



# **Inventory and Monitoring Plan**

## **Morris Wetland Management District**




June 2015



# Morris Wetland Management District

## Inventory and Monitoring Plan

### Signature Page<sup>1</sup>

Action	Signature /Printed Name	Date
Prepared By:	Sara Vacek <b>SARA VACEK</b> Refuge Biologist <div style="font-size: small; margin-top: 5px;">             Digitally signed by SARA VACEK              DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=U.S. Fish and Wildlife Service, cn=SARA VACEK, 0.9.2342.19200300.100.1.1=1400100064 0360              Date: 2015.07.06 08:54:53 -05'00'           </div>	
Submitted By:	BRUCE FRESKE Bruce Freske, Project Leader <div style="font-size: small; margin-top: 5px;">             Digitally signed by BRUCE FRESKE              DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=U.S. Fish and Wildlife Service, cn=BRUCE FRESKE, 0.9.2342.19200300.100.1.1=14001000796325              Date: 2015.07.01 17:01:16 -05'00'           </div>	
Reviewed By:	 Melinda Knutson, Region 3 I&M Coordinator	7/1/2015
Reviewed By:	JAMES LEACH Jim Leach, Refuge Supervisor <div style="font-size: small; margin-top: 5px;">             Digitally signed by JAMES LEACH              DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=U.S. Fish and Wildlife Service, cn=JAMES LEACH, 0.9.2342.19200300.100.1.1=14001000579306              Date: 2015.07.07 13:28:36 -05'00'           </div>	
Reviewed By:	PATRICIA HEGLUND Pat Heglund, Region 3 Refuge Biologist <div style="font-size: small; margin-top: 5px;">             Digitally signed by PATRICIA HEGLUND              DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=U.S. Fish and Wildlife Service, cn=PATRICIA HEGLUND, 0.9.2342.19200300.100.1.1=14001001195777              Date: 2015.07.01 15:53:37 -05'00'           </div>	
Approved By:	CHARLES BLAIR Charlie Blair, Region 3 Chief <div style="font-size: small; margin-top: 5px;">             Digitally signed by CHARLES BLAIR              DN: c=US, o=U.S. Government, ou=Department of the Interior, ou=U.S. Fish and Wildlife Service, cn=CHARLES BLAIR, 0.9.2342.19200300.100.1.1=14001000654852              Date: 2015.07.10 09:45:35 -05'00'           </div>	

<sup>1</sup> Signatures apply to all contents of the IMP

## Table of Contents

Signature Page .....	ii
Introduction.....	4
Methods.....	4
Prioritizing Surveys .....	4
Estimating Capacity .....	5
Selecting Surveys.....	5
Results: Selected Surveys .....	5
List of Selected Surveys and Rationale for Selection .....	6
Table 1. Surveys selected for conduct at Morris Wetland Management District 2015-2029....	9
Narratives for Selected Surveys.....	12
Revising the IMP .....	27
References .....	27
Appendix A. Criteria and Weights Used to Prioritize Surveys .....	28
Appendix B. Prioritization Scores of All Ranked Surveys.....	31
Appendix C. Non-selected Surveys .....	32
Appendix D. Environmental Action Statement (EAS) .....	33
Appendix E. Survey Timing and Schedule.....	34
Appendix F. Estimated Annual Cost for Implementing Surveys. ....	37
Appendix G. Estimated Annual Work Schedule for Selected Surveys, January – December. ...	38
IMP Revision Signature Page .....	39

## **Introduction**

This Inventory and Monitoring Plan (IMP) documents natural resource surveys that will be conducted at Morris Wetland Management District (WMD) from 2015 through 2029, or until the refuge Comprehensive Conservation Plan (CCP), Habitat Management Plan (HMP), or this IMP are revised. The majority of surveys considered in this plan address resource management objectives identified in the District's HMP (2012). Other surveys are a continuation of past monitoring conducted for tracking long-term trends in specific resources, understanding ecological interactions, or are part of regional and national survey efforts. This IMP was developed according to the Inventory and Monitoring (I&M) policy (701 FW 2) for the National Wildlife Refuge System.

Morris WMD (originally called the Benson WMD) was established in 1964 to manage land tracts purchased under the Small Wetlands Acquisition Program. Morris WMD also administers units of the Northern Tallgrass Prairie National Wildlife Refuge, which was established in 2000 to preserve, restore, and manage critical tallgrass prairie habitat and associated wetlands.

Morris WMD manages land in west-central Minnesota (Big Stone, Chippewa, Lac qui Parle, Pope, Stevens, Swift, Traverse and Yellow Medicine Counties). The District includes 248 waterfowl production areas (WPAs) totaling over 52,620 acres in fee title ownership. Morris WMD also administers approximately 22,170 wetland acres of waterfowl management easement lands ("wetland" and "flowage" easements), 11,219 acres of wildlife habitat protection easements, and 1,237 acres of Farmers Home Administration easements. The Northern Tallgrass Prairie National Wildlife Refuge tracts within the District include one fee title tract (21 acres) and 27 easements (1,842 acres).

## **Methods**

District staff worked with the zone biologist to compile a comprehensive list of historic, current, and desired surveys. The list was revised and prioritized through a series of workshop and teleconference meetings. In addition to a survey's priority, District staff also estimated the capacity (time and monetary costs) to conduct the survey. This information was used together to select surveys to include in the IMP.

## **Prioritizing Surveys**

The initial priority ranking of surveys was conducted during a workshop held at Morris WMD on February 19, 2014. Refuge staff participating in this process included Bruce Freske, Sara Vacek, and JB Bright. Pauline Drobney, Melinda Knutson, and Peter Dratch also provided general guidance during the workshop. Background information for each survey was summarized in advance by the Refuge Wildlife Biologist and briefly discussed with other staff while prioritizing the surveys.

Refuge staff generated a list of 40 current and anticipated surveys for gathering information on refuge resources and for informing refuge management decisions. This list was later refined to exclude general observations (reconnaissance) of refuge resources that do not require protocols or data management, or that are primarily done as outreach activities. Some anticipated surveys were also consolidated (e.g., woody vegetation density was incorporated into a broader invasive species survey).

The remaining 29 surveys then were assigned a priority score using a SMART tool developed by the National I&M Coordination Team (USFWS 2014). The group assigned weights to 17 pre-defined criteria that best reflect the priorities at Morris WMD (Appendix A). Next, each candidate survey was assigned a

score for each criterion. The final output from the SMART tool was an overall prioritization score for each survey that accounted for its relevance and importance across all 17 criteria (Appendix B).

## **Estimating Capacity**

The staff time available for conducting biological surveys was roughly estimated using a time budget template provided by the zone biologist. A time budget was completed for the two full time staff members who have primary responsibility for biological survey work (refuge biologist and biological science technician). Time budgets were also completed for seasonal employees in a “typical” year. These estimates should be considered draft, as capacity will change from year-to-year based on staffing and budgets. Additionally, other staff members sometimes assist with surveys as time allows.

The resources required to complete a survey were also estimated. These estimates incorporated the staff time required for all phases of a survey, the frequency of field work for a survey, and any additional costs (e.g., fuel, supplies) (Appendix F). Average annual staff time and costs were entered into PRIMR<sup>2</sup>.

Next, we developed a suite of survey portfolios using the IMP Cost-Benefit Optimization Tool. This tool selects an optimal (in terms of return on effort) set of surveys based on the survey priority, the time required for a survey, and the staff capacity to conduct surveys. The tool was useful for understanding the tradeoffs among surveys, given time requirements and benefits, particularly with regard to implementing more time-intensive surveys. We developed eight portfolios that reflected different constraints (time available for survey work and surveys that we considered required, regardless of the effort required).

## **Selecting Surveys**

In addition to the above information, our decisions about which surveys to select for the IMP were also based on considerations of a survey’s timing (within and among years) and level of flexibility (e.g., could we decrease effort if staffing resources changed). Appendix E lists these timing and flexibility considerations for each candidate survey. Surveys were assigned to one of four tiers (Table B.1 in Appendix B) that incorporate the various considerations of priorities, required effort, and flexibility. If available resources change in the future, these tiers will help District staff reassess survey selection.

## **Results: Selected Surveys**

The process identified 26 surveys to be conducted over the time span of this IMP (Table 1, Appendix G), though not all 26 will be conducted each year (Appendix E). Of the 21 surveys that will be conducted in 2015, 16 will be conducted partly or completely by the Wildlife Biologist. The rest will be conducted by other staff or other collaborators. Of the seven surveys ending in the lifespan of the IMP, two end in 2015, three end between 2016 and 2018, and two more end in 2020. Thus, by 2020, the number of active surveys will be reduced to 15. One additional survey may be added in the future if additional resources are available. Two candidate surveys were not selected. Non-selected surveys are listed in Appendix C.

---

<sup>2</sup> Planning and Reporting Inventory and Monitoring at Refuges (PRIMR) Database (<https://ecos.fws.gov/primr/index.gsp>). A database developed by the I&M initiative that describes and archives the surveys conducted on refuges, and which is also used to generate summaries for an IMP.

