

# Marsh Bird Surveys at Blind Sucker River Flooding State Wildlife Management Area



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Cover: Emergent marsh within Blind Sucker River Flooding. Photo by M. J. Monfils.

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	ii
INTRODUCTION .....	1
METHODS.....	1
Sample Design .....	1
Marsh Bird Surveys .....	1
RESULTS AND DISCUSSION.....	2
ACKNOWLEDGEMENTS.....	8
LITERATURE CITED .....	8

## EXECUTIVE SUMMARY

With funding provided by the Michigan Department of Natural Resources from a U.S. Environmental Protection Agency, Great Lakes Restoration Initiative grant, the Michigan Natural Features Inventory conducted marsh bird surveys at Blind Sucker River Flooding State Wildlife Management Area in 2022. Our goal was to gather baseline data on marsh bird use of the flooding, while also creating a framework for future surveys to facilitate evaluation of management actions and changes to marsh bird distributions and abundance. By using a standardized sample design and survey protocol, the data could be combined with information from other surveys and incorporated into larger-scale analyses at the state and regional levels.

We created survey points at randomly selected locations within potential marsh bird habitats of the flooding. Surveys were conducted according to the North American Marsh Bird Monitoring Protocols. We completed three morning surveys of the points during mid-May to late June. Each 10-min point count consisted of an initial five-min passive listening period followed by one-min broadcast periods for five secretive marsh bird species: least bittern (*Ixobrychus exilis*), yellow rail (*Coturnicops noveboracensis*), sora (*Porzana carolina*), Virginia rail (*Rallus limicola*), and American bittern (*Botaurus lentiginosus*). Marsh bird surveys targeted nine primary species (species of grebes, bitterns, and rails known to breed in the region) and eight secondary species (species of cranes, terns, and songbirds that breed in marshes). In addition, we noted any other bird species observed using the wetland complex while conducting marsh bird surveys.

We conducted 63 point counts at 24 points and detected eight of the 17 possible target species: pied-billed grebe, American bittern, Virginia rail, sora, sandhill crane, Wilson's snipe, sedge wren, and swamp sparrow. Wilson's snipe was the most common primary target species observed (54% of the points), whereas American bittern, Virginia rail, and sora were recorded at 15-30% of the points and pied-billed grebe at 8% of the points. Three secondary target species were regularly recorded during surveys, with sandhill crane and swamp sparrow detected at nearly 88% of the points and sedge wren at 50% of the points. In addition to the 11 primary and secondary target species recorded, we observed 37 other bird species using wetlands within Blind Sucker Flooding. Common yellowthroat, Nashville warbler, song sparrow, and red-winged blackbird were the most common of these species, being recorded at about 50-70% of the survey points. Eleven of the bird species observed within Blind Sucker Flooding have some kind of special status, including species of greatest conservation need, DNR featured species, and Upper Mississippi / Great Lakes Joint Venture focal species. We recommend continuing marsh bird surveys at the area to track changes in marsh bird distribution and abundance. Potential habitat exists for yellow rail within the flooding, so the DNR could consider adding night-time surveys for the species, which tends to call more often at night.

## INTRODUCTION

The Michigan Department of Natural Resources (DNR) obtained a Great Lakes Restoration Initiative grant from the U.S. Environmental Protection Agency to conduct invasive species management, establish wild rice beds, and develop and implement educational programming at several floodings/lakes in the Upper Peninsula, including Blind Sucker River Flooding State Wildlife Management Area. In addition to the habitat management and educational activities, funding was budgeted to conduct secretive marsh bird surveys in Blind Sucker Flooding. In late 2021, the DNR contracted with the Michigan Natural Features Inventory to design and implement the marsh bird survey within the flooding during the 2022 breeding season.

Our goal was to develop a survey that would address the data needs for Blind Sucker Flooding, while also facilitating use of the data in state- and regional-scale analyses and assessments. We used standard survey protocols and sample design recommendations (Conway 2011, Michigan Bird Conservation Initiative 2015) that could help address regional marsh bird research and monitoring needs (Wires et al. 2010, Larkin et al. 2013, Soulliere et al. 2018). This report summarizes how we designed the survey, methods used, and the results of 2022 surveys.

