



The Sauk Prairie Conservation Alliance

Creating a Conservation Future for the Badger Lands

Birds Respond Dramatically to Habitat Changes at Badger

by Mike Mossman



The rare Bell's Vireo now nests at Badger
PHOTO: Nick Kontonickolas/1000birds.com

Since the construction of the Badger Army Ammunition Plant (Badger) in 1942 that supplanted almost 7,400 acres of fertile Sauk Prairie farmland, the land and its inhabitants has continued to change. Vast areas of soil were scraped and moved by the Army. Cropland, pasture and farmstead were replaced by hundreds of buildings and a complex network of roads, railways, utility lines, elevated steam pipes, underground pipes, sewers and ditches. Despite these early disturbances, an extensive grassland developed across Badger between the widely spaced buildings. Grazing and mowing maintained the grassland for many decades.

An unintended but welcome consequence was the proliferation of grassland birds across Badger, first documented during a 1993 inventory. Grassland birds have been in serious decline across Wisconsin since WWII due to loss of grass on agricultural lands, urban sprawl, woody succession, and other factors. With the decommissioning of Badger in 1997, a new trajectory of change began on that landscape that continues to this day. This story of land use decisions, habitat change and bird populations at Badger is a fascinating one, showing us how our actions, guided by socio-economic needs, politics, cultural values and applied science influence the natural world around

us. Its lessons can help us recover our threatened grassland and shrubland wildlife, not only at Badger but across Wisconsin and beyond.

In 1998, in order to document Badger's bird populations, I established 42 miles of transects and 136 point-count stations throughout the plant and undertook an extensive bird survey. At the time, all buildings and other infrastructure remained intact. I undertook bird counts again in 2011-12 after deconstruction of the plant, then again in 2017 after all land had been transferred to new owners including the Wisconsin Department of Natural Resources (DNR), Dairy Forage Research Center (DFRC), and Ho-Chunk Nation (HCN). I ascribed specific habitat types to all birds observed and estimated the acreage of different habitats.

I am grateful to DNR for early financial support and to the Alliance, Ho-Chunk Nation and DFRC for funding these bird surveys in 2017.

Habitat at Badger changed considerably between 1998 and 2017 with the removal of some 1,400 buildings and most infrastructure. Grazing and hay mowing also ceased across Badger, allowing for

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the rapid invasion of exotic and native shrubs and trees and reduction in grassland. In 2017, agriculture (row crops, alfalfa, and some pasture), grassland, and shrub habitats each covered about a quarter of Badger. The other quarter was a mix of conifer plantations, woodlots, wetlands and disturbed ground.

In the past few years, Ho-Chunk and DNR have begun prescribed burns and mechanical brush control, returning a lot of shrubland back to grassland. With aggressive management, open grassland now dominates HCN land in the NW quarter of Badger. In areas without management, woody vegetation continues to invade and choke untreated areas.

The breeding birdlife has responded to these habitat changes (Table 1, Figure 1). Although the number of breeding species has remained around 100, the species list has changed somewhat, and population levels of some species have changed markedly. With the loss of buildings and utility poles, cavity and cliff-nesters such as American Kestrel, Red-headed Woodpecker and four swallow species declined. With the loss of grazing, Western Meadowlark and nearly all Upland Sandpipers disappeared.

Yet many grassland species maintained healthy populations, including Bobolink, Eastern Meadowlark and Grasshopper Sparrow. Henslow's Sparrow increased dramatically as grasslands went ungrazed and developed the thick thatch they need for nesting and feeding, then their numbers declined in areas that were eventually burned. Dickcissel populations rose significantly where disturbed soil was invaded by annual grasses and biennial weedy forbs, then declined somewhat as many of these areas succeeded to perennial grasses and forbs. Willow Flycatcher and Field and Clay-colored Sparrows—all uncommon or in conservation need—increased in areas of scattered shrub invasion, then were replaced by common species such as Gray Catbird, House Wren and Rose-breasted Grosbeak when shrubs became denser. The State-Threatened Bell's Vireo, unrecorded in the 1990s, now inhabits dense shrub thickets; 34 singing males were recorded in 2017.

