United States Department of Agriculture

Natural Resources Conservation Service

CONSERVATION PLAN

GRAND TRAVERSE REGIONAL LAND CONSERVANCY

Amended Conservation Plan
Pages 1-5
5/18/2023
Jason M. Kimbrough, NRCS DC

JASON KIMBROUGH
TRAVERSE CITY, MICHIGAN
(231) 941-0951
jason.kimbrough@usda.gov
2/3/2023

TRAVERSE CITY SERVICE CENTER
1501 S CASS ST STE A
TRAVERSE CITY, MI 49684-4187
(231) 941-0951

Conservation Plan

GRAND TRAVERSE REGIONAL LAND CONSERVANCY
3860 N LONG LAKE RD STE D
TRAVERSE CITY, MI 49684

Install the conservation practices, enhancements, and activities according to the implementation requirements, designs, construction plans, or other documents that facilitate meeting the applicable NRCS technical criteria. If you do not have such information, contact your local office before starting to install your conservation practices, enhancements, and activities.

Conservation Cover (327)

General Cover - Establish and/or maintain permanent vegetation to reduce wind and water erosion, delivery of sediment to surface water, to reduce particulate matter and precursors, and reduce greenhouse gases.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
5914	1	5.0 Ac	11	2023	--	--
6562	1	24.0 Ac	11	2023	--	--
6565	1	10.5 Ac	11	2023	--	--
6563	1	26.0 Ac	11	2025	--	--
6564	1	5.0 Ac	11	2024	--	--
6565	3	6.5 Ac	11	2024	--	--
6566	2	11.0 Ac	11	2024	--	--
Total:	--	88.0 Ac	--	--	--	--

Tree/Shrub Establishment (612)

Natural Regeneration - Establish, restore or enhance woody plant communities through natural regeneration methods.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6566	2	4.0 Ac	05	2024	--	--
Total:	--	4.0 Ac	--	--	--	--

CERTIFICATION OF PARTICIPANTS

GRAND TRAVERSE REGIONAL LAND CONSERVANCY	DATE

CERTIFICATION OF:

CERTIFIED PLANNER	DATE

PUBLIC BURDEN STATEMENT

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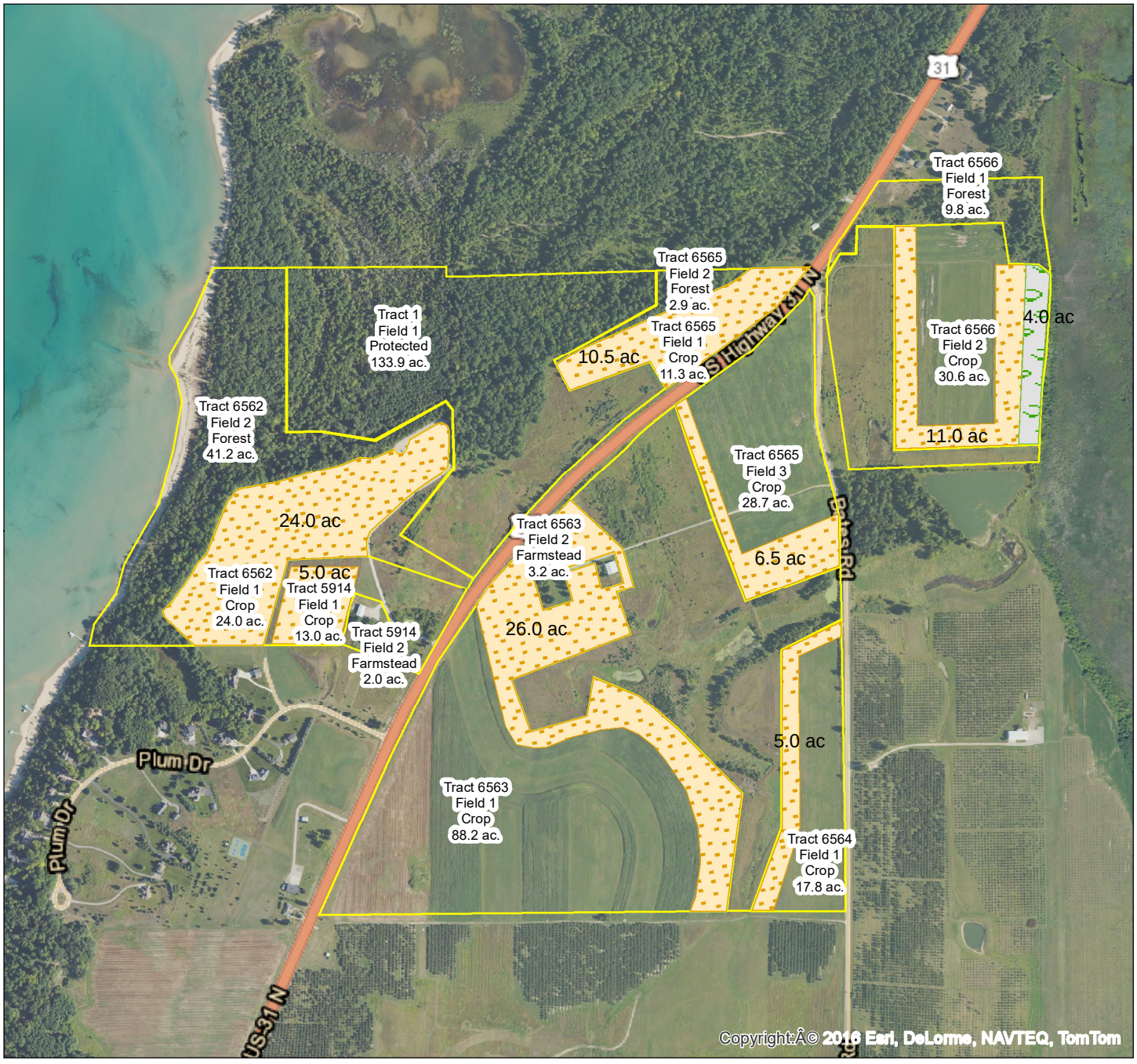
Washington, DC 20250-9410
Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender. Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

Date: 2/3/2023

Conservation Plan Map

Client(s): GRAND TRAVERSE REGIONAL LAND CONSERVANCY
Location: T28N, R09W, Sections 5,6,7
Grand Traverse County, Michigan

Assisted By: JASON KIMBROUGH
USDA Natural Resources Conservation Service
TRAVERSE CITY SERVICE CENTER
GRAND TRAVERSE CONSERVATION DISTRICT



Prepared with assistance from USDA-Natural Resources Conservation Service

0 958
Feet

Conservation Practice Polygons

- Conservation Cover (327)
- Tree/Shrub Establishment (612)
- Practice Schedule PLUs

N

USDA

TRAVERSE CITY SERVICE CENTER
1501 S CASS ST STE A
TRAVERSE CITY, MI 49684-4187
2319410951 ext. 3

DJ SHOOK
FISH, WILDLIFE, AND SOIL CONSERVATIONIST

Conservation Plan

GRAND TRAVERSE COUNTY REGISTER OF DEEDS
400 BOARDMAN AVE
TRAVERSE CITY, MI 49684

Conservation Crop Rotation(328)

Grow crops in a planned rotation for biodiversity and to provide adequate amounts of organic material for erosion reduction, nutrient balance and sustained soil organic matter. Fields may be broken into sub-fields containing different crops in different stages of the rotation. This practice will be considered implemented when all of the sub-fields currently planted to annual crops within any particular field are planted to hay.