## METHODS

### Sample Design

We digitized polygons representing potential survey areas in GIS using the most recent available aerial imagery. Potential survey areas were open wetlands (>50% emergent vegetation) that could be suitable for marsh birds. We created random survey points within each polygon where point counts could be conducted. For each potential survey point, we used aerial imagery to examine the surrounding habitat and distance from other points ( $\geq 400$  m spacing required [Conway 2011]). If more than 50% of the habitat within 100 m of a point was not suitable (e.g., consisting of shrubs, trees, or upland), the point was moved up to 150 m to a location with suitable habitat, unless movement would put the point less than 400 m from another point. Otherwise, the point was removed from the pool of potential points. The accessibility of points was also assessed in GIS. Points that would take too much time to access (i.e., 20-30 min or more) were either moved up to 150 m to improve accessibility or dropped from the pool of potential points. The final set of preliminary points developed in GIS were then ground truthed in the field to confirm accessibility and that potential marsh bird habitat was present. Survey points deemed unsuitable in the field based on habitat or accessibility were dropped from the final sample frame.

### Marsh Bird Surveys

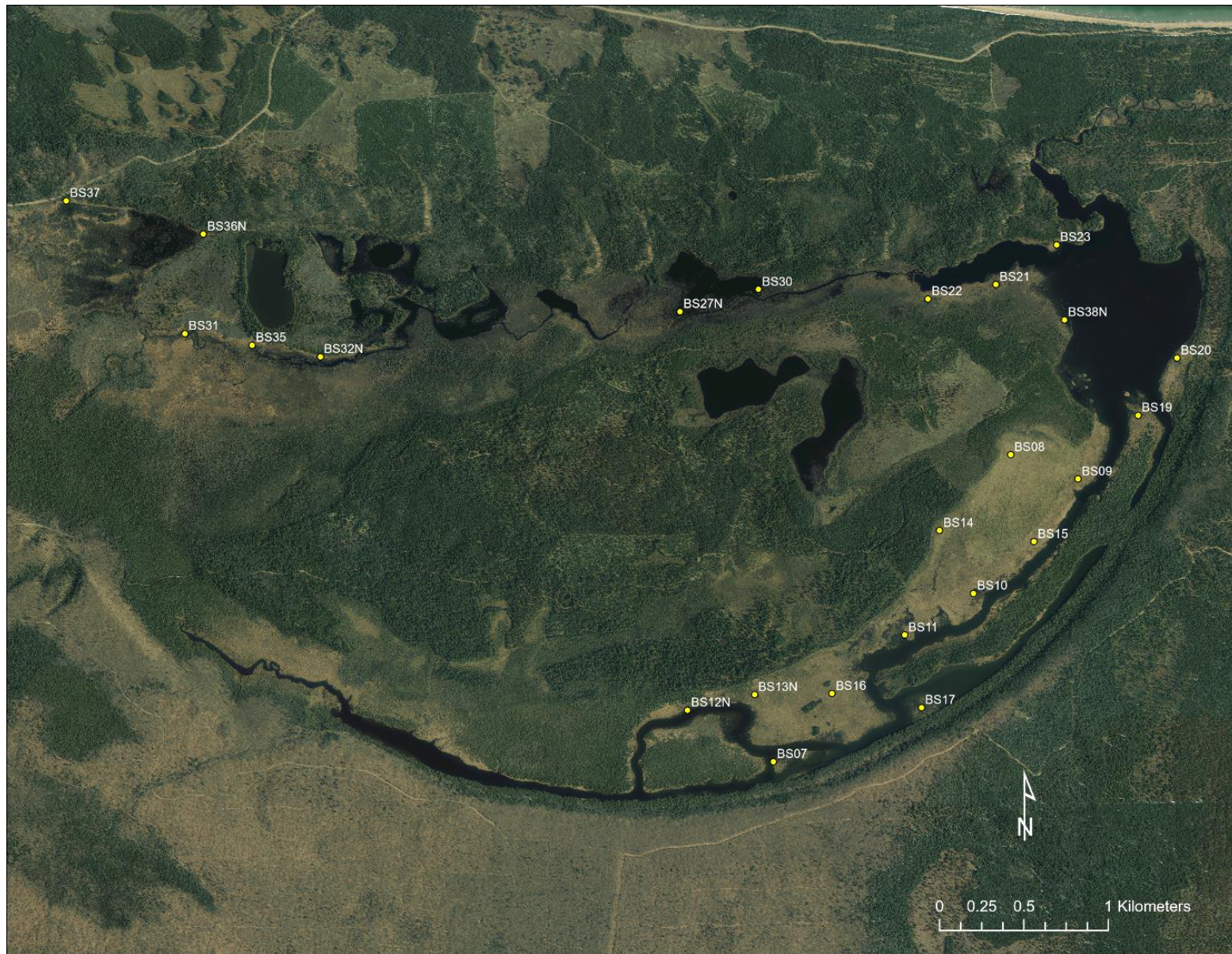
Three marsh bird surveys were completed during the breeding season (mid-May to late June) at the randomly selected points. Surveys were conducted according to the Standardized North American Marsh Bird Monitoring Protocols (Conway 2011), which were tailored for use in Michigan (MiBCI 2015). We conducted surveys in the morning between 30 minutes before to 3 hours after sunrise. Point counts lasted 10 min and consisted of an initial five-min passive listening period followed by one-min broadcast periods for five secretive marsh bird species: least bittern (*Ixobrychus exilis*), yellow rail (*Coturnicops noveboracensis*), sora (*Porzana carolina*), Virginia rail (*Rallus limicola*), and American bittern (*Botaurus lentiginosus*). Calls were broadcasted using an MP3 player (Oakcastle MP100) and waterproof portable speaker (Ultimate Ears Wonderboom 2) at the recommended sound pressure of 80-90 dB at one meter from the speaker.