Figures 2 & 3 summarize the changes in population size and distribution at Badger for two representative species over the 1998–2017 period. Bobolinks exhibit a semi-colonial breeding behavior that allow them to “pack in” to especially suitable habitat patches. They have become super-abundant in the expanding HCN grassland. Bobolinks continue to increase where

there is prescribed fire but have disappeared in many other areas due to shrub encroachment. Eastern Meadowlarks have large individual grassland territories and declined with shrub encroachment. They also declined within the HCN grassland, perhaps due to loss of thatch that resulted from repeated prescribed fire. Yellow Warblers increased dramatically in the eastern and southern parts of Badger as their shrubby breeding habitat expanded throughout the period (not illustrated).

As is clear, not all birds respond the same to habitat changes; in fact, every species has very specific habitat requirements and responds differently to land management (or a lack thereof). The complicated land ownership and management objectives by different land owners at Badger make for an interesting experiment in large-scale habitat management for breeding birds.

Badger was recognized as an Important Bird Area in 2012 due to its importance to grassland, shrubland and savanna bird communities and their species of high conservation need (Table 1). Each of the landowners at Badger has special opportunities and challenges for helping these declining wildlife populations. With collaboration, determination, monitoring and the application of conservation science, the potential of this

TABLE 1
Species of high conservation need contributing to BAAP Important Bird Area status in 2012. Species in boldface are currently Species of Greatest Conservation Need. Species in parentheses are added as current SGCN, though not included with IBA criteria in 2012. +/- = present, but not recorded during formal transect surveys.

Species	Habitat	Number Counted on Bird Survey		
		1998	2011-2012	2017
(American Woodcock)	Shrub, shrub-grass, forest	+	+	+
Bald Eagle	Open water, large nest trees	0	1	+
Bell's Vireo	Shrub-grass	0	9	34
Black-billed Cuckoo	Shrub, shrub-tree	0	4	6
Blue-winged Warbler	Forest-shrub	17	27	11
Bobolink	Grassland	124	243	255
Brown Thrasher	Grass-shrub	53	58	79
Dickcissel	Grassland	12	306	162
Eastern Meadowlark	Grassland, grass-shrub	387	262	132
Eastern Whip-poor-will	Forest	+	+	+
Eastern Wood-Pewee	Forest, savanna	62	68	34
Field Sparrow	Grass-shrub, shrub-grass	161	165	179
Grasshopper Sparrow	Grassland	48	52	21
Henslow's Sparrow	Grassland, unburned	+	46	28
Hooded Merganser	Forested wetland, pond	0	0	0
Hooded Warbler	Forest-shrub	0	1	4
(Least Flycatcher)	Forest, savanna	5	4	6
N. Rough-winged Swallow	Human structure, cliff, bank	12	19	11
(Peregrine Falcon)	Cliff, grassland	+	0	+
Red-headed Woodpecker	Human structure, savanna	22	1	+
Rose-breasted Grosbeak	Forest, shrub-tree	16	88	113
Sedge Wren	Grassland	26	15	7
Upland Sandpiper	Grassland, pasture	20	3	1
(Vesper Sparrow)	Grassland, cropland	9	13	15
Western Meadowlark	Grassland, pasture	20	0	0
Willow Flycatcher	Grass-shrub, shrub-grass	25	116	94
Wood Thrush	Forest, forest-shrub	2	10	21
(Yellow-breasted Chat)	Shrub-tree	0	0	+
Yellow-throated Vireo	Forest, savanna	6	19	4