## List of Selected Surveys and Rationale for Selection

Name	Rationale
Native Prairie Adaptive Management	Grassland management is one of the primary activities at Morris WMD. The remaining native prairie remnants are rare and provide a reference type and condition for restoration and reconstruction of prairie grasslands elsewhere. Use of monitoring within an adaptive management framework provides rapid feedback to management and is critical for maintaining the integrity of these ecosystems.
Native Prairie Remnant Inventory	Prairie remnants are rare and are a focal resource for the District. This survey provides information about the presence and quality of prairie remnants. When the inventory is complete, the data will be used to refine the station's management prioritization tool.
Evaluation of Methods for Canada Thistle-Free Habitat Restoration	Prairie reconstruction is an increasingly common activity at Morris WMD. Understanding the long-term outcomes of various reconstruction techniques will improve future decisions about reconstructions.
Grassland Monitoring Team	Grassland management is one of the primary activities at Morris WMD. The remaining native prairie remnants are rare and provide a reference type and condition for restoration and reconstruction of prairie grasslands elsewhere. Use of monitoring within an adaptive management framework provides rapid feedback to management and is critical for maintaining the integrity of these ecosystems.
Sediment Removal in Wetland Restorations	Wetlands being restored at Morris WMD often have a history of farming, which can lead to accumulated sediment in the wetland basin. Monitoring the success of wetland restorations with and without sediment removal, in an adaptive management framework, will allow biologists and managers to learn collectively about best management practices for prairie wetland restorations.
Prairie Reconstruction and Interseeding Monitoring	Prairie reconstruction is an increasingly common activity at Morris WMD. Monitoring the effectiveness of different reconstruction techniques, including interseeding into existing vegetation, will improve future reconstruction plans.
Prairie Obligate Butterfly Surveys	Two prairie obligate butterflies were recently listed under the Endangered Species Act, and a number of others are considered of special concern by the State of Minnesota. It is critical for management planning and future conservation of these species to know where they are present in the District. Surveys will be conducted by skilled partners or contractors, minimizing the time required by station staff.
Wetland Class/Condition Baseline Inventory	The inventory will verify wetland classifications in the station's GIS data (wetland classes can change over time due to climate and other factors), and provide a baseline assessment of the wetland condition (vegetation structure, invasive species, general wildlife use). Ultimately, this information could be incorporated into a refined version of our management prioritization model.
Grassland Bird Inventory	Grassland birds are a focal resource for Morris WMD. The survey will help us understand the role of managed conservation lands for supporting grassland bird populations in Minnesota and Iowa. The inventory and analysis is being conducted by staff from The Nature Conservancy, meaning that it requires minimal time from station staff.
Four-Square-Mile Waterfowl Survey	Providing breeding waterfowl habitat is the primary enabling purpose of waterfowl production areas. This survey is our principal means of assessing waterfowl breeding trends in the District. The data are used in landscape level planning tools that are used to prioritize land acquisition and management.

Grazing Effects Rapid Assessment	Grazing is a common management tool used by Morris WMD, but has come under increasing scrutiny in recent years. It is not possible to conduct more intensive surveys (e.g., Native Prairie Adaptive Management) on all grazed units. This survey documents cooperator compliance and immediate ecological effects for all grazed units.
Glacial Lake Overspray Monitoring	Morris WMD exists in a highly fragmented landscape and most of our WPAs are surrounded by agricultural lands. Overspray affects the integrity of our grasslands, particularly when it impacts remnant prairie. This survey documents the effects of an overspray event and subsequent restoration on a high quality remnant prairie.
Wetland Resources Long-term Monitoring	There are few long-term hydrology monitoring stations in the Prairie Pothole Region. The Regional Refuge Hydrologist has established monitoring sites on two WPAs with natural and restored wetlands. The survey is fully supported by the Regional Hydrologist and requires minimal assistance from station staff.
Wild Rice Monitoring	Prairie wetlands are not typically considered prime wild rice habitat, but we have documented about 15 WPAs in Morris WMD with this important migratory waterfowl food source. The survey has also become an important way to track the success of grant-funded wild rice seeding that has occurred in recent years.
North American Breeding Bird Survey	Breeding Bird Survey data are important for capturing large scale changes in breeding bird populations. It is difficult to find volunteer observers in this part of the state so we assist with this survey to ensure that most routes in our area are completed.
Colonial Waterbird Surveys	Colonial waterbirds are typically under-represented in traditional bird surveys. This is a low-input survey that ensures we have current information about nesting colonies, many of which are in trees that might otherwise be targeted for woody species removal.
Darnen WPA Water Quality Monitoring	The wetland on Darnen WPA receives stormwater drainage from an adjacent industrial park. This is a long-term baseline survey to assess effects of the runoff, which will make us better informed for how to deal with future issues like this.
Water Level Monitoring (Managed Wetlands)	Morris WMD manages 32 wetlands with water control structures. Monthly water level monitoring is used in conjunction with aerial photography to determine annual water management plans.
Waterfowl Nest Structure Use Monitoring	The District maintains about 200 waterfowl nesting structures on WPAs. The survey documents which structures are used, their condition, and whether they are still in a good location within the wetland. This information is used to ensure that the structures are likely to be used in a given year. We are confident based on past monitoring and research that if a structure is used it will result in high nest success, so the intent of this monitoring is strictly use rates and assessing condition.
Relocating Greater Prairie Chickens to West Central Minnesota	MN DNR, MN Prairie Chicken Society, TNC, and FWS worked cooperatively to reintroduce a population of prairie chickens in the upper MN River valley. There are no known prairie chicken booming grounds and only a few sharp-tailed grouse leks remaining in the District, so this survey will likely end in 2015 or 2016.
American Woodcock Singing-ground Survey	Morris WMD is on the very western edge of the woodcock range. This is a high priority survey for Migratory Bird Management and it requires little staff time.

North American Amphibian Monitoring Program	The MN Frog and Toad Calling Survey is a statewide, volunteer based survey coordinated by MN DNR, which contributes data to the North American Amphibian Monitoring Program. It is difficult to find volunteer observers in this part of the state so we assist with the survey to ensure that most routes in the District are covered.
Audubon's Christmas Bird Count	This survey provides a long-term data set for winter birds in the area, and is an enjoyable winter event for the staff.
Managing Temporary and Seasonal Wetlands	Temporary and seasonal wetlands are crucial habitat for breeding waterfowl, but in the District are heavily choked with invasive species like cattail and reed canarygrass. We suspect that this makes the wetlands unattractive to waterfowl pairs, meaning that we may have landscapes that appear to provide excellent pair habitat based on the number of wetlands, but in reality are not attracting waterfowl pairs to settle in the landscape. This new survey will help us understand the issue of invaded temporary and seasonal wetlands, and help us in our efforts to prioritize where we implement direct wetland management.
Contaminant Effects on Wetland Invertebrates	Waterfowl Production Areas in Morris WMD are positioned in a matrix of intensive agricultural land. New information about the prevalence of neonicotinoid insecticides led us to be concerned about the potential effects on aquatic invertebrates in wetlands that we manage. Insecticides that affect the abundance or types of invertebrates in our wetlands would have direct impacts on two primary resources of concern identified in the station's habitat management plan: breeding waterfowl and prairie wetland ecosystems. This survey would help us determine how serious this effect may be across District lands, and would provide a resource for mitigating that impact (e.g., creating grassland buffers by targeting land acquisition and Partners for Fish and Wildlife projects around wetlands that are not fully within the WPA boundary).
Baseline Wildlife Inventories	We are lacking baseline information for many groups of wildlife. Having a fuller understanding of the species richness and abundance across the District and on different management units will improve our habitat management planning.

Invasive species management monitoring, Integrated Waterbird Management and Monitoring, and mourning dove banding are three surveys that were ranked using the SMART tool but were not selected for implementation. Invasive species monitoring will require a significant investment of time and will only be included in the future if new resources or staff become available. Morris WMD participated in the Integrated Waterbird Management and Monitoring program during its pilot phase, testing protocols and collecting data on Federal and State managed lands in the District. It was not selected due to the heavy time investment required, and so was changed to historic status. Mourning dove banding is an effort that we participated in to assist the MN DNR and to provide banding experience for our seasonal employees. This was moved to historic status.