The following rotation(s) are planned for the designated fields:
Tracts 6562 - Field 2; Tract 6565 - Fields 1,2,3,&4; Tract 6563 - Fields 1,2,&3; Tract 6564 - Field 1; Tract 6566 - Field 2; - Rotation: 8 years alfalfa, 3 years corn, 1 year oats, 3 years corn, 1 year oats

Crop Substitutions - weather and other natural causes may require a change in crop rotation for one year.
The following crops may be substituted for one another:
Alfalfa or Alfalfa-grass mix for Cool Season Grasses
Corn for Sunflower
Oats for Wheat

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6562	2	24.3 ac	6	2018		
6563	1	10.1 ac	6	2018		
6563	2	36.1 ac	6	2018		
6563	3	24. ac	6	2018		
6564	1	15.9 ac	6	2018		
6565	1	11.5 ac	6	2018		
6565	2	7.6 ac	6	2018		
6565	3	9. ac	6	2018		
6565	4	8.1 ac	6	2018		
6566	2	29.3 ac	6	2018		
	Total:	175.9 ac				

~~**Field Border(386)**~~

Establish field borders where shown on the plan map. Establish the field borders with perennial vegetation. Seed Orchard grass @ 15 Lbs./ac during the period of May 1 to June 15 or the period of August 1 to September 20,

Seedbed preparation: Till the soil in the spring of the year of planting. Prepare a firm, level seedbed free of plant residue prior to planting.

Fertilizer Application:
Fertilize according to the most recent applicable soil test results. If no soil test is available then apply 50 Lbs of Nitrogen/Acre, plus 50 Lbs of Phosphorus (P2O5)/Acre, plus 50 Lbs of Potash (K2O)/Acre.

Operation and Maintenance:
Repair storm damage.

Due to the removal of 45% of the Ag land from production over the next 3 years, the Conservation Plan Requirement for Field Border is no longer necessary.
Jason M Kimbrough, NRCS DC, 5/18/2023

Remove sediment from above or within the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species' survival.

Shut off sprayers and raise tillage equipment to avoid damage to field borders.

Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic. Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, and controlling noxious weeds to sustain effectiveness of the border. Do not mow the field border more than once every two years. Do not mow the field border during the period of May 27th to August 8th.

Repair and reseed ephemeral gullies and rills that develop in the border.

Avoid vehicle traffic when soil moisture conditions are saturated.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6563	1	2.1 ac	6	2018		
6563	2	2.9 ac	6	2018		
6563	3	4.3 ac	6	2018		
6563	3	0.7 ac	6	2018		
6565	1	0.6 ac	6	2018		
6565	2	1.5 ac	6	2018		
6565	3	1.3 ac	6	2018		
6565	4	1. ac	6	2018		
6566	2	1.4 ac	6	2018		
	Total:	15.8 ac				

Integrated Pest Management(595)

Implement a written site specific Integrated Pest Management Plan to mitigate potential adverse impacts of pesticide use using a combination of management and conservation practices, while meeting landowner objectives for plant production. The plan will address water quality (surface and groundwater), air quality (drift) and protection of pollinators and other beneficial insects.

Specifications include site-specific information (an engineering design, job sheet, etc.) describing installation, operation, and maintenance of this practice to meet current NRCS standards and specifications at the time of installation. Practice implementation should not begin until you have received this detailed information. If applying for financial assistance, do not begin installation until notified by NRCS.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6562	2	24.3 ac	6	2018		
6563	1	10.1 ac	6	2018		
6563	2	36.1 ac	6	2018		

6563	3	24. ac	6	2018		
6564	1	15.9 ac	6	2018		
6565	1	11.5 ac	6	2018		
6565	2	7.6 ac	6	2018		
6565	3	9. ac	6	2018		
6565	4	8.1 ac	6	2018		
6566	2	29.3 ac	6	2018		
	Total:	175.9 ac				

Nutrient Management(590)

Implement a written site specific Nutrient Management Plan that minimizes potential offsite movement of nutrients, properly utilizes manure or organic byproducts, maintains or improves soil health, and protects air quality while meeting landowner objectives for plant production.

Specifications include site-specific information (an engineering design, job sheet, etc.) describing installation, operation, and maintenance of this practice to meet current NRCS standards and specifications at the time of installation. Practice implementation should not begin until you have received this detailed information. If applying for financial assistance, do not begin installation until notified by NRCS.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6562	2	24.3 ac	6	2018		
6563	1	10.1 ac	6	2018		
6563	2	36.1 ac	6	2018		
6563	3	24. ac	6	2018		
6564	1	15.9 ac	6	2018		
6565	1	11.5 ac	6	2018		
6565	2	7.6 ac	6	2018		
6565	3	9. ac	6	2018		
6565	4	8.1 ac	6	2018		
6566	2	29.3 ac	6	2018		
	Total:	175.9 ac				

Upland Wildlife Habitat Management(645)

Create, maintain or enhance area(s) to provide upland wildlife food and cover.

In aggregate of all of the fields listed below, at the end of each crop year leave 10 acres unharvested grain to provide over-winter food for wildlife. For example, 10 acres may be left un-harvested in one field with no acres left unharvested in the other fields. The 10 acres may also be split amongst fields. Do not position the unharvested crops immediately adjacent to US-31.

To allow grassland birds to complete one nesting cycle, and improve the survivability of rabbits and fawns, delay mowing of hay fields until July 1st. If field surveys, performed by local conservation-based organizations, indicate that onsite nesting birds have not finished their first nesting cycle by July 1st, delay mowing until July 15th.

When mowing hayfields, do not mow the hayfields in the dark, mow the hayfields at a slower speed, and do not mow the field from the perimeter to the center - instead begin mowing by creating turning lanes at either end of the field. Then start mowing strips in the center of the field working towards undisturbed cover. Do not work towards a field border along a road. If a road boarders a field, begin mowing from the edge of the field boarder along the road towards undisturbed cover on the other side of the field.