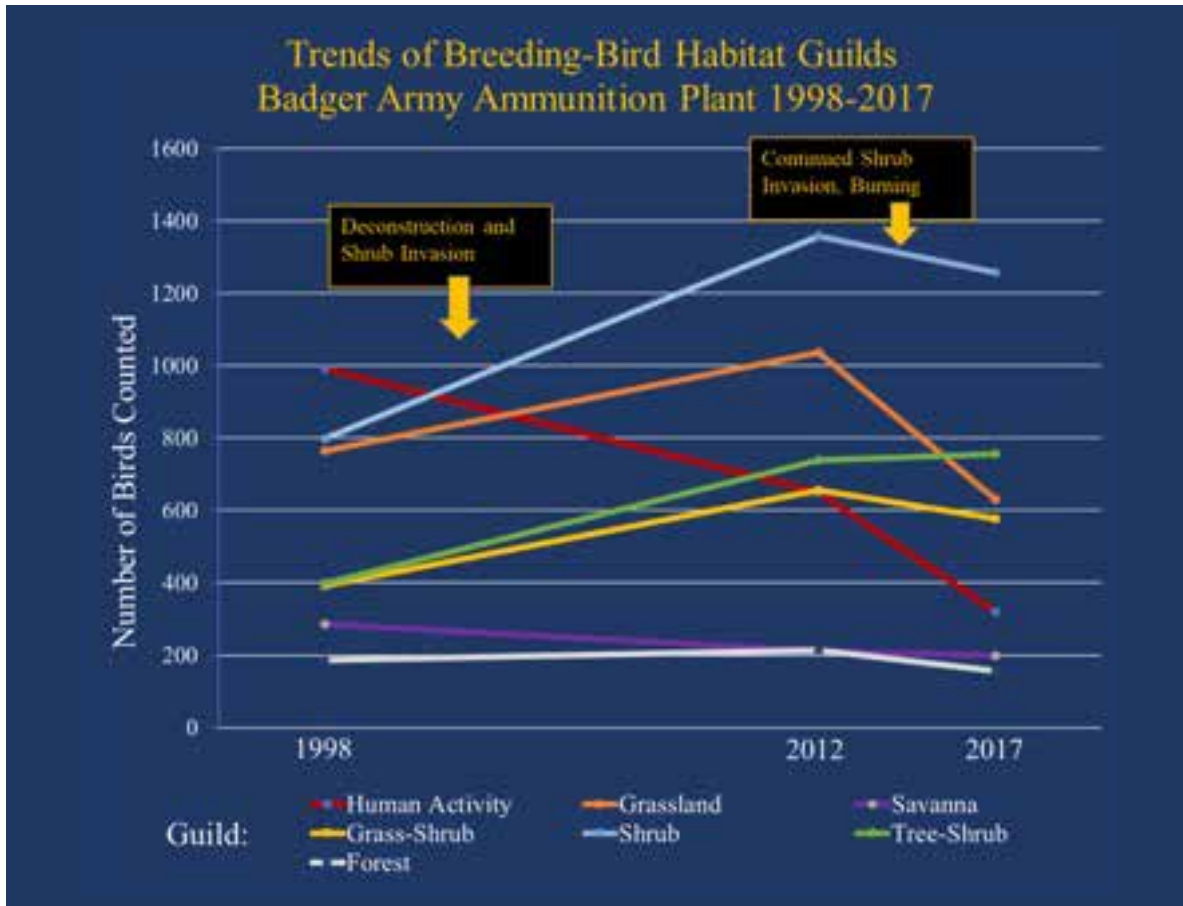
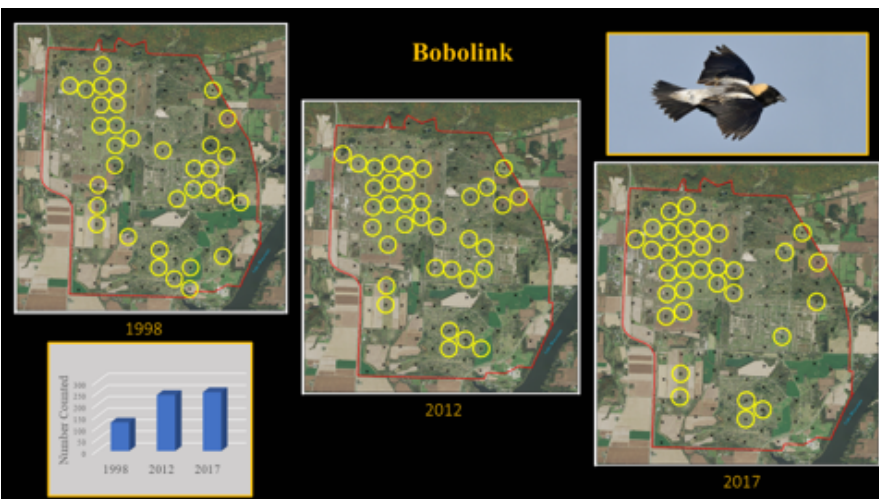


FIGURE 1
Population trends of breeding-bird habitat guilds at the former BAAP, 1998–2017.

