

ADAPTIVE MANAGEMENT IMPLEMENTATION PLAN

Section 1. Contacts

1. Date submitted 19 March 2008	2. Region 3	3. Regional Biologist Pat Heglund
4. Refuge Supervisor Jim Leach	5. Refuge/Station Name Morris WMD	6. Station Project Leader Steve Delehanty Signature:
7. Contact person Sara Vacek	8. Contact phone number 320-589-4973	9. Brief title MN Grassland Monitoring Team

10. Biological Monitoring Team Contacts

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Section 2. Synopsis of adaptive management workshop

11. Date & location of workshop: **November 14-15, 2007**

12. Workshop Participants, including Refuge staff. **List is attached with the workshop notes**

First name	Last name	E-mail	Phone number	Organization
Melinda	Knutson	melinda_knutson@fws.gov	608-781-6339	USFWS
Scott	Zager	Wildlands@comcast.net	651-261-2398	Wildlands Ecological Services
Clint	Moore	cmoore@warnell.uga.edu	706-542-1609	USGS - Patuxent Wildlife Research Center
Sara	Vacek	sara_vacek@fws.gov	320-589-4973	Morris WMD
Bridgette	Flanders-Wanner	Bridgette_Flanders-Wanner@fws.gov	605-352-5894	Huron Wetland Management District
Pauline	Drobney	Pauline_Drobney@fws.gov	515-994-3400	LMRD; USFWS
Kim	Bousquet	kim_bousquet@fws.gov	320-273-2191 ext. 102	USFWS
J.B.	Bright	jb_bright@fws.gov	320-589-1001	Morris WMD
Meredith	Cornett	mcornett@tnc.org	218-727-6119	The Nature Conservancy
Terry	Shaffer	tshaffer@usgs.gov	701-253-5522	USGS-NPWRC
Eric	Lonsdorf	ericlonsdorf@lpzoo.org	312-742-7216	Lincoln Park Zoo
Dave	Bennett	dave_bennett@fws.gov	218-687-2229	Glacial Ridge NWR
Steve	Delehanty	Steve_Delehanty@fws.gov	320-589-1001	Morris WMD
Jared	Culbertson	jculbertson@tnc.org	320-243-3027	The Nature Conservancy
Robert	Dana	robert.dana@dnr.state.mn.us	651-259-5086	MN DNR

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13. Brief problem description.

Habitat management planning on NWR and WMD lands requires consideration of historic condition (601 FW 3, 620 FW1), favoring "...management that restores or mimics natural ecosystem processes to achieve refuge purpose(s)." Grassland management goals in Region 3 often include preservation or restoration of the historic native condition and providing habitat for wildlife. As endangered or declining ecosystems, remnants of tall grass prairie ecosystems are intrinsically important to preserve. They also serve as benchmarks, as reserves of species diversity including unknown species, and as sources of propagules for prairie reconstructions. Remnant and restored prairies in Region 3 are threatened by encroaching invasive species, particularly cool-season introduced grasses (e.g. *Bromus inermis*, *Poa pratensis*) and woody vegetation. The main focus of our grassland management efforts is on protecting or enhancing the competitive ability of native plants. Control methods used by prairie managers include seasonal burning, mowing, grazing, and herbicide treatments applied at varying intervals. However, because we typically operate without clear objectives for prairie management and without any evaluation of management effects, we could be missing some crucial information that would substantially improve our success rate. The Morris WMD, Big Stone NWR, and Rydell/Glacial Ridge NWR are working with a multi-agency team of Minnesota grassland managers to develop a standardized grassland monitoring program - the Minnesota Grassland Monitoring Team.

14. Objectives.

- 1) Maintain or increase the percent cover of native prairie vegetation (forbs and grasses)
- 2) Minimize/reduce/decrease the percent cover of specific invasive/exotic species (e.g., *Bromus inermis*, *Poa pratensis*, *Cirsium arvense*, woody vegetation)
- 3) Maintain the structural diversity of native grassland ecosystems
- 4) Increase native species diversity

15. Management alternatives & expected response of the resource. Who makes decisions about what management actions to implement? When & how often are these decisions made?

Fire (low frequency), fire (high freq.), graze (low freq.), graze (high freq.), fire + graze, patch-burn graze, fall hay, rest - we know that disturbance is crucial for grassland management and to suppress invasives, but we are uncertain about the responses of the particular treatments (see competing models). Decisions about management actions will be made by the respective land managers, but the group will coordinate to ensure that all treatments are being used across the landscape. Management decisions will be made annually.

16. Competing models & key uncertainties.

We have two sets of competing models that address our key uncertainties. The first will help us assess individual treatments (burning, grazing, haying, combination of burning and grazing, and rest) independent of the frequency at which they're applied. The second set will help us determine the effects of the frequency that treatments are applied (low frequency includes rest or burn/graze/hay one of three years, high frequency includes burn/graze/hay at least two of three years).

17. Decision support & modeling tools.

Eric Lonsdorf has already developed a draft monitoring database for our team. Our group is in the process of examining the utilities, model weights, etc.

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18. Monitoring metrics.