Tract	Field	Planned Amount	Month	Year	Applied Amount	Date
6562	2	24.3 ac	6	2018		
6563	1	12.2 ac	10	2018		
6563	2	40.4 ac	10	2018		

6563	3	24.7 ac	10	2018		
6564	1	18.8 ac	10	2018		
6565	1	12.1 ac	10	2018		
6565	2	9.1 ac	10	2018		
6565	3	10.3 ac	10	2018		
6565	4	9.1 ac	10	2018		
6566	2	30.7 ac	10	2018		
	Total:	191.7 ac				

CERTIFICATION OF PARTICIPANTS

_____ _____
GRAND TRAVERSE COUNTY REG DATE

_____ _____
FARMLAND OPERATOR DATE

CERTIFICATION OF:

FISH, WILDLIFE, AND SOIL CONSERVATIONIST

_____ _____
DJ SHOOK DATE

SENIOR CONSERVATION PROJECT MANAGER

_____ _____
VIC LANE DATE

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Washington, DC 20250-9410

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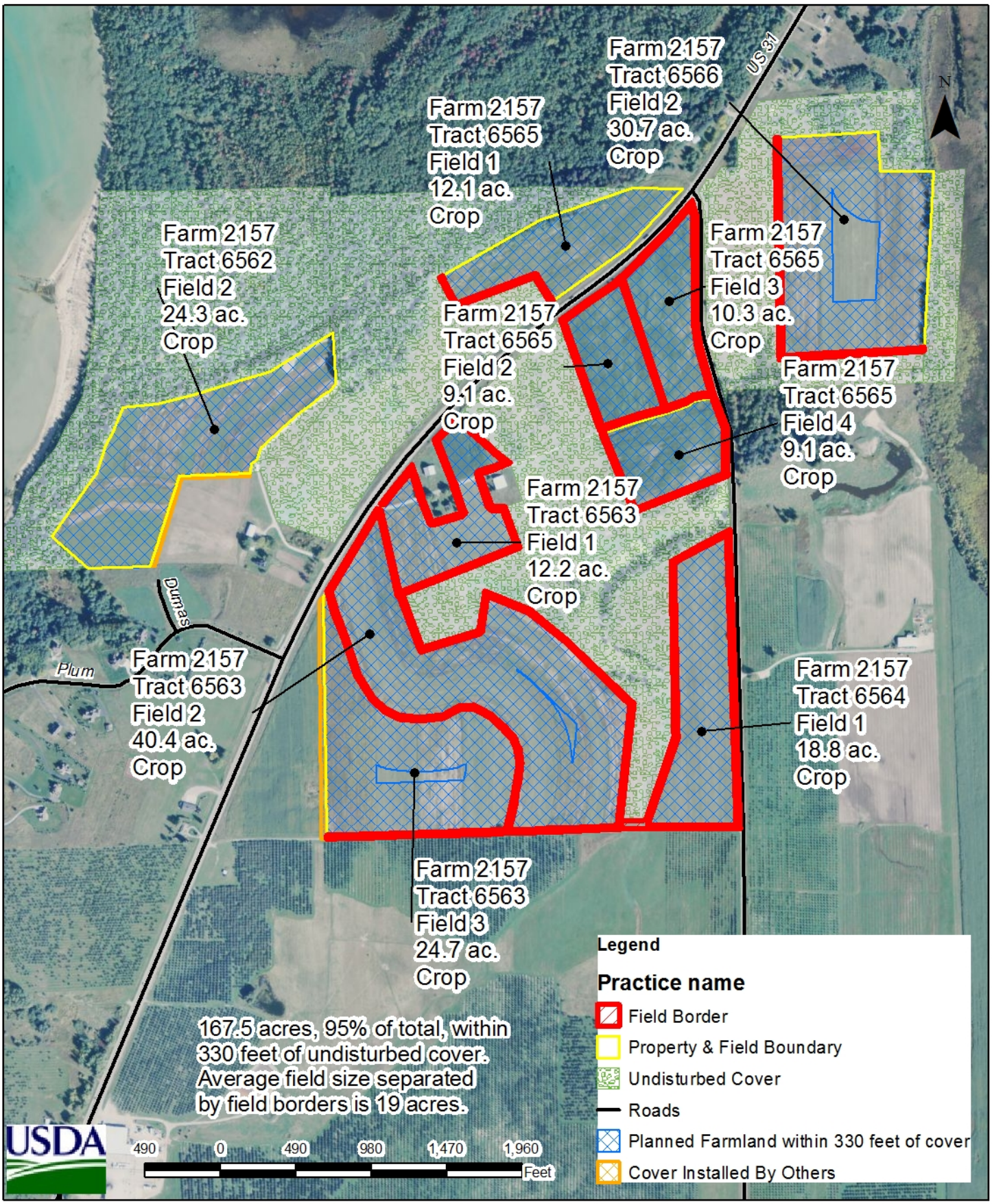
Conservation Plan Map

Date: 4/20/2018

Customer(s): GRAND TRAVERSE COUNTY REGISTER OF DEEDS
District: GRAND TRAVERSE CONSERVATION DISTRICT
Approximate Acres: 191.7
Legal Description: Acme Township; 28N-09W; Sections 5, 6, 7

Field Office: TRAVERSE CITY SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Donald Shook
State and County: Grand Traverse County, Michigan



Upland Wildlife Habitat Management Plan

Agricultural Portions of the Maple Bay Park & Natural Area

Grand Traverse County, Michigan

Version: 4/20/2015

By: DJ Shook, Grand Traverse Band of Ottawa and Chippewa Indians

Summary and Purpose:

This upland wildlife habitat management plan is the primary component of a conservation plan for the agricultural portions of the Maple Bay Park & Natural Area. Grand Traverse County owns the 450-acre Maple Bay Park & Natural Area. The property contains active agricultural land, wetlands, and woodlands. A portion of the property is protected from development by an Agricultural Conservation Easement Program (former Wetland Reserve Program) Wetland Reserve Easement. Approximately 191.7 acres of this property is actively farmed and is the focus of this upland wildlife habitat management plan. Consideration, of the undisturbed cover and habitat components contained in the non-farmed acreage of the property is incorporated into this plan however. Directly to the east of one of the fields that is farmed is a State Game Area and consideration of this undisturbed cover is also incorporated into this plan as well.

This plan was requested by staff from Grand Traverse Regional Land Conservancy (GTRLC) on behalf of Grand Traverse County Parks and Recreation. The request for the plan was directed to the Traverse City Field Office of the Natural Resources Conservation Service (NRCS). The Grand Traverse Band of Ottawa and Chippewa Indians (GTB) Natural Resources Department (NRD) partners with NRCS through the Traverse City Field Office to collaboratively implement conservation practices that benefit fish and wildlife specifies that are reserved for Tribal citizens for subsistence and cultural purposes through the 1836 Treaty of Washington Ceded Territory. The Maple Bay Park & Natural Area is home to a species of grassland bird, Bobolink, *Dolichonyx oryzivorus.* Since the middle of the last century, Bobolinks and other grassland bird species, collectively have suffered the most severe population declines of any other North American birds due to the enormous loss and fragmentation of their required habitat. The hay fields contained in the agricultural portion of the Maple Bay Park & Natural Area have the potential to provide nesting and feeding habitat for Bobolinks and other grassland bird species. GTRLC is a local leader in promoting conservation and has determined that the local agricultural community would benefit from a demonstration farm where sustainable agricultural production coincides with regional wildlife and recreation values. The Grand Traverse County Parks and Recreation Department does not have sufficient funding to support the establishment and long term management of herbaceous native grassland species at this site. Without active management, the site would eventually revert to a Northern Harwood Forest which would not be suitable habitat for the Bobolink or other grassland bird species, therefore, the continuation of agricultural activities is being pursued as a primary objective of this 191.7 acres as long as those activities are done in a sustainable fashion as well as in a way that benefits local wildlife species.

