



December 12, 2018

Introduction

The purpose of this document is to provide specific suggestions and guidance for a five-year period on how to implement the Minnesota Prairie Plan. The target audiences for this document are all entities in Minnesota that are involved in prairie conservation. Key among them are the individual Prairie Partner groups, the Local Technical Teams, and others involved in the funding or implementation of Minnesota Prairie Conservation Plan.

Situation Analysis

Key Stakeholders

Prairie Partners (MOU Signatories) – Entities actively engaged in the protection, restoration, and enhancement activities detailed in the Prairie Plan. Partners bring internal resources or secure funding to further the goals of the Plan. They also participate in the State Working Group and Local Technical Teams on a regular basis and do their part in joint conservation activities. Partners represent and promote the Plan and its goals to outside groups, landowners, local and state officials, and the general public.

Minnesota Department of Natural Resources: Lead agency for oversight of the Minnesota Prairie Conservation Plan. In the Prairie Region, the DNR owns and manages 725,214 acres within its WMA, SNA, and State Park systems of which 79,887 acres are native prairie, 161,904 acres are other grasslands, and 140,783 are wetlands (acreage figures for all partners based on GIS analysis). It also holds easements on another 6,028 acres of native prairie through the Native Prairie Bank. The DNR maintains the native prairie shapefile and other land use data for Minnesota as well as tracks the status and locations of Minnesota's rare species and best examples of all habitat types. In addition, the Department provides wetland and shallow lake management guidance and research.

United States Fish and Wildlife Service. In the Prairie Region, the Service owns and/or manages 359,710 acres of fee-title in National Wildlife Refuges and Waterfowl Production

Areas and holds 34,970 acres of grassland conservation easements. Within the fee title and grassland easements are 20,697 acres of native prairie, 149,177 acres of grassland, and 109,387 acres of wetland. USFWS also holds easements on many wetland basins and has an active *Partners for Fish and Wildlife* private lands program to provide conservation assistance.

The Nature Conservancy: In the Prairie Region, the Conservancy owns and manages 19,279 acres of native prairie within the Conservancy's 47,966 acre preserve system. TNC also conducts active land protection for TNC preserves and USFWS NTP system as well as provides management for preserves and public conservation lands.

Minnesota Board of Water and Soil Resources: Holds conservation easements on 2,036 acres of native prairie. BWSR administers programs such as RIM and CREP to prevent sediment and nutrients from entering lakes and streams, to enhance fish and wildlife habitat and to protect wetlands. It also works closely with Soil and Water Conservation Districts and other local government units to deliver conservation programs.

United States Natural Resources Conservation Service: Provides farmers and livestock grazers with financial and technical assistance to put conservation on their land. Common technical assistance includes resource assessment, best practice design and resource monitoring.

Pheasants Forever: Protects grassland and wetlands for addition to WMAs within the pheasant range of Minnesota. PF also employs Farm Bill biologists to assist landowners in designing, developing, and funding habitat improvements on private lands.

Ducks Unlimited: Conserves, restores, and manages wetlands and associated habitats for waterfowl. In the Prairie Pothole Region, the focus is on enhancing wetland complexes that include large marshes and shallow lakes to provide high-quality aquatic food and habitat resources for migrating and breeding waterfowl. DU also purchases land and easements to restore them back to grassland and wetland for additions to WMAs and WPAs.

Minnesota Prairie Chicken Society: Conducts an annual census of prairie chickens, contacts landowners, and protects prairie chicken habitat by acquiring land and donating that land to public agencies for long term management. MPCS also loans burn equipment for habitat management, does public education, and assists in prairie chicken reintroductions.

The Conservation Fund: Protects grassland and native prairie habitat in partnership with the DNR and USFWS and acquires easements in collaboration with the Minnesota Land Trust to assist conservation-minded livestock producers.

Audubon Minnesota: Works with landowners and partnering organizations to protect, restore, and enhance high-quality habitat to benefit birds and other wildlife in the Tallgrass Aspen Parklands and western Minnesota.

Minnesota Land Trust: Works with private landowners to acquire conservation easements (35 totaling 6,000 acres in the Prairie Region) that protect wetlands, grasslands, and other natural wildlife habitat. MLT also conducts restoration and enhancement activities on easement and public lands.

Other Stakeholders – Groups or entities that can and will have a strong impact on the success or failure of the Minnesota Prairie Conservation Plan. They include:

Prairie Plan State Working Group (SWG): A group with representatives from each of the Prairie Partners charged with the writing, updating, and implementing the Prairie Plan.

Local Technical Teams (LTT): Interagency teams organized around groups of Prairie Core Areas to plan and coordinate conservation activities within Core Areas and surrounding corridors, strategic habitat complexes, and agricultural matrix.

Lessard-Sams Outdoor Heritage Council: The Legislative-Citizen body that reviews and recommends projects to spend proceeds from the 1/8 cent sales tax authorized by the Clean Water, Land, and Legacy Amendment. In 2018, \$118 million was available for wetlands, prairies, forests, and habitat for fish, game, and wildlife.