We plan to monitor the following metrics (height and exotic species richness have been removed since our workshop):

- 1) Vegetation Structure
- 2) VOR (Variance - because we want structural diversity in our prairies)
- 3) Litter depth (average)
- 4) Composition
 - a) Plant Group (belt transect technique with modified plant list for Minnesota)
 - b) Native Species Richness (checklist of key species)

19. Time step for updating models.

3 years

20. Briefly, how will this project improve management at your station & elsewhere?

We see two main benefits to the project. First, it has forced us to be very explicit about our management objectives and how we will use monitoring data to learn whether those objectives are met. The multiple agencies and stations are participating in the project have agreed on a set of objectives and standardized monitoring protocols; this standardization will allow us to monitor across more sites and learn about our grassland management faster than any individual station would be capable of.

Section 3. Implementation Plan

21. Monitoring Partners (all Refuge stations and others who will be implementing the plan).

Partner	Agency	E-mail / phone number / notes
Sara Vacek	Morris WMD	Sara_Vacek@fws.gov , 320-589-4973, co-leader of MN Grassland Monitoring Team (MNGMT)
Meredith Cornett	The Nature Conservancy	mcornett@tnc.org , 218-727-6119, co-leader of the MNGMT, science coordinator for MN, SD, ND (several other TNC field personnel are also participants)
Kim Bousquet	Big Stone NWR	Kim_Bousquet@fws.gov , 320-273-2191
Dave Bennett	Glacial Ridge NWR	Dave_Bennett@fws.gov , 218-687-2229
Robert Dana	MN DNR (Eco. Resources)	Robert.Dana@dnr.state.mn.us , 651-259-5086
Shelley Becklund	MN DNR (Eco. Resources)	Shelley.Becklund@dnr.state.mn.us , 218-739-7576
Dave Breyfogle	MN DNR (Parks)	David.Breyfogle@dnr.state.mn.us , 507-865-4583
Dave Trauba	MN DNR (Fish and Wildlife)	Dave.Trauba@dnr.state.mn.us , 320-734-4451
Daren Carlson	MN DNR (Eco. Resources)	Daren.Carlson@dnr.state.mn.us ,
Rich Olsen	MN DNR (Fish and Wildlife)	Richard.Olsen@dnr.state.mn.us , 320-634-0342

22. Timeline for implementation. Estimate when assistance will be needed from modeler, database expert, BMT, or Regional Biologist.

Approx. Date	Task	Responsible Person
done	Finalize management alternatives	Vacek, Cornett, MNGMT
done	Draft decision support spreadsheet	Eric Lonsdorf
ongoing	Test monitoring protocols	Vacek, Cornett, MNGMT
Winter 2009	Finalize monitoring protocols	Vacek, Cornett
Ongoing - draft expected by 2008	Create monitoring database	Todd Sutherland

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field season		
Winter 2009	Finalize decision support spreadsheet	Eric Lonsdorf
ongoing	Begin AM Project	Vacek, Cornett, MNGMT

23. Budget.

Total request from Regional Office: **\$8,000**

Station(s) proposed to receive the funds (if multiple stations indicate the budget breakdown by station). **\$4,000 each to Morris WMD and Big Stone NWR. This funding will be used to help support a STEP biotech at each station; technicians will spend approximately half their time doing grassland monitoring. One or both of these technicians will also travel to Glacial Ridge NWR to help their staff with grassland monitoring for about one week.**

If grants or other funding sources are being used for the project, indicate the sources & amounts (add a column).

Item (Examples)	Hours	Station \$\$	Regional Office \$\$	Total \$\$
Staffing				
Refuge Biologist	300			
Seasonal employee (GS?) GS-3 or 4	400		8,000	8,000
Operations				
Travel		2,000		2,000
Equipment/supplies		500		500
Total		2,500	8,000	10,500

Note: this budget includes Service contributions toward the project; other agencies will be supporting their own staff and travel for their monitoring. Additionally, this table only reflects costs associated with monitoring. There are additional station expenses for travel to meetings, time to develop the protocols, and the management treatments themselves.

Section 4. Attachments

24. Please attach the summary or minutes from the workshop. Also attach any proposals for contracts or other requests.

Section 5. Instructions

25. After your adaptive management workshop, the workshop recorder will summarize the minutes of the workshop and distribute to all interested persons (participants, partners, managers). The planning team will meet to finalize any items not completed during the workshop. These include refining the descriptions of the alternative management actions and defining the monitoring metrics and how they will be interpreted. The planning team or representatives will meet with the modeler to work out details of drafting a decision support tool (spreadsheet). The planning team also needs to estimate when they need help creating a project database to hold the monitoring data. If the services of a contractor are needed (specialized expertise or reviews), solicit needed contracts.

The planning team will draft this Implementation Plan & discuss the plan with the Project Leaders (PL) at each station proposing to implement. The Team Leader will finalize the Implementation Plan and forward to the Regional Biologist (RB), with cc to the PL. The PL will e-mail the RB to indicate their concurrence with the Plan. (Alternatively, send a hard copy with PL signature to the RB; the RB still needs the digital file.) The Regional Office will determine whether or not additional funds are available to support implementation of the project. A

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revised plan with updated budget should be submitted on or before 1 March each year that the project is operational if Regional Office funding is desired. Projects should be designed to be feasible with or without this funding.