nest appears low in wet meadows. They may puncture eggs of nearby birds. Incubation is approximately 14-days and young fledge 12-14 days later (National Audubon Society 2023).



Sedge Wren - Photo by Gail Smith

Habitat Preference and Availability

Sedge Wrens are typically found in Wisconsin in wetter sites, or herbaceous wetlands. Thus, population declines can occur if those areas are impacted by habitat loss or degradation, including development, drainage, or drought (Kreitinger 2013).

Population Trends

Sedge Wren population estimates range from uncertain to gradually increasing, based on the Federal Breeding Bird Survey. It is reasonable to conclude, however that they are affected by any changes in the habitat that they prefer (Kreitinger 2013).

Pheasant Branch

Populations of Sedge Wrens have been relatively stable over the 2020-23 period, with a slight drop in observations in 2021. Populations rebounded in 2024.

Management Recommendation

(Kreitinger 2013)

<http://www.wisconsinbirds.org/plan/species/sewr.htm>

Practices that maintain residual vegetation and maintain meadows/grassland will attract Sedge Wrens. Given Sedge Wrens tendency to nest later than many grasslands species, haying,

especially in wet meadows should be postponed until later than the mid-July recommendation give for other grassland species (DeChant et al. 2003), whenever possible. Conservation programs designed to promote grasslands and protect wetlands will directly benefit Sedge Wrens.

Woody encroachment will degrade Sedge Wren nesting habitat. Periodic disturbances like grazing, mowing, and prescribed burning can be used to set-back woody encroachment. Where used, rotating prescribed burning, mowing, and grazing to provide a mosaic of untreated nesting habitat may minimize negative impacts of these disturbances on Sedge Wrens.

Henslow's Sparrow - *Ammodramus henslowii*

- PBC Trend: no nesting population at PBC
- 2022 State of the Birds Report – tipping point species in rapid decline



Henslow's Sparrow

Overview

Henslow's Sparrows are short distance migrants, spending winters in the SE US and arriving in Wisconsin late April to early May (Kreitinger 2013). They are ground gleaners and nest very near to the ground from late May to mid-July (Robbins 1991). They require significant litter accumulation for their nests.

Habitat Preference and Availability

Henslow's Sparrows prefer dense grasslands dominated by tall to moderate vegetation (Kreitinger 2013). They are a tall-grass species preferring medium to tall vegetation heights, dense litter, and significant residual vegetation in grass

dominated fields with little to no woody cover" (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997). They may be moderately area-sensitive (Sample and Mossman, *Managing Habitat for Grassland Birds: A Guide for Wisconsin*. 1997) are more likely to be seen in larger grassland areas and therefore may require larger habitats (Herkert 2003).

Population Trends

Henslow's Sparrows are endangered in 7 states and are threatened in Wisconsin. They are declining locally and across the US (Sauer, Hines and Fallon 2005). Grassland habitat loss is the major threat (Herkert 2003), as is the case with many grassland birds. Henslow's Sparrows also suffer on their wintering grounds – mainly due to forest succession, agriculture, and development (Herkert 2003). According to Sample, "until its preferred habitats of undisturbed tall grassland, as well as its wintering habitat in the Gulf States, are made secure as well as abundant, we may continue to see numbers of this sparrow fade" (Sample, *Henslow's Sparrow*. In *Atlas of the Breeding Birds of Wisconsin*. (N.J. Cutright, B.R. Harriman, and R.W. Howe, eds.) 2006).

Pheasant Branch

Very small number of observations in 2023. Henslow's Sparrows may require more space than PBC currently provides. Perhaps this will change as additional prairie is restored.

Management Recommendation

(Kreitinger 2013)

<http://www.wisconsinbirds.org/plan/species/hesp.htm>

A viable population of Henslow's Sparrows in Wisconsin will depend upon continued large-scale grassland restoration and management within appropriate ecological landscapes (Sample and Mossman 1997, Knutson et al. 2001). Managers should seek to create large (>50ha, preferable 100ha), open grasslands with little to no woody vegetation (Herkert et al. 2003). Management should focus on providing tall vegetation with high amounts of litter (Sample and Mossman 1997, Knutson et al. 2001, Herkert et al. 2003). Henslow's Sparrows do not use disturbed grasslands for one or two breeding seasons post-disturbance due to their requirement for litter and residual vegetation (Sample and Mossman 1997, Herkert et al. 2003). Individual grassland sites should be disturbed on relatively long rotations (4-6 years) or 20%-30% of a site in a given year (Herkert et al. 2003). Remove woody treelines or patches of forest that may fragment existing or potential Henslow's Sparrow sites (Sample and Mossman 1997, Herkert et al. 2003).