**Table 1. Selected surveys to conduct at Morris Wetland Management District, 2015-2029.**

Survey Priority <sup>1</sup>	Survey ID Number <sup>2</sup>	Survey Name/(Type) <sup>3</sup>	Survey Status <sup>4</sup>	Mgmt. Objective Id <sup>5</sup>	Survey Area <sup>6</sup>	Staff Time (FTE) <sup>7</sup>	Avg. Ann Cost (OPR) <sup>8</sup>	Survey Timing <sup>9</sup>	Survey Length <sup>10</sup>	Survey Coord. <sup>11</sup>	Protocol Citation <sup>12</sup>	Protocol Status <sup>13</sup>
1	FF03RBN W00-024	Native Prairie Adaptive Management (M)	Current	CCP / 2.4, 2.12, 4.6	National	FWS: 0.09	\$100	late summer/ Recurring -- every year	2007- Indefinite	Cami Dixon, Dakota Zone Biol.	(none)	Initial Survey Instructions
2	FF03RBN W00-006	Native Prairie Remnant Inventory (I)	Current	CCP / 5.9, 4.6	Entire station	FWS: 0.09	\$200	growing season/ Occurs one time only	2002- 2020	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
3	FF03RBN W00-007	Evaluation of Methods for Canada Thistle-Free Habitat Restoration (CR)	Current	CCP / 2.12, 2.2, 2.1	Multiple stations	FWS: 0.03	\$200	late summer/ Recurring -- every five years	2005- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
4	FF03RBN W00-023	Grassland Monitoring Team (M)	Current	CCP / 2.4, 2.12, 4.6	Statewide	FWS: 0.08	\$100	late summer/ Recurring -- every three years	2008- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
5	FF03RBN W00-025	Sediment Removal in Wetland Restorations (M)	Current	CCP / 2.5, 2.7	Statewide	FWS: 0.03	\$100	June 15-July 15/ Recurring -- every year	2009- Indefinite	Shawn Papon, Partners for Fish and Wildlife Biol.	(none)	Initial Survey Instructions
6	FF03RBN W00-029	Prairie Reconstruction and Interseeding Monitoring (M)	Current	CCP / 2.12, 2.2, 2.1	Entire station	FWS: 0.06	\$100	late summer/ Recurring -- every year	2013- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
7	FF03RBN W00-034	Prairie Obligate Butterfly Surveys (BM)	Current	CCP / 5.2, 5.5, 5.1	Entire station	FWS: 0.02	\$2,000	July/ Recurring -- every five years	2010- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
8	FF03RBN W00-021	Wetland Class/Condition Baseline Inventory (I)	Current	CCP / 2.10, 2.7	Entire station	FWS: 0.13	\$200	spring/ Occurs one time only	2013- 2020	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
9	FF03RBN W00-037	Grassland Bird Inventory (CB)	Current	CCP / 5.3, 4.6, 4.7	Regional	FWS: 0.02	\$0	April-July/ Recurring -- every year	2013- 2015	Marissa Ahlering, Prairie Ecologist	(none)	Initial Survey Instructions
10	FF03RBN W00-015	Four-square-mile Breeding Waterfowl Survey (CB)	Current	CCP / 1.3, 4.7	National	FWS: 0.13	\$300	April 27-May 15, May 20-June 6/ Recurring -- every year	1987- Indefinite	Donna Oglesby, Biol. Science Tech.	(none)	Initial Survey Instructions

Survey Priority <sup>1</sup>	Survey ID Number <sup>2</sup>	Survey Name/(Type) <sup>3</sup>	Survey Status <sup>4</sup>	Mgmt. Objective Id <sup>5</sup>	Survey Area <sup>6</sup>	Staff Time (FTE) <sup>7</sup>	Avg. Ann Cost (OPR) <sup>8</sup>	Survey Timing <sup>9</sup>	Survey Length <sup>10</sup>	Survey Coord. <sup>11</sup>	Protocol Citation <sup>12</sup>	Protocol Status <sup>13</sup>
11	FF03RBN W00-030	Grazing Effects Rapid Assessment (M)	Current	CCP / 2.4, 2.12	Entire station	FWS: 0.08	\$200	growing season/ Occurs one time only	2015- Indefinite	JB Bright, Wildlife Refuge Specialist	(none)	Initial Survey Instructions
12	FF03RBN W00-026	Glacial Lake Overspray Monitoring (BM)	Current	CCP / 4.8, 2.2	Single management unit: Glacial Lake WPA	FWS: 0.06	\$50	late summer/ Recurring -- every year	2009- 2015	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
13	FF03RBN W00-022	Wetland Resources Long-term Monitoring (BM)	Current	CCP / 2.10, 2.7	Multiple management units: Rothi WPA, Nelson Lake WPA	FWS: 0.11	\$500	growing season/ Recurring -- every year	2011- Indefinite	Josh Eash, Regional Refuge Hydrologist	(none)	Initial Survey Instructions
14	FF03RBN W00-027	Wild Rice Monitoring (BM)	Current	CCP / 2.6, 4.6, 2.7	Entire station	FWS: 0.05	\$100	late summer/ Recurring -- every year	2010- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
15	FF03RBN W00-018	North American Breeding Bird Survey (CB)	Current	CCP / 4.7	International	FWS: 0.02	\$100	June/ Recurring - every year	1966- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
16	FF03RBN W00-039	Colonial Waterbird Surveys (BM)	Current	CCP / 4.7	Entire station	FWS: 0.05	\$200	July-August/ Recurring -- every five years	2009- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
17	FF03RBN W00-009	Darnen WPA Water Quality Monitoring (BM)	Current	CCP / 4.8, 2.7	Single management unit: Darnen WPA	FWS: 0.02	\$200	growing season/ Recurring -- every five years	2001- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
18	FF03RBN W00-016	Water level monitoring (managed wetlands) (M)	Current	CCP / 2.6	Multiple management units	FWS: 0.1	\$300	monthly during growing season/ Recurring -- every year	1980- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
19	FF03RBN W00-012	Waterfowl Nest Structure Use Monitoring (M)	Current	CCP / 1.3	Multiple management units	FWS: 0.1	\$2,500	winter/ Recurring -- every year	1990- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
20	FF03RBN W00-005	Relocating Greater Prairie Chickens to West Central Minnesota (BM)	Current	CCP / 1.7, 4.7	Multiple management units	FWS: 0.03	\$100	early spring/ Recurring -- every year	1996- 2016	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
21	FF03RBN W00-011	American Woodcock Singing- ground Survey (CB)	Current	CCP / 4.7	National	FWS: 0.01	\$100	April-May/ Recurring -- every year	1969- Indefinite	Donna Oglesby, Biol. Science Tech.	(none)	Initial Survey Instructions

Survey Priority <sup>1</sup>	Survey ID Number <sup>2</sup>	Survey Name/(Type) <sup>3</sup>	Survey Status <sup>4</sup>	Mgmt. Objective Id <sup>5</sup>	Survey Area <sup>6</sup>	Staff Time (FTE) <sup>7</sup>	Avg. Ann Cost (OPR) <sup>8</sup>	Survey Timing <sup>9</sup>	Survey Length <sup>10</sup>	Survey Coord. <sup>11</sup>	Protocol Citation <sup>12</sup>	Protocol Status <sup>13</sup>
22	FF03RBN W00-014	North American Amphibian Monitoring Program (BM)	Current	CCP / 4.6	National	FWS: 0.02	\$200	three runs during breeding season (April through July)/ Recurring - - every year	2003- Indefinite	Sara Vacek, Wildlife Biol.	(none)	Initial Survey Instructions
23	FF03RBN W00-020	Audubon's Christmas Bird Count (BM)	Current	CCP / 4.6	National	FWS: 0.02	\$100	December/ Recurring -- every year	1993- Indefinite	Donna Oglesby, Biol. Science Tech.	(none)	Initial Survey Instructions
25	FF03RBN W00-031	Managing Temporary and Seasonal Wetlands (CR)	Current	CCP / 2.12, 4.7	Multiple stations	FWS: 0.05	\$100	Recurring -- every year	2015- 2017	David Andersen, Professor	(none)	Initial Survey Instructions
26	FF03RBN W00-032	Contaminant Effects on Wetland Invertebrates (R)	Expected	CCP / 4.8, 2.7	Entire station	FWS: 0.09	\$15,000	Recurring -- every year	2016- 2018	(none)	(none)	Initial Survey Instructions
27	FF03RBN W00-033	Baseline Wildlife Inventories (I)	Expected	CCP / 5.9, 4.6, 5.1	Entire station	FWS: 0.1	\$5,000	Occurs one time only	2020- Indefinite	(none)	(none)	Initial Survey Instructions

1. The rank for each survey listed in order of priority (e.g., numeric, tiered, alpha-numeric, or combination of these).
2. A unique identification number consisting of refuge code-computer assigned sequential number. Refuge code comes from the FBMS cost center identifier.
3. Short titles for the survey name, preferably the same name used in refuge work plans. Also include the PRIMR code for survey type in parentheses. These are: Inventory (I), Cooperative Baseline Monitoring (CB), Monitoring to Inform Management (M), Cooperative Monitoring to Inform Management (CM), Research (R), and Cooperative Research (CR).
4. Surveys selected for the time period of this IMP (i.e., Current, Expected).
5. The management plan and objectives that justify the selected survey.
6. Refuge management unit names, entire refuge, or names of other landscape units included in survey.
7. Estimates of Service (FWS) and non-Service (Other) staff time needed to complete the survey (1 work year = 2080 hours = 1 FTE).
8. Estimates of average annual operations cost for conducting the survey during the years it is conducted (e.g., equipment, contracts, travel) but not including staff time.
9. Timing and frequency of survey field activities.
10. The years during which the survey is conducted.
11. The name and position of the survey coordinator (the Refuge Biologist or other designated Service employee) for each survey.
12. Title, author, and version of the survey protocol (if there is no protocol to cite, enter None).
13. Scale of intended use (Site-specific, Regional, or National) and stage of approval (Initial Survey Instructions, Complete Draft, In Review, or Approved) of the survey protocol.

## Narratives for Selected Surveys

**Survey:** *Native Prairie Adaptive Management (FF03RBNW00-024)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 1

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Biological Inventory; Management Cycle; Plant Control
- HMP: Remnant Prairie 4.1 (1, 2, 5)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This adaptive grassland management project was a follow up to an extensive prairie inventory done on refuge lands in the Dakotas. The RCRP-funded startup period was coordinated by a science team of USGS and FWS employees, and as of 2011 was handed off to the FWS for management. It focuses on remnant prairie, but has a heavy emphasis on how well various management tools work to reduce the cover of smooth brome and Kentucky bluegrass.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Plantae (plants); Asteraceae (sunflowers); Poaceae (grasses); Fabaceae (legumes, peas); Rosaceae (roses); Lamiaceae (mints)

Recurring -- every year; late summer

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO but the partnership includes multiple FWS stations in Regions 3 and 6. Overall coordination is by R6 Dakotas Zone biologist with assistance from an Advisory Team.