The objective of this Upland Wildlife Habitat Management Plan is to describe actions or changes to the farming practices that will be implemented to benefit wildlife species in general and specifically grassland bird species. In addition to the actions or changes to the farming practices, facilitating conservation practices are needed to fully implement this Upland Wildlife Habitat Management Plan. This Upland Wildlife Habitat Management Plan will list the facilitating practices and describe how they are integrated to support the Upland Wildlife Habitat Management Plan.

Required Permits:

There are no required permits to implement this Upland Wildlife Habitat Management Plan and the facilitating conservation practices.

List of Facilitating Practices:

This section will list the facilitating practices and describe how they are integrated to support the Upland Wildlife Habitat Management Plan. Additional information is provided as to the specifications of how each of these facilitating conservation practices needs to be implemented in separate job sheets – one job sheet for each facilitating practice.

Conservation Crop Rotation (328) – While this practice significantly adds to the sustainability of the farming operation it is also needed to ensure that hay is at least fifty percent of the crop rotation so that grassland birds are able to utilize the hay land for nesting and other wildlife species are able to utilize the hay land as cover for their young. It is also important that the rotation leaves the hay in place for at least three years, the hay is a composition of grasses and legumes, and no more than one cutting of hay occurs each year.

Field Border (386) – Field borders consisting of perennial herbaceous species that provide wildlife cover are needed throughout the agricultural portion of the Maple Bay Park and Natural Area to reduce the amount of land that is greater than 300 feet from undisturbed cover. Herbaceous vegetation is needed in lieu of trees and shrubs because trees and shrubs would provide cover for predators to grassland birds and reduce the overall habitat quality for the Bobolink.

Inventories and Analyses:

This section will list and describe the inventories and analyses that were performed pertaining to the Upland Wildlife Habitat Management conservation practice standard for the development of this Upland Wildlife Habitat Management Plan.

Site Visits, Partner Meetings, and Photo Documentation - In 2015, a meeting was held including the following people: Jason Kimbrough – NRCS, DJ Shook - GTB NRD, Kristine Erickson – GT County Parks & Rec, Paul – GT County, Vic Lane – GTRLC, Steve Lagerquist - GTRLC, Nate Richardson – GTRLC. At this meeting it was communicated that GTRLC staff have identified this farm and the surrounding areas as quality habitat for Bobolinks. It was also indicated that the land is leased to a local farmer on a year-to-year basis and therefore the same crops have been grown in the same spot for quite some time. In addition, a preliminary version of the Michigan NRCS Biology Technical Note #12 – Wildlife Habitat Evaluation Procedure was performed. Note: this wildlife habitat evaluation was later refined, a copy of which is included later in this section.

Site visits by NRCS staff and GTB NRD staff have confirmed the presence of the Bobolink, however, no usable photos were able to be obtained to document its presence. Photo documentation has been collected by the Traverse City NRCS field office during wetland reserve easement monitoring site visits on the adjacent wetland reserve easement. A selection of these photos are included below:

Photo 1: Representative edge of field photo. A field border along this edge will increase the grassland bird nesting habitat and reduce the possibility of the agricultural activity encroaching onto the wetland easement. Open water occurs in numerous locations within the easement.

Photo 2: Sand Hill Cranes, in the distance, utilizing the farm fields.

In 2016, a meeting was held including the following people: Jason Kimbrough – NRCS, Jerry Grigar – NRCS, DJ Shook - GTB NRD, Kristine Erickson – GT County Parks & Rec, Vic Lane – GTRLC, Send Brothers – Current Land Operator. At this meeting a conservation plan alternative was reviewed and the initial version of the wildlife habitat evaluation was reviewed. It was indicated that the Send Brothers had farmed the site for ten consecutive years, they typically till all of the fields in the spring, and they typically mix in some acres of a small grain (oats or wheat) into the non-hay acres. Modifications to the conservation plan alternative were requested, including increasing the proposed field size between field borders shooting for an average of 20 acres per field.

Michigan NRCS Biology Technical Note #12 – Wildlife Habitat Evaluation Procedure - As mentioned above, in 2015, this evaluation was initiated including the following people: Jason Kimbrough – NRCS, DJ Shook - GTB NRD, Kristine Erickson – GT County Parks & Rec, Paul – GT County, Vic Lane – GTRLC, Steve Lagerquist - GTRLC, Nate Richardson – GTRLC. Since that meeting this evaluation has been update to reflect new information obtained from the farmer who has been operating the agricultural land as well as a Geographical Informational System (GIS) spatial analysis performed by GTB NRD staff using USDA-NRCS equipment and data. The applicable sheets from that evaluation are copied below as well as a map and a table that describes how the field sizes were calculated for the existing conditions of the wildlife habitat evaluation.

MICHIGAN HABITAT INDEX WORKSHEET

CROPLAND[1]

Participant Grand Traverse County Tract No. 6562-6566 Date 04-12-2018 Field No. All

Observer DJ Shook, NRCS field staff, GTRLC staff, and GT County Parks & Rec staff Acres 191.7

CROPLAND HABITAT INDEX	POINTS	EXISTING	PLANNED
1. Average Field Size[2] - Separated by hedgerows or field borders (minimum 25 feet wide)			
< 10 acres	10		
10-40 acres	7		7
40.1-60 acres	3		
60.1-80 acres	1		
> 80.1 acres	0	0	
2. Crop Rotation			
Row crop-small grain-grass/legume	10		10
Row crop-small grain	6	6	
Continuous row crop	0		
3. Crop Residue Management			
No fall tillage, residue undisturbed	10	10	10
> 50% residue after fall tillage	7		
10-50% residue after fall tillage	3		
Fall moldboard plowing	0		
4. Crop Management			
> 5% unharvested or equivalent food plots present	10		10
3-5% unharvested or equivalent food plots present	7		
1-2% unharvested or equivalent food plots present	4		
Total crop harvest, weeds present	3		
Total crop harvest, clean field in winter	0	0	

CROPLAND HABITAT INDEX	POINTS	EXISTING	PLANNED
5. Distance to Undisturbed Cover or Woodland[3]			
> 75% of cropland within 330 feet of cover	10		10
25-75% of cropland within 330 feet of cover	5	5	
10-25 % of cropland within 330 feet of cover	2		
< 10% of cropland within 330 feet of cover	0		
6. Average Width of the Field - Separated by hedgerows or field borders (minimum 25 feet wide)			
< 670 feet	10		10
< 1,340 feet	5		
> 1,340 feet	0	0	
(A) TOTAL CROPLAND HABITAT POINTS (60 MAX.)		21	57
(B) CROPLAND HABITAT INDEX (A/60)		.35	.95

1. Includes row crop, small grain, orchards, vegetables, or grass as part of rotation.
2. Field size impacts distance to cover. Similar fields separated only by field roads or clean fencerows should be combined for evaluation.
3. Concealment cover must be at least 25 feet wide and greater than 10,000 square feet in size.