FIGURES 2 & 3
Population trends and changes in distribution of breeding-birds recorded on point-counts at the former BAAP, 1998–2017



incredible expanding grassland at Badger can be realized. Ultimately, with proper management and restoration, Badger may become the largest continuous grassland habitat in southern Wisconsin. Perhaps most significantly, what we learn about the methods of land management and collaboration at Badger can be exported to help return and restore more quality grassland habitat to our rural landscape.

Peregrine Falcons at Badger

Peregrine falcon specialist Greg Septon and retired DNR biologist Bill Smith gave a presentation on the status and recovery of peregrines in Wisconsin at the March “We Are Sauk Prairie” lecture series. A pair has nested regularly at South Shore Devil’s Lake. Several observers have seen solitary peregrine falcons foraging near the entrance to Badger on Ho-Chunk lands over the past several years. The birds are likely associated with the nest site in the cliffs of Devil’s Lake. A single bird was also observed along the Wisconsin River at Ferry Bluff in 2017, a former nest site for peregrines.



A female peregrine falcon on Rock Island, Door County, PHOTO by Bill Smith.

Land Management at Badger

It's spring, and that means prescribed burns (controlled fire) on the large grasslands at Badger in an effort to reduce the spread of invasive shrubs. Both Wisconsin Department of Natural Resources and Ho-Chunk Nation land managers have successfully completed prescribed burns on almost 700 acres at Badger this season. In addition, in late winter DNR cleared several large areas of brush using a "Fecon" (forestry mower). Ho-Chunk Nation planted over 100 acres of their land to prairie last fall to attract and support insect pollinators.



DNR burn crew readies for a second prescribed burn on state land at Badger.

**The DNR burned two separate tracts at Badger representing a total of about 210 acres. Here is a view of a tract in the northeast portion of the Sauk Prairie State Recreation Area taken from an ultralight aircraft
PHOTO: Richard Steeves**



**A large plume of smoke rises from a prescribed burn by the DNR as seen from the south bluff of the Baraboo Hills. In the foreground is a large green tract on Ho-Chunk Nation land.
PHOTO: Jared Godfrey**

Any News on the Alliance's Lawsuit?

Short answer: very little! In January, 11 witnesses for the Alliance provided testimony in a 4-day long contested case hearing against the Wisconsin Department of Natural Resources in front of an Administrative Law Judge. A contested case hearing can be granted for a grievance against a state agency where an entity feels that the agency has not followed appropriate state laws. Our team of attorneys led by Brian Potts (Perkins-Coie, Madison) provided thousands of pages of documents (see image) in support of our argument that the DNR inappropriately included "high impact" activities (military helicopter training, off-road motorcycles) in their master plan for the Sauk Prairie State Recreation Area at Badger that was approved in December 2016. Normally the law judge makes a final decision on such a case, but for our case he deferred to the Natural Resources Board (NRB), the same entity that approved the master plan 2 years ago! Our attorneys argue that the NRB has no legal authority to make that determination, so there is uncertainty about next steps, although our attorneys argue that the (new) DNR Secretary may ultimately get to decide the case. We'll keep you posted.



Alliance attorneys Brian Potts (far right) and Jacob Aronson (middle) from Perkins Coie at contested case hearing in January.

Charlie's Corner



By **Charlie Luthin**,
Executive Director

If 2018 was the "Year of Celebration" for the Alliance when we celebrated our 20-year anniversary with a big gathering, completion of two videos and other special events, 2019 is our "Year of Outreach." Having our two documentaries in our back pocket, we decided to "take the show on the road." We have been busy filling the calendar with public presentations that include one or both of our new

videos, "Restoring the Sauk Prairie: A Story of Hope and Healing," (26-minutes) and "Of Connection and Renewal: The Historic Apple Trees of the Badger Army Ammunition Plant" (8-minutes). In many cases we have planned a Badger tour as a follow-up to the presentations to target audiences. Our goal is to tell the Badger story and then get people onto the land at Badger. Why, most

people don't realize that Badger is the site of the newest state park (managed as a recreation area) and the newest state trail (Great Sauk Trail) in Wisconsin!