---

**Survey:** *Native Prairie Remnant Inventory (FF03RBNW00-006)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 2

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Biological Inventory; Monitoring
- HMP: Remnant Prairie 4.1 (1-5)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This survey provides baseline data important to understand the relative condition of prairies across the District. Eventually, this floristic quality data will be incorporated into the management prioritization model, allowing us to prioritize management based on prairie quality (independent of prairie size).

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Plantae (plants); Asteraceae (sunflowers); Poaceae (grasses); Fabaceae (legumes, peas); Rosaceae (roses)

Occurs one time only; growing season

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Evaluation of Methods for Canada Thistle-Free Habitat Restoration (FF03RBNW00-007)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 3

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Grassland Management; Plant Control; Prairie Restoration
- HMP: Planted Grasslands 4.2 (2, 3, and 6)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This survey will improve our understanding of how to design and implement a successful prairie reconstruction. A particular focus for this study was to understand the role of seed mix diversity and planting method on Canada thistle cover. The fields were first planted in 2005 and the partners want to continue monitoring the reconstructions over time to track their success.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Invasive Species; Plantae (plants); Asteraceae (sunflowers); Poaceae (grasses); Fabaceae (legumes, peas); Cover of Canada thistle and planted native species.

Recurring – every five years; late summer (We did annual surveys the first few years and now plan to do surveys approximately every 5-10 years).

**Is this a cooperative survey? If so, what partners are involved in the survey?**

Coop Research; U.S. Geological Survey Diane Larson is the PI (USGS-Northern Prairie Wildlife Research Center). Also includes sites at Fergus Falls WMD, Litchfield WMD, and Neal Smith NWR. Our management units included are Diekmann and Fahl WPAs.

---

**Survey:** *Grassland Monitoring Team (FF03RBNW00-023)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 4

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Biological Inventory; Management Cycle; Plant Control
- HMP: Remnant Prairie 4.1 (1-5)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This adaptive grassland management project is a joint effort among FWS, TNC, and several divisions of MN DNR. We are assessing how well our grassland management practices help us achieve prairie objectives such as increasing native diversity, decreasing invasives, and maintaining structural diversity. In the context of this project, management practices include both the frequency of management and the tools used.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Plantae (plants); Asteraceae (sunflowers); Poaceae (grasses); Fabaceae (legumes, peas); Rosaceae (roses); Lamiaceae (mints)

Recurring – every three years; late summer

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO, but MN DNR and TNC are heavily involved in coordinating the project. R3 Biological Resources provides support toward contract with Chicago Botanic Garden for database and model development.

---

**Survey:** *Sediment Removal in Wetland Restorations (FF03RBNW00-025)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 5

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Monitoring; Restoration
- HMP: Temporary and Seasonal Wetlands 4.3 (1, 2) and Semi-permanent Wetlands 4.4 (1, 5)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This adaptive management project is taking place in several WMDs in MN, primarily through the Partners program. We are interested in whether removing sediment during a typical wetland restoration improves the outcome and is worth the added cost.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Plantae (plants); Asteraceae (sunflowers); Poaceae (grasses); Salicaceae (willows); Typhaceae (No common name); Cyperaceae (sedges)

Recurring – every year; June 15-July 15 annually for first 4 years, then in years 6 and 8

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO, but there are several other FWS stations in Minnesota and Iowa participating

---

**Survey:** *Prairie Reconstruction and Interseeding Monitoring (FF03RBNW00-029)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 6

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Grassland Management; Plant Control; Prairie Restoration
- HMP: Remnant Prairie 4.1 (1, 2, 5) and Planted Grasslands 4.2 (2, 3, 6)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

We have excellent protocols and adaptive management programs to help us learn while we manage remnant prairie with fire, grazing, and rest. All along there has been a desire to use a similar approach to monitor the success of our reconstructions and interseeding efforts, particularly now that our focus is on establishing highly diverse grasslands. We want to know whether the techniques we use are effective and efficient.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Plantae (plants); Asteraceae (sunflowers); Poaceae (grasses); Fabaceae (legumes, peas); Rosaceae (roses); Lamiaceae (mints)

Recurring – every year; late summer

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Prairie Obligate Butterfly Surveys (FF03RBNW00-034)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 7

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Inventory and Monitoring; Invertebrates; T&E Species

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

A number of prairie-obligate butterflies are in decline (two were recently listed under the Federal Endangered Species Act). Morris WMD manages a number of prairies with historic records of prairie butterflies. It is important to understand the current populations of these species to help plan our prairie management activities on those sites.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; At-risk Biota; *Hesperia dactylus* (Dakota Skipper) - T; *Oarisma poweshiek* (Poweshiek skipperling) - E; *Speyeria idalia* (Regal Fritillary); *Atrytone arogos* (Arogos Skipper)

Recurring – every five years; July

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Wetland Class/Condition Baseline Inventory (FF03RBNW00-021)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 8

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Management; Monitoring
- HMP: Temporary and Seasonal Wetlands 4.3 (1-2), Semi-permanent wetlands 4.4 (1-5), and Permanent Wetlands/Shallow Lakes 4.5 (1-5)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This is a general inventory of our wetlands, intended to 1) verify the classification in our habitat layer (wetland classes can change over time due to climate and other factors), and 2) provide a baseline assessment of the wetland condition (vegetation structure, invasive species, general wildlife use). Ultimately, this information could be incorporated into a refined version of our management prioritization model.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Aves (Birds); Plantae (plants); Amphibia (Amphibians); Arthropoda (arthropods); Mammalia (mammals); Asteraceae (sunflowers); Hemiptera (true bugs, hemipterans); Juncaceae (Rush Family, rushes); Poaceae (grasses); Rodentia (rodents); Passeriformes (Perching Birds); Salicaceae (willows); Anseriformes (Geese, Waterfowl, Scammers, Swans, Ducks); Typhaceae (No common name); Anura (Frogs, Toads); Diptera (gnats, true flies, mosquitoes); Cyperaceae (sedges)

Occurs one time only; spring

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO but MN DNR shallow lakes program assists by doing their standardized shallow lake survey on some of our basins.

---



**Survey:** *Grassland Bird Inventory (FF03RBNW00-037)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 9

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Biological Inventory; Breeding Birds; Research

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This survey is being conducted across western Minnesota and Northern Iowa to assess the role of conservation lands on grassland bird populations. Sites were stratified by location, size, ownership, and landcover features (trees and grass in the surrounding landscape). Determining the status of grassland birds on different types of grasslands across the region will set the stage for understanding the role conservation lands and grassland management play for grassland birds.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Aves (Birds); Passeriformes (Perching Birds); Charadriiformes (Gulls, Alcids, Auks, Plovers, Shore Birds, Oystercatchers); Galliformes (Fowls, Gallinaceous Birds)

Recurring – every year; April-July

**Is this a cooperative survey? If so, what partners are involved in the survey?**

Coop Baseline Monitoring; The Nature Conservancy; Minnesota Department of Natural Resources; University of Minnesota

---

**Survey:** *Four-Square-Mile Breeding Waterfowl Survey (FF03RBNW00-015)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 10

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Breeding Birds; Recruitment Rate
- HMP: 4.3 Temporary and Seasonal Wetlands (1); 4.4 Semi-Permanent Wetlands (1)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This survey is highly relevant for understanding the primary enabling purpose for a WMD (waterfowl production). The FSM survey provides our main source of annual production data and overall waterfowl population trends in the District. We use the data and associated tools (e.g. thunderstorm map) to prioritize many aspects of our work, from land acquisition to habitat management.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Aves (Birds); Anseriformes (Geese, Waterfowl, Screamers, Swans, Ducks). Waterfowl are the main population of interest, but we also survey a select list of non-game waterbirds.

Recurring -- every year; April 27-May 15, May 20-June 6.

**Is this a cooperative survey? If so, what partners are involved in the survey?**

Coop Baseline Monitoring; USFWS R3 HAPET is the main coordinator of the full survey in the region. They provide us with maps, data forms, protocols, etc. and analyze the data (with help from USGS). Our station staff is responsible for contacting private landowners to get access permission, training new staff, conducting surveys, and other local coordination.

---

**Survey:** *Grazing Effects Rapid Assessment (FF03RBNW00-030)*

**Refuge:** *Morris Wetland Management District*

**Priority:** *11*

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Management Cycle; Plant Control
- HMP: Remnant Prairie 4.1 (1-5) and Planted Grassland 4.2 (1-6)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

We have good adaptive management programs to help us learn overall about grassland management, but need a quick assessment method to help document permit compliance and habitat effects on each grazed unit. This is partially due to the new regional grazing policy. Staff have always taken many photos and notes but we want a more well-documented approach.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Plantae (plants); Poaceae (grasses)

Occurs one time only; growing season

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Glacial Lake Overspray Monitoring (FF03RBNW00-026)*

**Refuge:** *Morris Wetland Management District*

**Priority:** *12*

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Grassland Management; Monitoring

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

The survey assesses a site that received significant overspray (herbicide drift) from neighboring pasture in 2009. The survey has documented the effects of the overspray, and success of the rehabilitation that was required as compensation. Unfortunately, herbicide drift is not uncommon in an agricultural area like ours, so documenting and understanding the effects are important for both law enforcement activities and restoration.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Plantae (plants); Asteraceae (sunflowers); Poaceae (grasses); Fabaceae (legumes, peas); Rosaceae (roses); Lamiaceae (mints)

Recurring -- every year; late summer

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Wetland Resources Long-term Monitoring (FF03RBNW00-022)*

**Refuge:** *Morris Wetland Management District*

**Priority:** *13*

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Management; Monitoring
- HMP: Temporary and Seasonal Wetland 4.3 (1-2) and Semi-permanent Wetland 4.4 (1-5)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This is a long-term prairie wetland hydrology monitoring project established by the regional hydrologist. He is surveying ground and surface water in complexes on Rothi (six sites) and Nelson Lake WPAs (eight sites). He has stations on temporary, seasonal and semi-permanent wetlands that are both “natural” and have some history of drainage.