Legislative-Citizens Commission on Minnesota Resources: The Legislative-Citizen body that makes funding recommendations for environment and natural resource projects, primarily from the Environment and Natural Resources Trust Fund. In 2018, 67 appropriations totaling over \$45 million were approved for activities that protect, conserve, preserve, and enhance Minnesota's air, water, land, fish, wildlife, and other natural resources.

Clean Water Council: A body of citizens (voting) and state agencies and legislators (non-voting) that advises the Legislature and Governor on the appropriation of Clean Water Fund dollars to protect, enhance, and restore water quality in lakes, rivers, and streams and to protect groundwater from degradation. For FY18-19, recommendations totaled \$220 million.

Minnesota Department of Agriculture: Supports and promotes grass-based agriculture in Minnesota, provides technical assistance to livestock grazers, develops and disseminates agricultural and conservation best management practices, and runs state-wide weed, renewable energy, pesticide, and water quality programs.

County Government: The 87 principal units of local government that among many duties influence land use through planning and zoning, oversee weed control, run environmental programs, and assess and collect property taxes.

Township Boards: Minnesota's 1,782 townships, each usually covering 36 square miles, are responsible for the maintenance of approximately 55,000 miles of roads and local weed inspection.

Soil and Water Conservation Districts: Local units of government that help direct and manage natural resource programs. SWCDs work primarily on a one-on-one basis with landowners, aiming to connect landowners with the financial and technical resources they need to put conservation practices on the land.

Watershed Districts: Local units of government that work to solve and prevent water-related problems. Their boundaries follow natural watersheds, but the 46 districts do not cover the entire state. The specific duties of Watershed Districts vary across the state. Some focus mainly on flood damage reduction, while others have a broad range of programs and services to protect and improve water quality.

Other Conservation Non-Profits: Many other statewide and local conservation groups play important roles in protecting, restoring, and managing prairies, grasslands, wetlands, and other natural resources.

Private Prairie and Grassland Owners: Within the Prairie Region of Minnesota 48% of the native prairie and 88% of other grasslands have no legal protection (fee or easement) and are owned by private individuals, families, corporations, and others. In most years, much of this grassland is used to raise livestock (haying and grazing) but some is left idle (including CRP and stream buffers).

Grazing Industry: Livestock grazing on native prairie and other grasslands provides income for tens of thousands of Minnesotans. Without the financial incentive of grazing most of Minnesota's grasslands would be converted to other uses or would transition to weedy-overgrown recreational tracts. As stated in the Prairie Plan, "private income generated from grasslands can be the single largest driving force for grassland conservation".

Economic Environment

The agriculture economy of the Prairie Region has been volatile for the last 5 years. Corn and soybean prices have fluctuated dramatically, land values have remained high, and many farms have operated with negative income in some of those years. CRP grassland acreage was reduced as program funding declined. Farm operations continue to consolidate, and a substantial

percentage of the farmed land is owned by absentee landowners (both in nearby towns and more distant urban areas) who have a local land manager in charge of overseeing land rental to local farmers. In contrast to row-crop agriculture, grass-based agriculture (primarily livestock grazing) provides many benefits to prairie, grassland, and wetland conservation. Currently grass based agriculture does not have the support and incentives of the other sectors of the agricultural economy.

New opportunities in grass-based agriculture such as carbon farming, grass-fed beef, and cellulosic ethanol need to be explored. Another new idea that has great promise is precision agriculture that encourages more grassland in each farming operation by converting cropland that cannot be cultivated profitably.

Social and Cultural Environment

The demography and culture of the Prairie Region has been in flux for at least the last 50 years. Changes in farming practices, economics, and equipment have driven increased farm efficiency and the size of farm operations. Fewer people have been needed in the rural countryside to run farms and that in turn has led to declines in the economy and sizes of small towns. This population decline has had major consequences to the cultural fabric of local areas as schools, businesses, and other social institutions in many areas consolidate or disappear. However, more recently populations seem to be stabilizing due to opportunities for telecommuting and web-based businesses. In many places, less-productive land (often natural lands) has been bought by out-of-area owners for recreational and retirement uses.

Interest in the outdoors also appears to be declining as opportunities for hunting and fishing diminish due to a complex combination of factors including access to hunting land and demographics (baby-boomer decline, single parents, time constraints of dual income parents, money). However, interest in non-consumptive outdoor activities such as bird watching, hiking and nature photography are on the rise. In some places there is a resistance to public conservation programs.

Natural Environment

Natural resources in the Prairie Region of Minnesota are in crisis. Water quality is at historic lows with only 16% of its rivers and streams meeting water quality standards, while lakes are nearly as bad with most being classified as impaired (only 18% the standards). Impaired waters are no longer safe for fishing or swimming. Groundwater has also been impacted with 20% of the wells tested having higher nitrate concentrations than the EPA allows for drinking water. Wetlands are also degraded with only one in five considered to have quality habitat conditions.

High levels of runoff from cultivated fields contribute to an estimated average loss of 6.3 tons of topsoil per acre per year in Minnesota during 2015. Alteration of natural drainage patterns greatly alters the hydrograph of many streams increasing “flashiness” which in turn can lead to more flooding in streamside towns, increased erosion along stream courses, and a reduction in water table recharge. Altered hydrology also affects wetland quality by changing flows (too much water or too little), introducing invasive plants and fish, more sedimentation (reducing plant and invertebrate production) and increasing turbidity (eliminating plant growth).