MICHIGAN WILDLIFE HABITAT EVALUATION SUMMARY

Participant Grand Traverse County Tract No. 6562-6566 Date 04-12-2018 Field No. All

Observer DJ Shook, NRCS field staff, GTRLC staff, and GT County Parks & Rec staff Acres 191.5

EXISTING CONDITION

Habitat Type	Habitat Index		Acres		Weighted Index	CTU
Cropland	.35	x	191.7	=	67	
Woodland		x		=		
Pastureland/Hayland		x		=		
Grassland		x		=		
Shrubland		x		=		
Wetland		x		=		
	SUM TOTALS		191.7		67	
	TOTAL WEIGHTED INDEX/TOTAL ACRES					.35

PLANNED CONDITION

Habitat Type	Habitat Index		Acres		Weighted Index	CTU
Cropland	.95	x	191.7	=	182	
Woodland		x		=		
Pastureland/Hayland		x		=		
Grassland		x		=		
Shrubland		x		=		
Wetland		x		=		
	SUM TOTALS		191.7		182	
	TOTAL WEIGHTED INDEX/TOTAL ACRES					.95

Note: In general, a habitat index below 0.3 indicates poor habitat, between 0.3 and 0.49 indicates fair habitat, between 0.5 and 0.75 is good habitat, and above 0.75 would be considered excellent habitat.

Table 1: Size of fields separated by hedgerows or field borders. See the Existing Conditions Resource Map for clarification on the field size determinations.

Land unit(s)	**Existing condition unseparated field size**
Tract 6562, Field 2, adjacent farm land to the south to Plum Road.	42 acres
Tract 6563, Fields 1-3, adjacent farm land to the west and south to US 31 and Angell Road.	324.2 acres
Tract 6564, Field 1, adjacent farm land to the east to State Game Area and Angell Road	273.6 acres
Tract 6565, Fields 1-4	41.3 acres
Tract 6566, Fields 1&2	30.1 acres
Average	142 acres

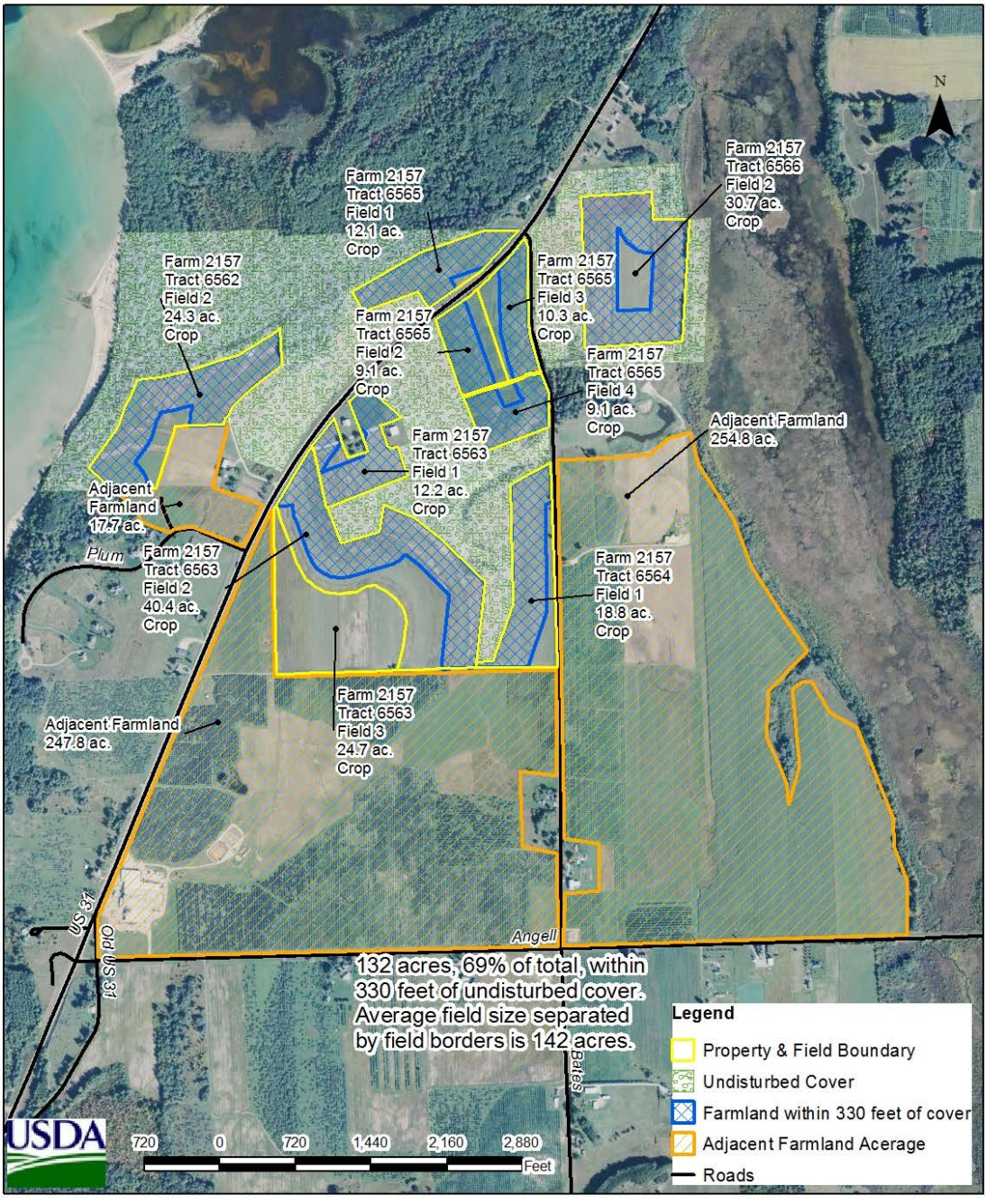
Map 1: Existing Conditions Resource Map

Existing Conditions Resource Map

Date: 4/12/2018

Customer(s): GRAND TRAVERSE COUNTY REGISTER OF DEEDS
District: GRAND TRAVERSE CONSERVATION DISTRICT
Approximate Acres: 191.7
Legal Description: Acme Township; 28N-09W; Sections 5, 6, 7

Field Office: TRAVERSE CITY SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Donald Shook
State and County: Grand Traverse County, Michigan



NRCS Wildlife Habitat Evaluation Guide – Bobolink Breeding Habitat - Copied below are the applicable sheets from a wildlife habitat evaluation guide specific to Bobolink breeding habitat. This evaluation template was customized for Bobolink breeding habitat by DJ Shook. The evaluation was also performed by DJ Shook. The customized evaluation guide and the evaluation was reviewed and approved by the NRCS Michigan State Office.