Surveys targeted the following nine “primary” target species that could potentially breed in the project area: pied-billed grebe (*Podilymbus podiceps*), American bittern, least bittern, yellow rail, Virginia rail, sora, American coot (*Fulica americana*), common gallinule (*Gallinula galeata*), and Wilson’s snipe (*Gallinago delicata*). Detections of the following eight “secondary” target species were also recorded: Sandhill Crane (*Antigone canadensis*), Black Tern (*Chlidonias niger*), Forster’s Tern (*Sterna forsteri*), Sedge Wren (*Cistothorus platensis*), Marsh Wren (*Cistothorus palustris*), Swamp Sparrow (*Melospiza georgiana*), LeConte’s sparrow (*Ammospiza leconteii*), and yellow-headed blackbird (*Xanthocephalus xanthocephalus*). Observations of primary target species were recorded by individual bird across each minute of the 10-min survey and the distance at first detection was estimated to the nearest 5 meters with aid of a laser rangefinder. Secondary species were tracked at the species level, with only the period of first observation of the species noted and the total number of individuals were recorded within three distance bins (0-50 m, > 50-100 m, and > 100 m). In addition to marsh bird target species, we also noted other bird species detected at each survey point.

## RESULTS AND DISCUSSION

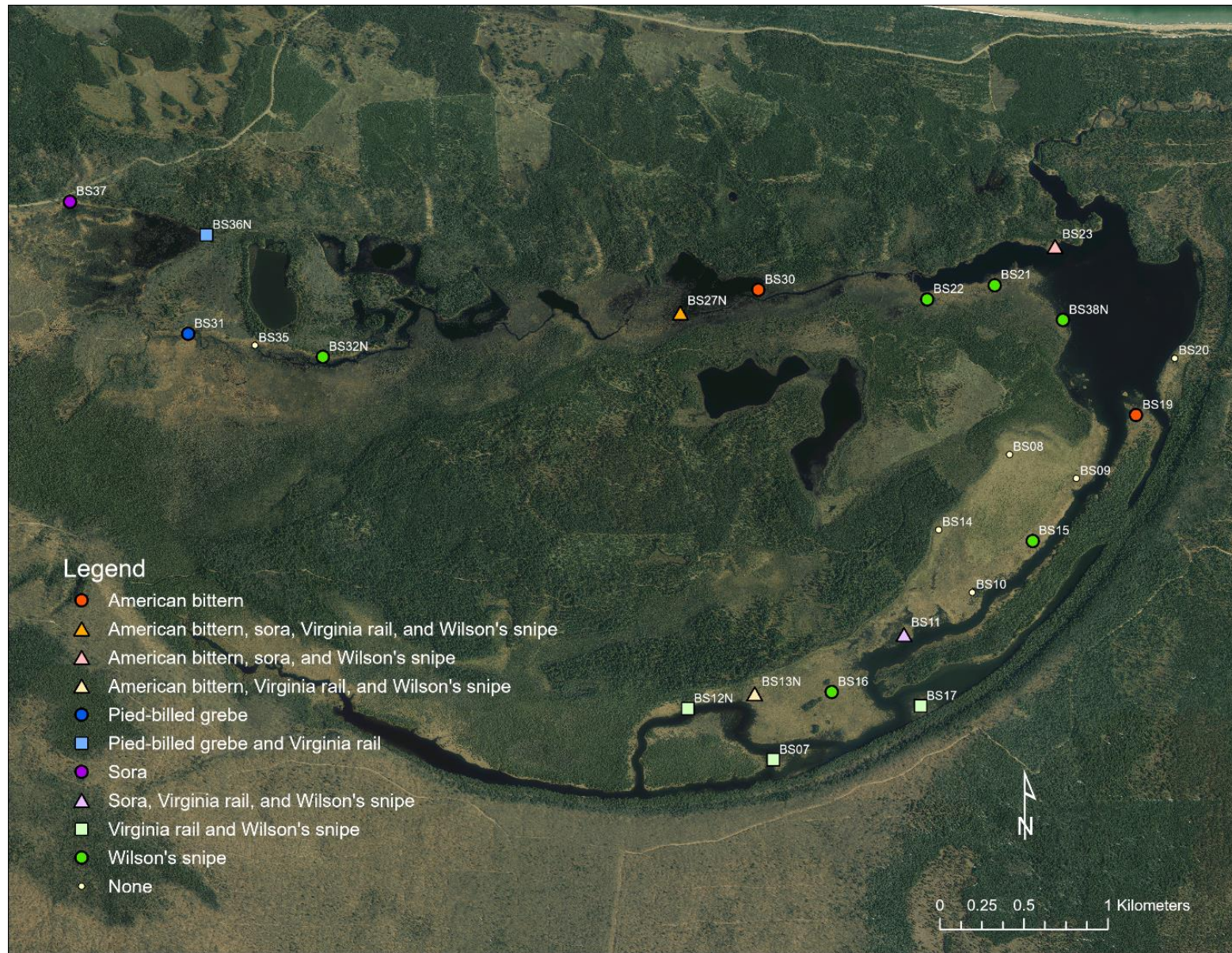
After ground truthing potential points in the field, we conducted surveys at a final set of 24 points (Figure 1). Sixty-three point counts were completed at the 24 points during mid-May through late June 2022, with 15 points being surveyed three times and nine points twice. Of the 17 species targeted under the survey protocol, we detected the following eight species: pied-billed grebe, American bittern, Virginia rail, sora, sandhill crane, Wilson’s snipe, sedge wren, and swamp sparrow. We observed at least one primary marsh bird species (i.e., grebe, bittern, rail, snipe) at 75% of the survey points (Figure 2). Wilson’s snipe was the most common primary target species detected, being observed at just over half the survey points. American bittern, Virginia rail, and sora were recorded at about 15-30% (4-7) of the points, whereas pied-billed grebe was only detected at two points. The American bittern observations represented a new element occurrence (EO ID 26163) in Michigan’s Natural Heritage Database. The three secondary target species were all commonly observed, with sandhill crane and swamp sparrow both recorded at nearly 88% of the points and sedge wren at half the points. Given the limited amounts of tall, dense emergent vegetation (e.g., cat-tail [*Typha*], bulrush [*Schoenoplectus*]), we did not expect to find least bittern, American coot, or marsh wren.