Conservation and management strategies for this species should be focused in the following Wisconsin ecological landscapes: Southwest Savanna, Central Sand Hills, Central Sand Plains, Western Ridges and Coulees and Southeast Glacial Plains. Within these landscapes, key conservation sites include Buena Vista/Leola Grasslands, Horicon Marsh Refuge, Scuppernong Wet Prairie, Thompson grasslands, and many other publicly managed types of grassland.

Grasshopper Sparrow - *Ammodramus savannarum*

- PBC Trend: No nesting population
- 2022 State of the Birds Report – declining



Grasshopper Sparrow

Overview

A short distance migrant, arriving in late April from wintering grounds from southern US to the Caribbean. Grasshopper Sparrows forage and nests on the ground from late May to July (Kreitinger 2013).

Habitat Preference and Availability

Grasshopper Sparrows prefer open grasslands and prairies (Vickery, 1996). These include fallow fields and idle grasslands (short to medium height). They appear to be most common in areas with short, clumpy vegetation and areas of bare ground and taller vegetation (Kreitinger 2013). They can be found in areas of taller grass if not overly dense ((Sample and

Mossman, Managing Habitat for Grassland Birds: A Guide for Wisconsin. 1997). They prefer larger tracts of habitat (Vickery, 1996) and are moderately area sensitive DeChant et al. 2003, Herkert et al. 1993).

Population Trends

Grasshopper Sparrows are found in suitable habitat in many parts of Wisconsin, but numbers have declined substantially due to agricultural intensification. Like other grassland birds GS have suffered from habitat loss. Although they've responded well to restoration of habitat, GS "have shown some of the most alarming and persistent declines of any breeding bird in Wisconsin since the advent of the Federal Breeding Bird Survey" (Kreitinger 2013).

Pheasant Branch

No sightings since 2020.

Management Recommendation

<http://www.wisconsinbirds.org/plan/species/grsp.htm>

(Kreitinger 2013)

Management for this species should seek to create the short-grass, low-litter layer conditions that are associated with this species' presence in an open, grass-dominated landscape. In Illinois, patches of grass >10-30 ha were needed to support this species (DeChant et al. 2003). This can be done by restoring native dry prairies on appropriate sites or by managing non-native grassland types (hay, pasture, fallow field) within a larger bird conservation area

framework. On larger sites, seek to maintain a mosaic of grassland successional stages (treat 20-30% of total area annually) throughout the treatment area (DeChant et al. 2003).

Site-level management can incorporate burning, mowing, grazing or other disturbance systems as necessary to create the proper structure for this species. Delayed mowing, especially on public lands and airports, light to moderate grazing, and burning may be beneficial for Grasshopper Sparrows (Vickery 1996). Avoid treating areas during the nesting season; mowing or intensive grazing should be delayed until after July 15 (Sample and Mossman 1997). The use of fire and light grazing can be used in alternating lots of grasslands to achieve a more heterogeneous vegetation structure that could benefit grassland birds that use a diverse continuum of vegetation structure (Rich et al 2004). Grasshopper Sparrows will remain in fields cut during the breeding season to renest, however their reproductive success in these second attempts is unknown. They will also colonize a field not long after it has been burned and will tolerate moderate grazing for the diverse vegetation structure and bare areas these practices create. Contour strip cropping, an agricultural practice in southwestern Wisconsin, is also an effective compromise between row crop production and bird conservation for attracting Grasshopper Sparrows (Sample and Mossman 1997). The use of native grasses and forbs in CRP plantings could benefit Grasshopper Sparrows by offering diversity in vegetation structure (Rich et al 2004). Most old, un-managed smooth brome fields are not suitable habitat for this species and should be periodically rejuvenated through disturbance.

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