WILDLIFE HABITAT EVALUATION GUIDE
BOBOLINK BREEDING HABITAT

Name:	**Maple Bay Park and Natural Area**	**Farm/Tract: Farm 2157: Tract 6562, Field 2; Tract 6563, Fields 1-3; Tract 6564, Field 1; Tract 6565, Fields 1-4, Tract 6566, Field 2**			
Address:	**US-31, Traverse City, MI 49686**	**Tax Map and Parcel:**	**01-006-001-01**		
			01-006-003-02		
Date:	**4/19/2018**	**Field No.:**	**Indicated above**		
Evaluated by:	**DJ Shook**	**Acres:**	**191.7**		

HABITAT EVALUATION FACTORS (EDIT/DELETE TEXT AND LINES AS NEEDED)	VALUE	BENCHMARK	RECOMMENDED PRACTICES	PLANNED
Nesting Habitat Type *Bobolinks historically used native grasslands for breeding habitat. Bobolinks prefer habitat that is dominated by grass species that are moderately tall to tall (7 - 30") and habitat that does not contain any woody vegetation. Due to the tremendous amount of loss of grassland habitat in North America, Bobolinks also use managed hayfields, pasturelands and old fields for breeding habitat. It is presumed that after three years, pure stands of alfalfa would have sufficient encroachment of grass species to provide adequate breeding habitat for Bobolinks. Similarly, it is presumed that after three years, pure stands of grass would have sufficient encroachment of weedy forb species to improve the breeding habitat by providing increased weed seeds and insects for forage during the breeding season.*				
Short to mid-grass (7"-30") grassland comprised primarily of native species. No woody veg present.	30.0			
Other grasslands comprised primarily of native species. No woody veg present.	21.0			
Pasturelands, old fields, and permanent hayfields and hayfields in a crop rotation provided the hay is in the same spot for at least three years.	15.0	**15**	Cons Crop Rotation (328) (to ensure existing management level is maintained)	**15**
Hayfields in a crop rotation where hay is in one spot for less than three years.	5.0			
Other (land not comprised primarily of grass species)	0.0			
Nesting Habitat Size *Bobolinks require a minimum of 25 to 75 acres of grassland for breeding*				
Acres of the management unit that is comprised of native grasslands, hayfields, pastureland, old fields, or grassy field boarders is greater than 75 acres.	30.0		Cons Crop Rotation (328) Field Border (386)	
Acres of the management unit that is comprised of native grasslands, hayfields, pastureland, old fields, or grassy field boarders is between 50 and 75 acres.	21.0			
Acres of the management unit that is comprised of native grasslands, hayfields, pastureland, old fields, or grassy field boarders is between 25 and 50 acres.	15.0	**21**		**30**
Acres of the management unit that is comprised of native grassland, hayfields, pastureland, old fields, or grassy field boarders is less than 25 acres.	0.0			
Non-Cropland Vegetative Cover (may be located outside of the management unit) *What percentage of the field perimeter has a wildlife-friendly (see definition below) field edge border (riparian forest buffer, hedgerow, field border, and/or filter strip) or non-cropped area (woodland, tidal or non-tidal wetland, and/or shrubby idle area)?*				
≥ 75 percent of the field perimeter has a "wildlife friendly" buffer or adjacent non-cropped area	10		Field Border (386)	
≥ 50 and < 75 percent	7	**5**		**10**
≥ 25 and < 50 percent	5			
< 25 percent	1			
Distance to Nesting and/or Protective Cover *After young Bobolinks leave their nests they cannot fly for several days. If management occurs close to the breeding season, escape cover proximate to the management activity is important. What is the average distance, measured from the center of the field, to the nearest wildlife cover habitat?*				
≤ 150 feet	10		Field Border (386)	
> 150 and ≤ 300 feet	7			
> 300 and ≤ 500 feet	5	**5**		**7**
> 500 and ≤ 750 feet	3			
> 750 feet	1			
Intensity of Management *Bobolinks prefer habitat with medium amounts of standing vegetation and leaf litter during the breeding season. The intensity of management affects the amount of standing vegetation and leaf litter that remains during the breeding season.*				
> 33% ≤ 50% of the management unit is managed each year and management is designed to maintain an early successional habitat type and manage the excessive build-up of standing vegetation and leaf litter.	10		Upland Wildlife Hab. Mgt. (645) (to ensure existing management level is maintained)	
≤ 33% of management unit is managed each year and management is designed to maintain an early successional habitat type.	8	**5**		**5**
Management activities occur only once each year.	5			
Multiple management activities occur each year.	1			
Timing of Management *Early cutting of hayfields kills more than 80% of young Bobolinks.*				
No management occurs while the Bobolinks are nesting.	50	**0**	Upland Wildlife Hab. Mgt. (645)	**50**
Management occurs while the bobolinks are nesting.	0			
Type of Management *Adult and newly fledged Bobolinks benefit from bird friendly and wildlife friendly management practices such as bird friendly mowing or grazing plans.*				
No management occurs, except what is necessary to maintain early successional habitat	10		Upland Wildlife	

Management occurs for agricultural production purposes and at least three bird friendly management practices implemented such as avoiding nighttime mowing, mowing from the in-side out, mowing towards a refuge area, rotational mowing or grazing, reducing mowing speed, use of a flushing bar, avoiding mowing or grazing during the breeding season, only lightly to moderately graze pastures through mid-summer.	7		Hab. Mgt. (645)	
Management occurs for agricultural production purposes and one or two bird friendly management practices are implemented such as avoiding nighttime mowing, mowing from the in-side out, mowing towards a refuge area, rotational mowing or grazing, reducing mowing speed, use of a flushing bar, avoiding mowing or grazing during the breeding season, only lightly to moderately graze pastures through mid-summer.	5	**0**		**7**
Management occurs for agricultural production purposes and no bird friendly management practices are implemented.	0			
(A1) Total Habitat Values	150.0	51.0		124.0
(B1) Habitat Suitability Index for [Topic of Worksheet] (Total Values/XX)	(Max 1.0)	0.34		0.83
ADDITIONAL LANDSCAPE FACTORS (may be located outside the planning unit boundary)				
Factor 8 *(Provide explanation here as needed, or delete this row if not needed.)*				
Factor 9 *(Provide explanation here as needed, or delete this row if not needed.)*				
(A2) Total Habitat Values (including additional landscape factors)	(Max XXX)	enter formula		enter formula
(B2) Habitat Suitability Index for [Topic of Worksheet] (Total Values/XXX)	(Max 1.0)	enter formula		enter formula

States may choose to include the section for "Additional Landscape Factors" to account for habitat factors that are outside of the

NOTES: (EDIT/DELETE AS NEEDED)

Important factors for wildlife habitat are plant diversity, summer food sources, nesting and protective cover on field edges, and availability of food and cover during
- At least 25 feet wide and greater than 10,000 square feet (.23 acres) in size
- Not mowed, grazed, or significantly disturbed by human activities during the nesting season (May 27th - August 8th). Significant disturbance includes use for farm lanes. and for recreation with 4-wheelers and dirt bikes.