**What is the population or attribute of interest, what will be measured, and when?**

Water; Hydrology

Recurring – every year; growing season

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO, but R3 Biological Resources (hydrology) provides funding to support a biological technician and pay for water sample analysis.

---

**Survey:** *Wild Rice Monitoring (FF03RBNW00-027)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 14

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Biological Inventory; Management; Monitoring
- HMP: Semi-Permanent Wetland 4.4 (1, 5) and Permanent Wetland 4.5 (1, 5)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

Prairie wetlands are not typically considered prime wild rice habitat, but we have enough anecdotal observations in the District that we designed this survey to document the extent and abundance of this important migratory waterfowl food source. The protocol is designed to track both the number of sites with wild rice, as well as monitor the rice populations in key wetlands. We also use it to monitor the success of sites that are seeded with wild rice.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; *Zizania* (wildrice)

Recurring – every year; late summer

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *North American Breeding Bird Survey (FF03RBNW00-018)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 15

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Breeding Birds

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

Breeding Bird Survey data is important to the District and the FWS for tracking breeding bird population trends. Data are also used by HAPET and other landscape planners to help us prioritize how we target acquisition and management.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Aves (Birds); Galbuliformes (No common name); Gaviiformes (Loons); Columbiformes (Pigeons, Doves); Cuculiformes (Cuckoos); Gruiformes (Cranes, Rails); Podicipediformes (Grebes); Apodiformes (Swifts, Hummingbirds); Charadriiformes (Gulls, Alcids, Auks, Plovers, Shore Birds, Oystercatchers); Galliformes (Fowls,

Gallinaceous Birds); Strigiformes (Owls, Goatsuckers); Pelecaniformes (Hérons, Ibises, Pelicans); Passeriformes (Perching Birds); Anseriformes (Geese, Waterfowl, Screamers, Swans, Ducks); Coraciiformes (Kingfishers, Rollers); Accipitriformes (Hawks); Falconiformes (Falcons, Falconiforms); Piciformes (Woodpeckers); Suliformes (Cormorants);

Recurring – every year; June All breeding birds observed on the survey route.

**Is this a cooperative survey? If so, what partners are involved in the survey?**

Coop Baseline Monitoring; U.S. Geological Survey

---

**Survey:** *Colonial Waterbird Surveys (FF03RBNW00-039)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 16

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Breeding Birds

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

Colonial waterbirds are not well-counted by traditional bird survey methods. We have a number of known nesting colonies in the District and want to survey them periodically to monitor their status. Tree removal is a common management action on prairies that we manage; often the tree removal occurs in winter when waterbirds are not present. In part, keeping records on nesting colonies will ensure that we do not remove nesting trees.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Phalacrocorax auritus (Double-crested Cormorant); Chlidonias niger (Black Tern); Aechmophorus occidentalis (Western Grebe); Pelecanus erythrorhynchos (American White Pelican); Ardea herodias (Great Blue Heron); Ardea alba (Great Egret)

Recurring – every five years; July-August

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO, but we share the data with MN DNR Nongame Bird Biologists and University of Minnesota.

---

**Survey:** *Darnen WPA Water Quality Monitoring (FF03RBNW00-009)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 17

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Monitoring

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This survey provides baseline information to address impacts of storm water runoff from an industrial park into a wetland on Darnen WPA. There is a settling pond that holds water before it enters the WPA.

**What is the population or attribute of interest, what will be measured, and when?**

Water; Water Quality

Recurring – every five years (2001-2007; approximately monthly during the growing season)

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Water level monitoring (managed wetlands) (FF03RBNW00-016)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 18

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Management
- HMP: Semi-permanent Wetland 4.4 (1, 4)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

Water level gage readings are used in conjunction with aerial photos to help plan annual management on wetlands managed with water control structures.

**What is the population or attribute of interest, what will be measured, and when?**

Water; Hydrology

Recurring – every year; monthly during growing season

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Waterfowl Nest Structure Use Monitoring (FF03RBNW00-012)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 19

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Recruitment Rate

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This survey ensures that we have nest structures in the best possible location (i.e., likely to be used) and in good condition (i.e., available for nesting). Data are used to recommend moving/removing/replacing structures.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Aves (Birds); Anseriformes (Geese, Waterfowl, Screamers, Swans, Ducks)

Recurring – every year; winter

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Relocating Greater Prairie Chickens to West Central Minnesota (FF03RBNW00-005)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 20

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Breeding Birds; Reintroduction

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

MN DNR, MN Prairie Chicken Society, TNC, and FWS worked cooperatively to reintroduce prairie chickens in the upper MN River valley, centered around Lac qui Parle WMA. Releases occurred from 1999-2006 and since then we have monitored the population using booming ground counts.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Tympanuchus phasianellus (Sharp-tailed Grouse); Tympanuchus cupido (Greater Prairie Chicken, Greater Prairie-Chicken)

Recurring – every year; early spring

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO but the project is a close partnership between the Service, MN Department of Natural Resources, Minnesota Prairie Chicken Society, and The Nature Conservancy.

---

**Survey:** *American Woodcock Singing-ground Survey (FF03RBNW00-011)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 21

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Breeding Birds

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

We conduct this survey to assist our regional Migratory Bird Program with a national survey.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; *Scolopax minor* (American Woodcock)

Recurring – every year; April-May

**Is this a cooperative survey? If so, what partners are involved in the survey?**

Coop Baseline Monitoring; U.S. Fish and Wildlife Service, Migratory Birds

---

**Survey:** *North American Amphibian Monitoring Program (FF03RBNW00-014)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 22

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Biological Inventory

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

The MN Frog and Toad Calling Survey is a statewide, volunteer based survey coordinated by MN DNR Nongame, which contributes data to the North American Amphibian Monitoring Program. In the past DNR has had trouble finding volunteers in outstate MN so we have run a few routes and helped them recruit volunteers. DNR shares data from the District with us so it's an easy way to get some general presence/absence and trend data for an under-surveyed group of wildlife.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Amphibia (Amphibians); Anura (Frogs, Toads)

Recurring -- every year; three runs during breeding season (April through July)

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO; but Minnesota DNR coordinates survey in MN, USGS hosts the online training quiz and database

---



**Survey:** *Audubon's Christmas Bird Count (FF03RBNW00-020)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 23

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Biological Inventory

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

This survey provides a long-term data set for winter birds in the area, and is an enjoyable winter event for the staff.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Aves (Birds); Columbiformes (Pigeons, Doves); Passeriformes (Perching Birds); Anseriformes (Geese, Waterfowl, Screamers, Swans, Ducks); Accipitriformes (Hawks); Piciformes (Woodpeckers); Galliformes (Fowls, Gallinaceous Birds); Strigiformes (Owls, Goatsuckers)

Recurring – every year; December

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO, but National Audubon Society provides overall organization, data storage, etc.

---

**Survey:** *Managing Temporary and Seasonal Wetlands (FF03RBNW00-031)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 25

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Breeding Birds; Plant Control
- HMP: Temporary and Seasonal Wetland 4.3 (1-2), Semi-permanent Wetland 4.4 (1, 5)

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

Temporary and seasonal wetlands are crucial habitat for breeding waterfowl, but many temporary and seasonal wetlands in the District are heavily choked with invasive species like cattail and reed canarygrass. We suspect that this makes the wetlands unattractive to waterfowl pairs, meaning that we may have landscapes that appear to provide excellent pair habitat based on the number of wetlands, but in reality are not attracting waterfowl pairs to settle in the landscape. This survey will help us better understand the issue of invaded temporary and seasonal wetlands, and help us in our efforts to prioritize where we implement direct wetland management.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Aves (Birds); Plantae (plants); Poaceae (grasses); Salicaceae (willows); Anseriformes (Geese, Waterfowl, Screamers, Swans, Ducks); Typhaceae (No common name); Cyperaceae (sedges)

Recurring – every year

**Is this a cooperative survey? If so, what partners are involved in the survey?**

Coop Research; Minnesota Department of Natural Resources; University of Minnesota; U.S. Fish and Wildlife Service, Migratory Birds

---

**Survey:** *Contaminant Effects on Wetland Invertebrates (FF03RBNW00-032)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 26

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Monitoring; Monitoring

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

Waterfowl Production Areas in Morris WMD are positioned in a matrix of intensive agricultural land. New information about the prevalence of neonicotinoid insecticides led us to be concerned about the potential effects on aquatic invertebrates in wetlands that we manage. Insecticides that affect the abundance or types of invertebrates in our wetlands would have direct impacts on two primary resources of concern identified in the station's habitat management plan: breeding waterfowl and prairie wetland ecosystems. This survey would help us determine how serious this effect may be across District lands, and would provide a resource for mitigating that impact.