Throughout the spring, summer and fall, we host "Badger Stewardship Days" once per month when volunteers help restore a remnant of the original Sauk Prairie on state land at Badger. The "We Are Sauk Prai-

rie" series will start up again in September and run through spring 2020. Finally, we have planned four public tours of Badger this season. See the announcements on page 7.

The Alliance is offering many opportunities for you to become more acquainted with the rich natural and cultural history of the Badger Lands this season. Please join us!

Earth Day at Badger Keeping it Clean and Green!

On Earth Day 2019 (April 22), Gail Lamberty (far right), former vice president of the Alliance, coordinated a trash pick-up by 30 volunteers along the Highway 12 for the length of the former Badger property.



State Senator Jon Erpenbach (Wisconsin sweatshirt) and his staff joined other volunteers for the trash pick-up effort at Badger. Thirty bags and over 200 pounds of trash were collected!

This is a view from on high of volunteers collecting trash along Highway 12 at Badger. Drone Photo by Kurt Eakle.





Over the past year, DNR has erected two signs at the entrance to the former Badger Plant to welcome guests to the state-managed portion of the Badger Lands. Stop on in for a visit!

Join us for a **TOUR OF THE BADGER LANDS**

The Sauk Prairie Conservation Alliance has planned four bus tours of the former Badger Army Ammunition Plant ("Badger Lands") in 2019. The first three tours are general property-wide tours, while the tour on October 19th is focused on the geology of Badger and the Baraboo Hills with DNR geologist Phil Fauble. Whereas the general tours involve limited walking, the geology tour will entail some hiking.

The tours, each conducted by several Alliance tour leaders, are open to the public. Each tour is limited to 26 participants, and seating is on a "first come-first served" basis. Sign up early to reserve your seat! NOTE: The May 30 tour is filled.

Saturday, July 13	9:00am to 12:00pm
Thursday, September 26	5:30pm to 8:00pm
Saturday, October 19	9:00am to 12:00pm

Tours are on a school bus and begin and end at the Badger History Museum at the entrance to Badger on Hwy. 12, across from the Citgo Station. Each tour will last approximately 2 1/2 hours. Snacks and refreshments will be provided.

The tour cost is \$15/person for members, \$25/person for non-members (fee includes a one-year guest membership). Reservations and payment in advance required. Please visit our website (www.SaukPrairieVision.org) for details and a sign-up sheet. Sorry, no refunds if you can't make it on a tour you signed up for.

We can also give special and private tours of the Badger Lands upon request. Contact us via our website or at: info@saukprairievision.org.

2019 Volunteer Stewardship Days at Badger

Join us for our monthly Badger Volunteer Stewardship Days held on the 2nd Saturday of each month from March through November, from 9:00 am to 12:00 pm, with the exception of July (no work day). The remaining stewardship days for this year are: **June 8, August 10, September 14, October 12,** and **November 9**. Details on our website.





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MAY 2019

Ways to Support the Alliance

- Be certain your membership is current!
- Make a special donation in honor or in memory of someone you care for
- Over 70½ years of age? You can make a direct tax-free donation to the Alliance from an IRA account!
- Include the Alliance in your estate plan
- Name the Alliance as a beneficiary to a life insurance policy
- Live in the Sauk City area? Consider volunteering for us!

Yes, I support the Sauk Prairie Conservation Alliance's vision to create a conservation future for the former 7,400-acre Badger lands! My contribution is enclosed. You may also gift online at saukprairievision.org.

Name _____

Address _____

City/State/Zip _____

Email _____ Phone _____

Giving Categories:

- | | | |
|--------------------------------|--|--------------------------------------|
| <input type="checkbox"/> \$25 | <input type="checkbox"/> Please send me a poster | <input type="checkbox"/> \$200 |
| <input type="checkbox"/> \$50 | <input type="checkbox"/> I would like a limited edition, signed & numbered print | <input type="checkbox"/> \$500 |
| <input type="checkbox"/> \$100 | | <input type="checkbox"/> \$1,000 |
| | | <input type="checkbox"/> Other _____ |



For donations at or above the \$50 level, you can receive a poster of the painting, "Sauk Prairie Remembers. A Vision for the Future" by Victor Bahktin.

For a gift of \$100 or more, you may request a high quality, limited edition signed and numbered print of the painting (value of \$150!).