Conservation practices that may be used to improve habitat: (optional, but highly recommended - can be listed below)

Cons Crop Rotation (328)
Field Border (386)
Upland Wildlife Hab. Mgt. (645)

Website and Print Resources – The following list of considerations was developed from resources found on relevant websites and print materials as was used to help develop this Upland Wildlife Habitat Management Plan.

- Bobolinks are a species of grassland bird that are listed in a watch list due to range restrictions and troubling population declines. (Resenberg, K.V., et. Al. 2014. The State of the Birds 2014 Watch List. North American Bird Conservation Initiative, U.S. Committee. Washington, D.C. four pages)
- "Although Bobolinks are numerous and adaptable, their U.S. population declined by over 2% per year between 1966 and 2014, resulting in a cumulative decline of 74%, according to the North American Breeding Bird Survey. Partners in Flight estimates a global breeding population of 8 million, with 28% breeding in Canada, and 72% spending some part of the year in the U.S. They score a 13 out of 20 on the Continental Concern Score and are on the 2014 State of the Birds Watch List, which lists bird species that are at risk of becoming

threatened or endangered without conservation action." (retrieved from www.allaboutbirds.org/guide/bobolink/lifehistory, on 9/7/2016)

- "Since less than 1% of historic grassland remain in Michigan today, agricultural grassland such as hay fields, pastures, fallow fields and old fields provide valuable habitat for a variety of wildlife, especially grassland birds" page 2, Agricultural Practices That Conserve Grassland Birds, Daria Hyde and Suzan Campbell, Michigan Natural Features Inventory.
- "Today, early cutting of hayfields kills more than 80% of young Bobolinks (Stokes, D and L. Stokes. 1996. Stokes Field Guide to Birds. Eastern Region. Little Brown & Associates.) If you own or manage a hayfield that hosts Bobolinks, consider delaying mowing until after mid-July to allow these birds the opportunity to fledge their young and get them ready for the long 5,000 mile return to South America." (Retrieved from www.wbu.com/chipperwoods/photos/bobolink.htm, on 9/7/2016)
- "Experiences with delayed mowing:
    - The MDNR Wildlife Division provided cost share funds to five farmers in Huron, Missaukee and Tuscola counties in 2010 to delay mowing their hayfields (alfalfa and cool season grasses) until July 1st, for a period of four years. Most farmers were able to get one or two cuttings each year.
    - New research shows that hay cut after birds have fledged in June had only a small amount of crude protein loss (3.5% loss) but increased levels of phosphorous and calcium. This later cut hay may not be acceptable for calving dairy cows but may be fine for other livestock that can tolerate moderately lower nutritive values.
    - If forage quality is of primary importance, an early cut (before June 1st) followed by a 65-day rest period will give birds time to re-nest."

  (page 13, Agricultural Practices That Conserve Grassland Birds, Daria Hyde and Suzan Campbell, Michigan Natural Features Inventory.)

Plans and Specifications:

This section includes the actions that are needed in addition to the facilitating practices described above to fully install this Upland Wildlife Habitat and Management Plan. After this list, a conservation plan map is provided that shows the location of the facilitating conservation practices and also illustrates the enhanced wildlife metrics of this Upland Wildlife Habitat and Management Plan.

1) In aggregate of all of the fields listed below, at the end of each crop year leave 10 acres unharvested grain to provide over-winter food for wildlife. For example, 10 acres may be left un-harvested in one field with no acres left unharvested in the other fields. The 10 acres may also be split amongst fields. Do not position the unharvested crops immediately adjacent to US-31.
2) To allow grassland birds to complete one nesting cycle, and improve the survivability of rabbits and fawns, delay mowing of hay fields until July 1st. If field surveys, performed by local conservation-based organizations, indicate that onsite nesting birds have not finished their first nesting cycle by July 1st, delay mowing until July 15th.
3) When mowing hayfields, do not mow the hayfields in the dark, mow the hayfields at a slower speed, and do not mow the field from the perimeter to the center – instead begin mowing by creating turning lanes at either end of the field. Then start mowing strips in the center of the field working towards undisturbed cover. Do not work towards a field border along a road. If a road boarders a field, begin mowing from the edge of the field boarder along the road towards undisturbed cover on the other side of the field.