**What is the population or attribute of interest, what will be measured, and when?**

Water; Water Quality; Arthropoda (arthropods)

Recurring – every year

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

**Survey:** *Baseline Wildlife Inventories (FF03RBNW00-033)*

**Refuge:** *Morris Wetland Management District*

**Priority:** 27

**Which station management objective does the survey support? Is the objective derived from the CCP, interim objectives, HMP, or other?**

- CCP: Biological Inventory; Monitoring; T&E Species

**Why is it important to conduct the survey? Describe how survey results will be used to make better informed refuge management decisions. If survey results are used to trigger a management response, identify the management response and threshold value for comparison to survey results.**

We lack baseline information for many groups of wildlife. A fuller understanding of the species richness and abundance across the District will improve our habitat management planning.

**What is the population or attribute of interest, what will be measured, and when?**

Biological Integrity; Other Biota; Reptilia (Reptiles); Aves (Birds); Amphibia (Amphibians); Osteichthyes (bony fishes); Arthropoda (arthropods); Mammalia (mammals); Orthoptera (grasshoppers, locusts, katydids, crickets); Hemiptera (true bugs, hemipterans); Lagomorpha (Rabbits, lagomorphs, Hares, Pikas); Cypriniformes (minnows, suckers); Anura (Frogs, Toads); Podicipediformes (Grebes); Coleoptera (beetles); Charadriiformes (Gulls, Alcids, Auks, Plovers, Shore Birds, Oystercatchers); Araneae (spiders); Carnivora (carnivores); Pelecaniformes (Hérons, Ibises, Pelicans); Rodentia (rodents); Hymenoptera (bees, ants, wasps); Squamata (Snakes, Amphisbaenians, Lizards); Passeriformes (Perching Birds); Anseriformes (Geese, Waterfowl, Screamers, Swans, Ducks); Lepidoptera (butterflies, moths); Caudata (Salamanders); Diptera (gnats, true flies, mosquitoes); Odonata (damselflies, dragonflies)

Occurs one time only

**Is this a cooperative survey? If so, what partners are involved in the survey?**

NO

---

## Revising the IMP

The Project Leader will review the refuge capacity and status of surveys annually and determine which of the selected surveys will be implemented in that year. The PRIMR database was updated along with this IMP; it will be updated as approved protocols are linked to the selected surveys and when surveys are added or removed from the set of selected surveys.

The IMP will be revised according to I&M Policy and as CCP and HMP plans are modified (see Revision Signature Page, Appendix D). An IMP revision is triggered when surveys are added or removed from the set of selected surveys. Revisions require signatures from refuge staff, Regional I&M staff, Regional Refuge Biologist/Natural Resources Division Chief, but not the Refuge Supervisor or Regional Chief of Refuges.

## References

- U.S. Fish and Wildlife Service. 2003. Morris Wetland Management District Habitat Management Plan. Morris Wetland Management District, Morris, MN.
- U.S. Fish and Wildlife Service. 2014. A User's guide for a SMART survey prioritization tool, version 2.2. National Wildlife Refuge System, Inventory and Monitoring Initiative, Natural Resources Program Center, Fort Collins, CO.

## Appendix A. Criteria and Weights Used to Prioritize Surveys

The SMART Survey Prioritization Tool (version 2.2) was used in the survey ranking process. This tool includes 24 pre-defined criteria that can be used to help prioritize surveys. We deleted seven criteria that were not relevant to the station, were not relevant to the surveys under consideration, or would not be useful to differentiate between the surveys. The 17 criteria used for this IMP are:

- 1) **Refuge Purpose.** Does the survey provide information to evaluate if the refuge is achieving its purpose(s)?
  1. No
  2. Yes
- 2) **CCP or Other Management Plan Objectives.** How many refuge CCP or other management plan objectives (e.g., HMP, NRMP, Fire Management Plan, Recovery Plan, Integrated Pest Management Plan) are met by the focus of this survey?
  1. Does not address an objective
  2. Addresses one objective
  3. Addresses two objectives
  4. Addresses three or more objectives
- 3) **NWRS Objectives.** Does the survey provide information to evaluate if the refuge is achieving regional or national objectives of the NWRS such as Biological Integrity, Diversity, and Environmental Health (BIDEH); NWR Resources of Concern (e.g., migratory birds, anadromous fishes, marine mammals); and compatibility of refuge uses especially wildlife-dependent recreation)?
  1. No
  2. One objective
  3. Two objectives
  4. Three or more objectives
- 4) **Management Utility (Decision Support) for the Refuge.** Does the survey provide data for recurring management decisions, especially as part of an existing decision framework that is implemented on a regular basis?
  1. No set application for the refuge
  2. May have management implications, but they are not explicitly defined
  3. Has management implications, but no current decision framework
  4. Part of an existing adaptive management decision framework
- 5) **FWS Programs.** Does the survey provide information that directly contributes to evaluating the status and trends of resources that are a priority for another FWS regional or national program (e.g., Migratory Birds, Fisheries, Water Resources/Hydrology *other than ESA species*)?
  1. Does not address a management priority identified by a FWS regional or national program or initiative
  2. Addresses a management priority identified by 1 FWS regional or national program or initiative
  3. Addresses a management priority identified by 2 FWS regional or national programs or initiatives
  4. Addresses a management priority identified by  $\geq 3$  FWS regional or national programs or initiatives
- 6) **FWS Partners.** Does the survey address an identified priority of a conservation partner, such as a Landscape Conservation Cooperative(s) (LCC), state agencies, or other conservation partner?
  1. Does not focus a management priority identified by FWS partners (e.g., LCC, state agency)
  2. Focus on a management priority identified by one FWS partner (e.g., LCC, state agency)
  3. Focus on a management priority identified by two FWS partners (e.g., LCC, state agency)

4. Focus on a management priority identified by three or more FWS partners (e.g., LCC, state agency)
- 7) **Listed species or vegetation communities.** Is the objective of the survey a species or vegetation community federally listed under ESA, state listed (threatened or endangered only), ranked by the state's natural heritage program (S1 or S2 rank only), globally ranked by NatureServe (G1 or G2 rank only), or globally listed on the IUCN Red List of Threatened Species (Critically Endangered, Endangered, or Vulnerable only)?
  1. Not state, federally or globally ranked
  2. Yes, state listed or ranked by state's natural heritage program
  3. Yes, globally listed by NatureServe or IUCN
  4. Yes, federally listed under the ESA as threatened or endangered
- 8) **Controversy.** Does the survey support decision-making to address an action or management decision related to refuge resources that is controversial to an external party?
  1. Not controversial and little to no potential for controversy
  2. Not currently controversial, but potentially or suspected of controversy
  3. Known controversy, but data or immediate management action is not currently needed but may be in the near future
  4. Pressing controversy; data required to support immediate management action
- 9) **Threat.** Does the survey support decision-making to monitor and mitigate a known or suspected threat to refuge resources?
  1. No existing threat or potential for a threat to Refuge resources
  2. No known threat, but potential for a threat to Refuge resources
  3. Known threat to Refuge resources, but immediate management action is not currently needed but may be in the near future
  4. Urgent threat to Refuge resources; immediate data are needed to support management action
- 10) **Baseline data.** Does the survey provide high-priority information that contributes to baseline data needs?
  1. No
  2. Yes
- 11) **Data Quality and Scope.** Which of these will characterize the survey results?
  1. Raw counts with unknown measurement error or accuracy
  2. Index or surrogate values without known statistical properties
  3. Estimates of attribute values with known statistical properties and measures of reliability
  4. Exact measures from calibrated equipment (minimal measurement errors, as in automated sensors)
- 12) **Sampling Design.** At what stage of development is the sampling design?
  1. Survey has no written sampling design
  2. The sampling design is in development (drafted)
  3. The sampling design is in formal review
  4. There is a published or I&M-approved sampling design
- 13) **Field Methods.** At what stage of development is the field method protocol?
  1. Survey has no written field methods
  2. The field methods are in development (drafted)
  3. The field methods are in formal review
  4. There is a published set or I&M approved protocol for field methods
- 14) **Data management, analysis, and reporting.** At what stage of development is the data management, analysis, and reporting?
  1. Survey has no written protocol for data management, analysis, and reporting
  2. Written protocol for data management, analysis, and reporting is in development (drafted)
  3. Written protocol for data management, analysis, and reporting is in formal review

4. There is a published record or I&M approved protocol guiding data management, analysis, and reporting
- 15) **Monetary cost.** What is the estimated annual non-personnel cost to complete the survey? This includes startup costs to the refuge, and any contracts, facility, and equipment cost.
  1. >\$10,000
  2. >\$5,000–\$10,000
  3. >\$1,000–\$5,000
  4. Up to \$1,000
  5. No cost
- 16) **Personnel cost.** What is the estimated refuge personnel time required to complete the survey? This estimate needs to include time for field work, data analysis, and reporting.
  1. >240 hrs
  2. >80–240 hrs
  3. >40–80 hrs
  4. 0–40 hrs
- 17) **Security/Source of Funding.** How is this survey funded?
  1. Require full support from a non-Refuge funding source for completion, and source has not been identified or is not secure
  2. Requires partial support from a non-Refuge funding source that is not secure and reliable
  3. Requires partial support from a non-refuge funding source, but the funding source is consistent and secure for the expected duration of the survey (high level of confidence that funding will remain)
  4. Could be fully supported using Refuge base funds, or has no monetary cost to the Refuge

**Table A1. Weight Applied to Prioritization Criteria.**

	<b>Criteria</b>	<b>Weight</b>	<b>Comparison to Even Weighting</b>
1	Refuge Purpose	0.105	0.046
2	CCP or Other Management Plan Objectives	0.105	0.046
3	NWRS Objectives	0.093	0.035
4	Management Utility (Decision Support) for the Refuge	0.117	0.058
5	FWS Program Need	0.041	-0.018
6	FWS Partner Need	0.047	-0.012
7	Listed Species or Vegetation Communities	0.093	0.035
8	Controversy	0.058	0.000
9	Threat	0.058	0.000
10	Baseline Data	0.064	0.005
11	Attribute Quality and Scope	0.006	-0.053
12	Sampling Design Stage	0.023	-0.035
13	Field Methods Stage	0.023	-0.035
14	Data Management, Analysis, and Reporting	0.012	-0.047
15	Monetary	0.001	-0.058
16	Personnel	0.082	0.023
17	Security/Source of Funding	0.070	0.011

## Appendix B. Prioritization Scores of All Ranked Surveys

The surveys likely to be conducted through 2029 at Morris Wetland Management District were prioritized using a SMART tool (Appendix A). The resulting survey priority scores were a starting point for assigning surveys into one of four tiers. The tiers also incorporate information from a cost-benefit analysis and information from Morris WMD staff about the timing and flexibility of each survey (Appendix E).