**Figure 1.** Points surveyed for marsh birds in 2022 at Blind Sucker River Flooding.





**Figure 2.** Primary target marsh bird species detected during surveys conducted at Blind Sucker River Flooding in 2022.



Including marsh bird species, we recorded 48 bird species using wetlands within Blind Sucker Flooding across all points and visits (Table 1). In addition to the primary and secondary marsh bird species described above, we often detected common yellowthroat, Nashville warbler, song sparrow, and red-winged blackbird, which were recorded at about 50-70% of the survey points. Seven species, alder flycatcher, cedar waxwing, eastern kingbird, yellow warbler, American redstart, white-throated sparrow, and common grackle, were observed at approximately 25-50% of the points. We recorded the remaining species at < 25% of the survey stations (Table 1).

Multiple species documented during this project have special statuses making them priorities for conservation activities (Table 1). Several species observed are considered focal species of the regional habitat conservation plans of the Upper Mississippi / Great Lakes Joint Venture (Table 1). Common loon, pied-billed grebe, American bittern, sora, and sandhill crane are focal species of the Waterbird Habitat Conservation Strategy (Soulliere et al. 2018). Similarly, we observed three focal species (wood duck, mallard [*Anas platyrhynchos*], and blue-winged teal) of the JV's waterfowl strategy (Soulliere et al. 2017). Although not recorded during marsh bird surveys, we observed mallards using the flooding while moving among point count stations. Wilson's snipe is a focal species of the shorebird habitat conservation strategy (Potter et al. 2007). Focal species for the bird-group strategies were selected to represent particular habitat types and biological models were developed to estimate habitat amounts needed to achieve population goals of the focal species. Population responses by focal species serve as important measures for assessing progress toward achieving plan objectives (Soulliere et al. 2018). Six of the species recorded have special status at the state level. Trumpeter swan and common loon are listed as state threatened and American bittern is considered a species of special concern; these species are also considered species of greatest conservation need under the Wildlife Action Plan (Derosier et al. 2015). Five species are featured species for habitat management within Wildlife Division of the DNR, with mallard, Wood duck, American bittern, and bobolink being statewide species and eastern bluebird a featured species for the western Upper Peninsula. The presence of multiple bird species of conservation concern highlights the value of Blind Sucker Flooding to the wetland bird community.

Continued marsh bird surveys within Blind Sucker Flooding could be incorporated into the broader Michigan Marsh Bird Survey and would provide data valuable at both local and regional levels. At the local level, surveys could be used to track species abundances and distributions within the flooding and help assess management actions. By using the standardized marsh bird survey protocol, the data could also be incorporated into regional analyses used to assess population status and habitat associations. The survey design could be modified to match the data needs of local managers and amount of time volunteers are able to devote to surveys. We did not detect yellow rail during our marsh bird surveys; however, potential habitat exists for the species within the large sedge meadows located in the southeastern portion of the flooding (Figure 3). Breeding habitat in Michigan is described as sedge meadows dominated by *Carex lasiocarpa*, with moist substrate to standing water (Leston and Bookhout 2020). With a metallic "ticking" call that does not carry long distances and calling activity primarily occurring at night, yellow rails are notoriously difficult to detect. The standard morning/evening marsh bird surveys could be augmented by targeted yellow rail surveys to determine if the species occurs within the management area. We recommend conducting night-time call-broadcast surveys in sedge meadows during the breeding season (approximately mid-May to late June). Austin and Buhl (2013) describe a standardized yellow rail survey protocol consistent with the North American survey (Conway 2011) that was used for surveys at Seney National Wildlife Refuge.