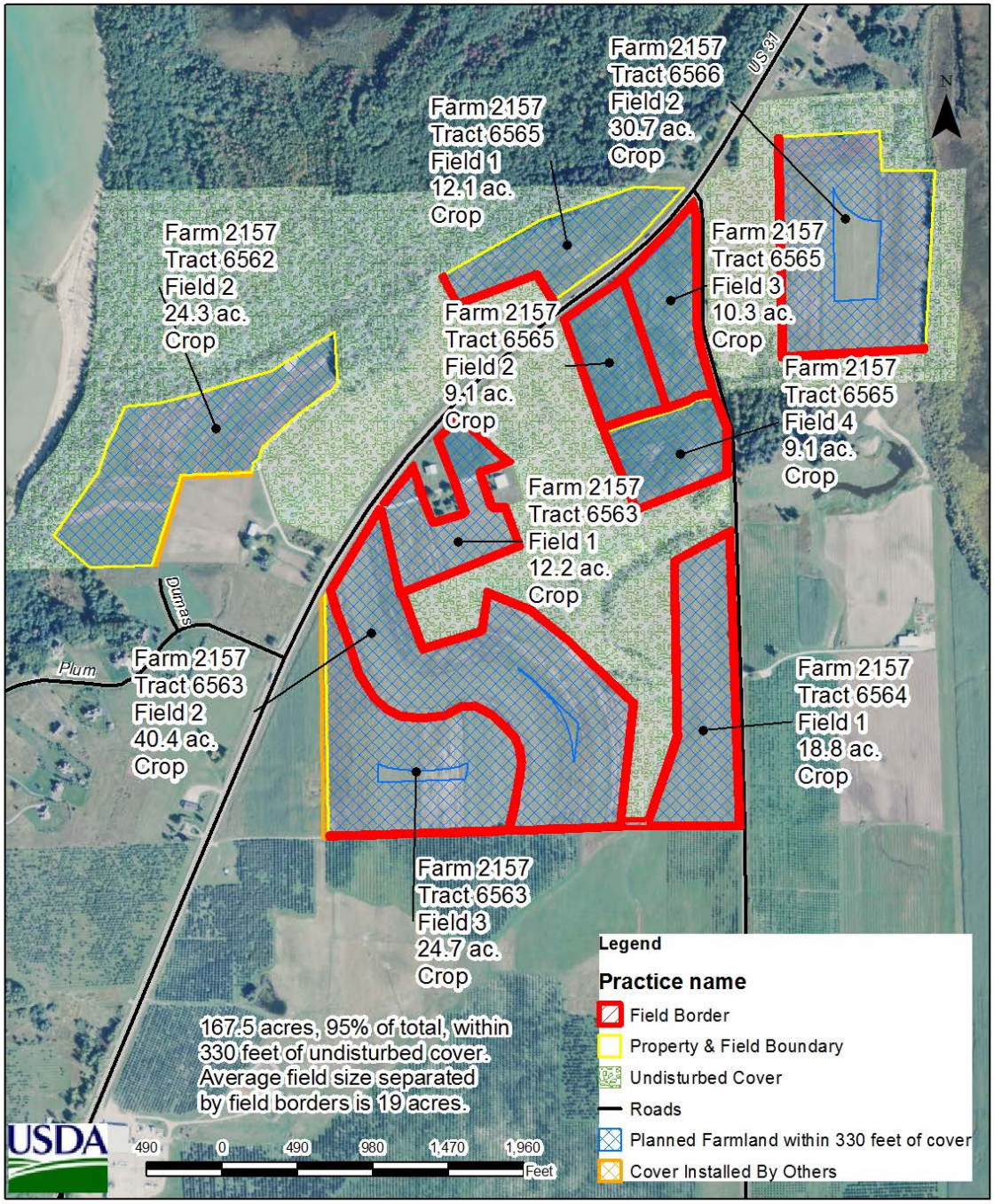
Map 2: Conservation Plan Map

Conservation Plan Map

Date: 4/20/2018

Customer(s): GRAND TRAVERSE COUNTY REGISTER OF DEEDS
District: GRAND TRAVERSE CONSERVATION DISTRICT
Approximate Acres: 191.7
Legal Description: Acme Township; 28N-09W; Sections 5, 6, 7

Field Office: TRAVERSE CITY SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Donald Shook
State and County: Grand Traverse County, Michigan



USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

386 - Field Border
Implementation Requirements

Producer:	Grand Traverse County Parks & Rec	**Project or Contract:**	Technical Assistance
Location:	Acme Township, 28N-09W	**County:**	Grand Traverse
Farm Name:	Maple Bay Park & Natural Area	**Tract Number:**	6562-6566

Practice Location Map

(showing detailed aerial view of where practice is to be installed on farm/site, showing all major components, stationing, relative location to any landmarks, and survey benchmarks)

See attached Conservation Plan Map

Index

Utility Safety / One-Call System Information

Description of work:

Establish a permanent, grassy field boarder thirty-feet wide along the edges of the crop fields as shown on the attached map. Use tillage equipment to terminate the existing vegetation and prepare a firm, friable seedbed. Use seed drill to plant orchard grass seed 1/4 inch deep at the rate of fifteen pounds per acre. Once established, operate and maintain the field boarders as indicated on page three and avoid human-caused significant disturbance between May 27th and August 8th. Human-caused significant disturbance includes use for farm lanes, and for recreation with 4-wheerlers and dirt bikes. Consider adding value to this field border in subsequent years by incorporating native herbaceous species such as adding native flowering species for pollinators or milkweed species for Monarch butterflies. Maintain a high grass-to-forb ratio within the field border. Re-establish field border if necessary.

NRCS Review Only

Designed By:	DJ Shook	**Date:**	4/20/2018
Checked By:		**Date:**	
Approved By:		**Date:**	

386 – Field Border
Implementation Requirements

The Practice Purpose(s):

___ Reduce erosion from wind and water
___ Protect soil and water quality
_✔_ Provide wildlife food and cover and pollinator habitat
___ Increase carbon storage
___ Improve air quality

Field Number/Location: See Map **Acres Installed:** 15.8 **Seeding Date:** 5/1-6/15 or 8/1-9/20

Average Width: 30 feet **Minimum Width:** 30 feet **Field Border Length:** 22,942 feet

Site Preparation: Till area to terminate existing vegetation. Cultivate to prepare a firm, friable seed bed.

Planting Method: Drill 1/4 inches deep

Planting Description (*e.g.* shrubs established on outside edge of area, *etc.*):

Field borders consisting of perennial herbaceous species that provide wildlife cover are needed throughout the agricultural portion of the Maple Bay Park and Natural Area to reduce the amount of land that is greater than 300 feet from undisturbed cover. Herbaceous vegetation is needed in lieu of trees and shrubs because trees and shrubs would provide cover for predators to grassland birds and reduce the overall habitat quality for the Bobolink.

SEEDING RATES AND SPECIES (woody species units are plants/linear ft)

Plant species		Lbs/acre of seed (PLS)	Total lbs of seed for planned acreage
Orchard Grass	1	15 pound/acre	237 pounds
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	TOTALS =>	15.00	237.00

FERTILIZERS AND AMENDMENTS

Fertilizer Element	Fertilizer Form	Fertilizer Amount (lbs/acre)
N	12-12-12 or 19-19-19 *e.g. DAP*	50 as N
P	12-12-12 or 19-19-19 *e.g. DAP*	50 as P_2O_5
K	12-12-12 or 19-19-19 *e.g. K_2SO_4*	50 as K_2O
S	*e.g. K_2SO_4*	as S
Lime		
Gypsum		

386 – Field Border
Implementation Requirements

Operation and Maintenance: (check all that apply)

✔ Repair storm damage.

✔ Remove sediment from above or within the field border when accumulated sediment either alters the function of the field border or threatens the degradation of the planted species' survival.

✔ Shut off sprayers and raise tillage equipment to avoid damage to field borders.

✔ Shape and reseed border areas damaged by animals, chemicals, tillage, or equipment traffic.

✔ Maintain desired vegetative communities and plant vigor by liming, fertilizing, mowing, disking, or burning and controlling noxious weeds to sustain effectiveness of the border.

✔ Repair and reseed ephemeral gullies and rills that develop in the border.

____ Minimally invasive tillage (e.g. paraplowing) may be performed in rare cases where compaction and vehicle traffic have degraded the field border function. The purpose of the tillage is strictly to decrease bulk density and increase infiltration rates so as to provide a better media for reestablishment of vegetation and field border function.

✔ Maintenance activities that result in disturbance of vegetation should not be conducted during the nesting season of grass nesting birds.

✔ Avoid vehicle traffic when soil moisture conditions are saturated.