**Table B1. Survey tiers and selection status of 29 candidate surveys assessed for Morris WMD.**

Survey Name	Tier <sup>1</sup>	PRIMR Survey Priority	PRIMR Selection Status	SMART Tool Prioritization Score
Native Prairie Adaptive Management	A	1	Current	0.787
Native Prairie Remnant Inventory	B	2	Current	0.758
Evaluation of Methods for Canada Thistle-Free Habitat Restoration	A	3	Current	0.752
Grassland Monitoring Team	A	4	Current	0.748
Sediment Removal in Wetland Restorations	A	5	Current	0.679
Prairie Reconstruction and Interseeding Monitoring	B	6	Current	0.674
Prairie Obligate Butterfly Surveys	A	7	Current	0.672
Wetland Class/Condition Baseline Inventory	B	8	Current	0.668
Grassland Bird Inventory	A	9	Current	0.668
Four-square-mile Breeding Waterfowl Survey	A	10	Current	0.643
Grazing Effects Rapid Assessment	B	11	Expected	0.616
Glacial Lake Overspray Monitoring	A	12	Current	0.572
Wetland Resources Long-Term Monitoring	A	13	Current	0.553
Wild Rice Monitoring	B	14	Current	0.533
Breeding Bird Survey	B	15	Current	0.483
Colonial Waterbird Surveys	B	16	Current	0.464
Darnen WPA Water Quality Monitoring	B	17	Current	0.445
Water Level Monitoring (Managed Wetlands)	B	18	Current	0.445
Waterfowl Nest Structure Use Monitoring	B	19	Current	0.424
Relocating Greater Prairie Chickens to West-Central MN	A	20	Current	0.356
American Woodcock Singing-ground Survey	C	21	Current	0.358
North American Amphibian Monitoring Program	C	22	Current	0.323
Audubon's Christmas Bird Count	C	23	Current	0.265
Invasive Species Management Monitoring	D	24	Future	0.649
Managing Temporary and Seasonal Wetlands	D	25	Expected	0.584
Contaminant Effects on Wetland Invertebrates	D	26	Expected	0.548
Baseline Wildlife Inventories	D	27	Expected	0.419
Integrated Waterbird Management and Monitoring Initiative	NA	28	Not selected	0.503
Mourning Dove Banding	NA	29	Not selected	0.310

<sup>1</sup> A – Highest priority surveys that can be conducted with existing staffing and funding

B – Surveys that are high priority and can be conducted with current resources, but that could be reduced in effort or eliminated if resources change

C – Surveys that are secondary priority but require minimal resources; these would be eliminated first if resources declined

D – Surveys that would only be added if additional resources become available (new staff, other surveys end)

## Appendix C. Non-selected Surveys

A status of future denotes surveys that have been prioritized but have low chance of being conducted during the span of the IMP because of low priority or because the capacity to conduct the survey will be difficult to secure. Historic status surveys have been recently completed or discontinued.

**Table C1. Non-selected surveys.**

<b>Survey Name</b>	<b>PRIMR Survey Priority</b>	<b>PRIMR Selection Status</b>
Enhancing our Prairies - Effects of Tree Removal on Grassland Birds	NA	Historic
Fire Effects Monitoring	NA	Historic
Five-lined Skink Surveys	NA	Historic
Hostile Habitat Removal and Duck Nest Success	NA	Historic
Integrated Waterbird Management and Monitoring Initiative	28	Historic
Invasive Species Management Monitoring	24	Future
Late Season Prescribed Fire Monitoring	NA	Historic
Mourning Dove Banding	29	Historic
National Marsh Bird Monitoring and Research Program	NA	Historic
Predator/Furbearer Scent Station Survey (MN DNR)	NA	Historic
Prescribed Grazing Effects on Remnant Prairie	NA	Historic



## Appendix D. Environmental Action Statement (EAS)

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) (40 CFR 1500-1508), and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and determined that the following proposed action does not require additional NEPA documentation.

### Proposed Action, Alternatives, and NEPA Documentation

The proposed action is to implement an Inventory and Monitoring Plan (IMP) for the Morris Wetland Management District. This IMP is a refinement of the 2003 Comprehensive Conservation Plan (CCP) and associated Environmental Assessment (EA) for the District. This IMP provides more-specific guidance for surveys of Morris Wetland Management District's fish, wildlife, plant, habitat, and abiotic resources to fulfill the District's purposes and help achieve the District's goals and objectives.

The EA for Morris Wetland Management District's CCP included goals and objectives for the District and assessed the impacts associated with a range of reasonable alternatives to achieve those goals and objectives. The rationale for selection of one specific alternative for implementation is explained in the Finding of No Significant Impact (FONSI) accompanying the final CCP. The goals, objectives, and survey strategies included in this IMP fall within the bounds of those described and assessed in the CCP and EA.

Pursuant to 40 CFR 1502.9, no additional NEPA documentation is required to implement this IMP beyond the EA and FONSI prepared concurrently with the CCP. No substantial changes to the proposed action alternative that was identified, analyzed, and selected for implementation within the CCP, EA, and FONSI are proposed through this IMP. Similarly, no significant new information or circumstances exist relevant to environmental concerns and bearing on the proposed action or its impacts.

In accordance with 43 CFR 46.205 and 40 CFR 1508.4, some surveys within this IMP are covered by the following Departmental categorical exclusion because they would not have significant environmental effects.

"Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources which involve negligible animal mortality or habitat destruction, no introduction of contaminants, or no introduction of organisms not indigenous to the affected ecosystem." 516 DM 8.5B(1)

**Reference:** U.S. Fish and Wildlife Service. 2003. Morris Wetland Management District Comprehensive Conservation Plan and Environmental Assessment. USFWS Region 3. Bloomington, MN.

## Appendix E. Survey Timing and Schedule

In addition to the SMART prioritization process (Appendix A), Morris WMD staff also incorporated information about the schedule, frequency, and flexibility into the decision about which surveys to select for inclusion in the IMP. It is possible to efficiently plan when surveys will be conducted within the 15-year IMP timeframe by staggering surveys that occur periodically or waiting to start new surveys until others are ended (see Table E1). Additionally, this plan is in keeping with the survey weeks available in the recent history of Morris WMD (Table E2). The survey tiers in Appendix B will be used to adjust which surveys are removed if staffing or other resource levels change. Available staff time could range from 34 weeks (only the biologist and biological science technician are available to conduct surveys) to 63 weeks (the biologist and biological technician are joined by other permanent staff and two temporary technicians, which has been the norm in recent years).

**Table E1. Survey flexibility/timing of surveys considered for inclusion in Morris WMD's IMP.**

Survey Name	Start Year	End Year	Survey Frequency	Survey Flexibility
Native Prairie Adaptive Management	current	TBD	Annual	# of units
Native Prairie Remnant Inventory	current	2020	Annual	frequency and/or # WPAs
Evaluation of Methods for Canada Thistle-Free Habitat Restoration	current	TBD	10 year intervals	none
Grassland Monitoring Team	current	TBD	Annual	# of units
Sediment Removal in Wetland Restorations	current	TBD	Annual	# of new wetlands
Prairie Reconstruction and Interseeding Monitoring	current	TBD	Annual	frequency and/or # WPAs
Prairie Obligate Butterfly Surveys	current	TBD	5 year intervals	none
Wetland Class/Condition Baseline Inventory	current	2020	Annual	frequency and/or # WPAs
Grassland Bird Inventory	current	2015	Annual	none
Four-square-mile Breeding Waterfowl Survey	current	TBD	Annual	none
Grazing Effects Rapid Assessment	2015	TBD	Annual	frequency and/or # WPAs
Glacial Lake Overspray Monitoring	current	2015	Annual	none
Wetland Resources Long-Term Monitoring	current	TBD	Annual	frequency
Wild Rice Monitoring	current	TBD	Annual	frequency and/or # WPAs
Breeding Bird Survey	current	TBD	Annual	# of routes
Colonial Waterbird Surveys	current	TBD	5 year intervals	time committed to searches
Darnen WPA Water Quality Monitoring	current	TBD	5 year intervals	none
Water Level Monitoring (Managed Wetlands)	current	TBD	Annual	frequency and/or # WPAs
Waterfowl Nest Structure Use Monitoring	current	TBD	Annual	frequency
Relocating Greater Prairie Chickens to West-Central MN	current	2016	Annual	none
American Woodcock Singing-ground Survey	current	TBD	Annual	# of routes
North American Amphibian Monitoring Program	current	TBD	Annual	# of routes
Audubon's Christmas Bird Count	current	TBD	Annual	more volunteers
Invasive Species Management Monitoring	TBD	TBD	Annual	frequency and/or # WPAs
Managing Temporary and Seasonal Wetlands	2015	2017?	Annual	none
Contaminant Effects on Wetland Invertebrates	2016	2018	Annual	frequency and/or # WPAs
Baseline Wildlife Inventories	2020	TBD	Annual	# of taxa
Integrated Waterbird Management and Monitoring Initiative	n/a	n/a	Annual	# of wetlands
Mourning Dove Banding	n/a	n/a	Annual	none