**Table 1.** Bird species detected and proportion of points having detections during marsh bird surveys of Blind Sucker River Flooding in 2022.

Common Name	Scientific Name	Special Status <sup>1</sup>	Proportion Detected
alder flycatcher	<i>Empidonax alnorum</i>		0.458
American bittern	<i>Botaurus lentiginosus</i>	FS, JV, SC, SGCN	0.208
American goldfinch	<i>Spinus tristis</i>		0.042
American redstart	<i>Setophaga ruticilla</i>		0.250
American robin	<i>Turdus migratorius</i>		0.083
belted kingfisher	<i>Megaceryle alcyon</i>		0.083
black-and-white warbler	<i>Mniotilta varia</i>		0.125
black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>		0.167
black-capped chickadee	<i>Poecile atricapillus</i>		0.042
blue jay	<i>Cyanocitta cristata</i>		0.208
blue-winged teal	<i>Spatula discors</i>	JV	0.042
bobolink	<i>Dolichonyx oryzivorus</i>	FS, JV	0.042
cedar waxwing	<i>Bombycilla cedrorum</i>		0.292
chipping sparrow	<i>Spizella passerina</i>		0.042
common grackle	<i>Quiscalus quiscula</i>		0.250
common loon	<i>Gavia immer</i>	JV, SGCN, T	0.042
common yellowthroat	<i>Geothlypis trichas</i>		0.583
eastern bluebird	<i>Sialia sialis</i>	FS	0.125
eastern kingbird	<i>Tyrannus tyrannus</i>		0.417
gray catbird	<i>Dumetella carolinensis</i>		0.042
Lincoln's sparrow	<i>Melospiza lincolnii</i>		0.042
mourning warbler	<i>Geothlypis philadelphia</i>		0.042
Nashville warbler	<i>Leiothlypis ruficapilla</i>		0.667
northern flicker	<i>Colaptes auratus</i>		0.125
northern waterthrush	<i>Parkesia noveboracensis</i>		0.042
olive-sided flycatcher	<i>Contopus cooperi</i>		0.083
ovenbird	<i>Seiurus aurocapilla</i>		0.083
palm warbler	<i>Setophaga palmarum</i>		0.083
pied-billed grebe	<i>Podilymbus podiceps</i>	JV	0.083
red-eyed vireo	<i>Vireo olivaceus</i>		0.083
red-winged blackbird	<i>Agelaius phoeniceus</i>		0.583
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>		0.083
ruby-crowned kinglet	<i>Regulus calendula</i>		0.042
ruby-throated hummingbird	<i>Archilochus colubris</i>		0.042
sandhill crane	<i>Antigone canadensis</i>	JV	0.875
savanna sparrow	<i>Passerculus sandwichensis</i>		0.167
sedge wren	<i>Cistothorus platensis</i>		0.500
song sparrow	<i>Melospiza melodia</i>		0.500
sora	<i>Porzana carolina</i>	JV	0.167

**Table 1.** Continued.

Common Name	Scientific Name	Special Status <sup>1</sup>	Proportion Detected
swamp sparrow	<i>Melospiza georgiana</i>		0.875
tree swallow	<i>Tachycineta bicolor</i>		0.083
trumpeter swan	<i>Cygnus buccinator</i>	SGCN, T	0.083
veery	<i>Catharus fuscescens</i>		0.083
Virginia rail	<i>Rallus limicola</i>		0.292
white-throated sparrow	<i>Zonotrichia albicollis</i>		0.417
Wilson's snipe	<i>Gallinago delicata</i>	JV	0.542
wood duck	<i>Aix sponsa</i>	FS, JV	0.083
yellow warbler	<i>Setophaga petechia</i>		0.333

<sup>1</sup>Special status designations: FS = DNR featured species for habitat management; JV = Upper Mississippi / Great Lakes Joint Venture focal species (Soulliere et al. 2017, 2018, 2020); SC = Michigan species of special concern; SGCN = species of greatest conservation need (Derosier et al. 2015); and T = Michigan threatened species.



**Figure 3.** Sedge meadow wetland within Blind Sucker River Flooding. Photo by M. J. Monfils.



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## LITERATURE CITED

- Austin, J.E., and D.A. Buhl. 2013. Relating yellow rail (*Coturnicops noveboracensis*) occupancy to habitat and landscape features in the context of fire. *Waterbirds* 36:199-213.
- Conway, C.J. 2011. Standardized North American marsh bird monitoring protocol. *Waterbirds* 34:319-346.
- Derosier, A.L., S.K. Hanshew, K.E. Wehrly, J.K. Farkas, and M.J. Nichols. 2015. Michigan's Wildlife Action Plan. Michigan Department of Natural Resources, Lansing, USA.  
<http://www.michigan.gov/dnrwildlifeactionplan>
- Larkin, D.J., R.S. Brady, B.M. Kahler, K.E. Koch, D.G. Kremetz, M.J. Monfils, G.J. Soulliere, and E.B. Webb. 2013. Collaborative research on secretive marsh birds in the Midwest region: linking monitoring and wetland management. Upper Mississippi River and Great Lakes Region Joint Venture Technical Report No. 2013-1, Bloomington, Minnesota, USA.
- Leston, L., and T.A. Bookhout. 2020. Yellow rail (*Coturnicops noveboracensis*), version 1.0. In *Birds of the World* (A.F. Poole, Editor). Cornell Lab of Ornithology, Ithaca, New York, USA.  
<https://doi-org.proxy2.cl.msu.edu/10.2173/bow.yelrai.01>
- Michigan Bird Conservation Initiative. 2015. Michigan marsh bird survey protocol. Michigan Natural Features Inventory, Lansing, USA.
- Potter, B.A., R.J. Gates, G.J. Soulliere, R.P. Russell, D.A. Granfors, and D.N. Ewert. 2007. Upper Mississippi River and Great Lakes Region Joint Venture Shorebird Habitat Conservation Strategy. U. S. Fish and Wildlife Service, Fort Snelling, Minnesota, USA.
- Soulliere, G.J., M.A. Al-Saffar, J.M. Coluccy, R.J. Gates, H.M. Hagy, J.W. Simpson, J.N. Straub, R.L. Pierce, M.W. Eichholz, and D.R. Luukkonen. 2017. Upper Mississippi River and Great Lakes Region Joint Venture Waterfowl Habitat Conservation Strategy – 2017 Revision. U.S. Fish and Wildlife Service, Bloomington, Minnesota, USA.
- Soulliere, G.J., M.A. Al-Saffar, R.L. Pierce, M.J. Monfils, L.R. Wires, B.W. Loges, B.T. Shirkey, N.S. Miller, R.D. Schultheis, F.A. Nelson, A.M. Sidie-Slettedahl, and D.J. Holm. 2018. Upper Mississippi River and Great Lakes Region Joint Venture Waterbird Habitat Conservation Strategy – 2018 Revision. U.S. Fish and Wildlife Service, Bloomington, Minnesota, USA.
- Soulliere, G.J., M.A. Al-Saffar, K.R. VanBeek, C.M. Tonra, M.D. Nelson, D.N. Ewert, T. Will, W.E. Thogmartin, K.E. O'Brien, S.W. Kendrick, A.M. Gillet, J.R. Herkert, E.E. Gnass Giese, M.P. Ward, and S. Graff. 2020. Upper Mississippi / Great Lakes Joint Venture Landbird Habitat Conservation Strategy – 2020 Revision. U.S. Fish and Wildlife Service, Bloomington, Minnesota, USA.
- Wires, L.R., S.J. Lewis, G.J. Soulliere, S.M. Matteson, D.V. Weseloh, R.P. Russell, and F.J. Cuthbert. 2010. Upper Mississippi Valley/Great Lakes Waterbird Conservation Plan. A plan associated with the Waterbird Conservation for the Americas Initiative. Final Report submitted to the U. S. Fish and Wildlife Service, Fort Snelling, Minnesota, USA.