**Table E2. Staff time (weeks) required for surveys considered for inclusion in Morris WMD's IMP.**

Survey Name	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Native Prairie Adaptive Management	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Native Prairie Remnant Inventory	4.7	4.7	4.7	4.7	4.7	4.7	0	0	0	0	0	0	0	0	0
Evaluation of Methods for Canada Thistle-Free Habitat Restoration	2.4	0	0	0	0	0	0	0	0	0	2.4	0	0	0	0
Grassland Monitoring Team	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Sediment Removal in Wetland Restorations	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Prairie Reconstruction and Interseeding Monitoring	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Prairie Obligate Butterfly Surveys	0	1.2	0	0	0	0	1.2	0	0	0	0	1.2	0	0	0
Wetland Class/Condition Baseline Inventory	6.6	6.6	6.6	6.6	6.6	6.6	0	0	0	0	0	0	0	0	0
Grassland Bird Inventory	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Four-square-mile Breeding Waterfowl Survey	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Grazing Effects Rapid Assessment	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Glacial Lake Overspray Monitoring	3.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wetland Resources Long-Term Monitoring	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7
Wild Rice Monitoring	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Breeding Bird Survey	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Colonial Waterbird Surveys	0	0	2.5	0	0	0	0	2.5	0	0	0	0	2.5	0	0
Darnen WPA Water Quality Monitoring	0	0	0	1.2	0	0	0	0	1.2	0	0	0	0	1.2	0
Water Level Monitoring (Managed Wetlands)	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Waterfowl Nest Structure Use Monitoring	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Relocating Greater Prairie Chickens to West-Central MN	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
American Woodcock Singing-ground Survey	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
North American Amphibian Monitoring Program	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Audubon's Christmas Bird Count	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Invasive Species Management Monitoring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Managing Temporary and Seasonal Wetlands	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Contaminant Effects on Wetland Invertebrates	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0

<b>Survey Name</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
Baseline Wildlife Inventories	0	0	0	0	0	5	5	5	5	5	5	5	5	5	5
Integrated Waterbird Management and Monitoring Initiative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mourning Dove Banding	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Weeks Needed:</b>	<b>63.4</b>	<b>59.9</b>	<b>60.2</b>	<b>57.9</b>	<b>55.7</b>	<b>60.7</b>	<b>50.6</b>	<b>51.9</b>	<b>50.6</b>	<b>49.4</b>	<b>51.8</b>	<b>50.6</b>	<b>51.9</b>	<b>50.6</b>	<b>49.4</b>
<b>Total Number of Surveys Conducted:</b>	<b>21</b>	<b>20</b>	<b>19</b>	<b>18</b>	<b>16</b>	<b>17</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>15</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>15</b>

## Appendix F. Estimated Annual Cost for Implementing Surveys.

(Historic surveys are excluded, total cost includes operating and staff time costs).

Survey Name	PRIMR Survey Priority	PRIMR Survey Status	FWS Staff Total	Total Cost
Native Prairie Adaptive Management	1	Current	\$4,238.00	\$4,338.00
Native Prairie Remnant Inventory	2	Current	\$6,549.00	\$6,749.00
Evaluation of Methods for Canada Thistle-Free Habitat Restoration	3	Current	\$1,290.00	\$1,490.00
Grassland Monitoring Team	4	Current	\$4,054.00	\$4,154.00
Sediment Removal in Wetland Restorations	5	Current	\$2,034.00	\$2,134.00
Prairie Reconstruction and Interseeding Monitoring	6	Current	\$3,665.00	\$3,765.00
Prairie Obligate Butterfly Surveys	7	Current	\$1,878.00	\$3,878.00
Wetland Class/Condition Baseline Inventory	8	Current	\$6,081.00	\$6,281.00
Grassland Bird Inventory	9	Current	\$1,878.00	\$1,878.00
Four-square-mile Breeding Waterfowl Survey	10	Current	\$8,543.00	\$8,843.00
Grazing Effects Rapid Assessment	11	Expected	\$4,543.00	\$4,743.00
Glacial Lake Overspray Monitoring	12	Current	\$3,916.00	\$3,966.00
Wetland Resources Long-Term Monitoring	13	Current	\$5,007.00	\$5,507.00
Wild Rice Monitoring	14	Current	\$3,376.00	\$3,476.00
Breeding Bird Survey	15	Current	\$1,408.00	\$1,508.00
Colonial Waterbird Surveys	16	Current	\$2,303.00	\$2,503.00
Darnen WPA Water Quality Monitoring	17	Current	\$1,106.00	\$1,306.00
Water Level Monitoring (Managed Wetlands)	18	Current	\$6,850.00	\$7,150.00
Waterfowl Nest Structure Use Monitoring	19	Current	\$6,720.00	\$6,720.00
Relocating Greater Prairie Chickens to West-Central MN	20	Current	\$2,700.00	\$2,800.00
American Woodcock Singing-ground Survey	21	Current	\$783.00	\$883.00
North American Amphibian Monitoring Program	22	Current	\$1,022.00	\$1,222.00
Audubon's Christmas Bird Count	23	Current	\$1,409.00	\$1,509.00
Invasive Species Management Monitoring	24	Future	\$9,521.00	\$10,021.00
Managing Temporary and Seasonal Wetlands	25	Expected	\$2,932.00	\$3,032.00
Contaminant Effects on Wetland Invertebrates	26	Expected	\$5,620.00	\$20,620.00
Baseline Wildlife Inventories	27	Expected	\$5,250.00	\$10,250.00
Total for selected (current and expected surveys):			\$95,155.00	\$120,705.00
Total for future surveys:			\$9,521.00	\$10,021.00

## Appendix G. Estimated Annual Work Schedule for Selected Surveys, January – December.

This table shows the estimated work schedule for each selected survey. Some tasks are completed by partners. See Appendix E for more information about how frequently each survey is conducted and the amount of station staff time required to complete the survey.

Survey Name	PRMR Survey Priority	January- March	April- June	July- September	October- December
Native Prairie Adaptive Management	1		T	FW, DE, A	R
Native Prairie Remnant Inventory	2	P		FW, DE	DE, A, R
Evaluation of Methods for Canada Thistle-Free Habitat Restoration*	3	P, R		FW, DE	A
Grassland Monitoring Team	4		T	FW, DE	A, R
Sediment Removal in Wetland Restorations	5		FW	DE	A, R
Prairie Reconstruction and Interseeding Monitoring	6	P	T	FW, DE	DE, A, R
Prairie Obligate Butterfly Surveys*	7	A, R	FW	FW, DE	P
Wetland Class/Condition Baseline Inventory	8	P	T, FW, DE	DE	A, R
Grassland Bird Inventory	9		FW	DE, A	R
Four-square-mile Breeding Waterfowl Survey	10		FW, DE	A, R	
Grazing Effects Rapid Assessment	11	A, R, P	T, FW	FW, DE	FW, DE
Glacial Lake Overspray Monitoring	12	A, R, P		FW	DE
Wetland Resources Long-Term Monitoring	13	A, R	T, FW, DE	FW, DE	DE, P
Wild Rice Monitoring	14	A, R, P		T, FW	FW, DE
Breeding Bird Survey	15	R	FW	DE	A
Colonial Waterbird Surveys*	16	P	FW	FW, DE	A, R
Darnen WPA Water Quality Monitoring*	17		FW	FW, DE	A, R
Water Level Monitoring (Managed Wetlands)	18	A, R, P	FW, DE	FW, DE	FW, DE
Waterfowl Nest Structure Use Monitoring	19	FW, DE			A, R, P
Relocating Greater Prairie Chickens to West-Central MN	20	FW	FW, DE		A, R
American Woodcock Singing-ground Survey	21		FW, DE		A, R
North American Amphibian Monitoring Program	22		FW	DE	A, R
Audubon's Christmas Bird Count	23	A, R			FW, DE
Invasive Species Management Monitoring	24	A, R, P	T, FW, DE	FW, DE	FW, DE
Managing Temporary and Seasonal Wetlands	25	A, R	T, FW, DE	DE	P
Contaminant Effects on Wetland Invertebrates	26	A, R	T, FW, DE	FW, DE	P
Baseline Wildlife Inventories	27	A, R	T, FW, DE	FW, DE	FW, DE, P

P=Planning, T=Training, FW=Field Work, DE=Data Entry, A=Analysis, R=Reporting

\*Denotes Inventory or Monitoring conducted at 2-20 year intervals (not annual work).

## IMP Revision Signature Page

### IMP Revisions Morris Wetland Management District

<i>Action</i>	<i>Signature /Printed Name</i>	<i>Date</i>
Survey list and priority changed:		
Submitted By:	Refuge Manager/Project Leader	
Reviewed By:	Regional I&M Coordinator	
Approved By:	Refuge Supervisor	