Prairie and grassland wildlife is on the decline. Grassland birds show the largest rate of decline of any group of birds in North America with over 70% of 27 grassland nesting bird species showing population decreases. Native bees are also in decline, where a number of formerly common species (about ¼ of the bumblebee diversity) have not been seen in several years and are headed for federal listing. Even some of our most common and abundant pollinators are experiencing dramatic declines. For example, the eastern migratory population of North American monarch butterfly has dropped in numbers by nearly 90% since the mid-1990s. The decline in insects in general over the past 20-30 years has been so dramatic it is now being called the “insect apocalypse¹”. Food webs are being obliterated from the bottom up.

Much of the original decline of prairie wildlife was due to the loss of habitat. In the Prairie Region of the state, more than 98% of the native prairie and 90% of wetlands have been lost. This loss of habitat has had major negative impacts on game species as well. The pheasant index is 62 percent below its long-term average and where there were once 2 million pairs of breeding ducks in western Minnesota, today there are only 375,000.

Invasive species are greatly impacting the ecological health of many prairies, grasslands, and wetlands. Invasive pasture grasses such as smooth brome, Kentucky bluegrass and reed canary grass have invaded nearly every prairie in Minnesota where they can displace most native grasses and forbs. Even some native woody plants such as eastern red cedars and aspen show up in nearly every grassland, and within as few as 15 years change the grassland to forest.

The Prairie Plan alone cannot solve these environmental problems, but many water quality and other programs are under way or are being developed that relate to the Prairie Plan, including the One Watershed/One Plan approach and the Agricultural Water Quality Certification program. Another important effort that is currently gaining momentum are soil health initiatives that promote increased use of cover crops on cultivated lands. Many of these and other environmental efforts share common habitat approaches and goals with the Prairie Plan. Coordination between the Prairie Plan and these environmental improvement programs and plans will be needed in the future.

¹ Brooke Jarvis. *The Insect Apocalypse is Here*. New York Times Magazine, November 27, 2018

Outcomes and Strategies

Outcome 1: Functioning Prairie Systems

Strategy 1: For each Prairie Core Area define and update the primary conservation goals and conservation targets (specifically what are we trying to accomplish).

Strategy 2: For each Prairie Core Area, reach agreement on the scale (size), critical habitat components, and spatial relationships that are needed to reach the chosen conservation goals.

Outcome 2: Prairie Landscape Protection and Restoration

Strategy 1 (Native Prairie): Protect through acquisition of fee title or easement from willing private sellers all native prairie in the state. This is a long-range goal (more than 50 years), but within the next 15 years protect half of the remaining unprotected native prairie within the Prairie Region (about 59,500 acres).

Action 1: Report unidentified native prairie areas to the Minnesota Biological Survey for verification, mapping, and inclusion into master native prairie database.

Action 2: Identify all landowners with parcels that contain more than 5 acres of native prairie or that are needed to buffer and reconnect prairie areas. Among LTT members, decide on a lead contact and/or relationship coordinator for each landowner.

Action 3: Lead landowner contact has initial and yearly follow-up meetings with the landowner to assess conservation receptivity/plans and to discuss available conservation options. When landowner expresses interest in conservation action, transfer lead to appropriate conservation partner to negotiate and close deal.

Strategy 2 (Other Grasslands): Protect grassland within core areas, strategic habitat complexes, corridors, and matrix that are needed to reach grassland goals

Action 1: Prioritize grassland parcels first to buffer or reconnect native prairie, second to increase the size of existing grassland managed areas and third to reach grassland goals established by the Prairie Plan that don't meet the first two criteria.

Strategy 3 (Other Grasslands): Restore grasslands focusing first on parcels that buffer and connect native prairie tracts. This will often be the portions of native prairie parcels that have been converted to other land cover.

Strategy 4 (Wetlands): Protect and restore wetlands and other aquatic features

Action 1: Identify the best current examples of each aquatic habitat type and the aquatic features with the greatest restoration potential in each core area.

Action 2: Strategically locate wetland and other aquatic restorations such as streams to maximize environmental benefits and ecosystem services.

Action 3: Work with One Watershed, One Plan groups to implement and highlight conservation practices that improve water quality and provide perennial cover habitat

Action 4. Protect wetlands, lake shore, and stream corridors within core areas, strategic habitat complexes, corridors, and matrix that are needed to reach aquatic habitat goals

Outcome 3: Prairie, Grassland, and Wetland Enhancement (Stewardship and Management)

Strategy 1: As resources allow, within each Prairie Core Area (or high priority subarea) identify and map parcels with stewardship issues (e.g. tree invasion, prescribed burning needs, noxious and invasive weeds, water quality issues, etc.)

Strategy 2: Within LTTs, prioritize parcels/projects for stewardship activities based on significance and need and contact landowners to discuss their conservation options.

Strategy 3: Follow-up with interested private landowners to put necessary contracts, easements, and cost-shares in place to ensure work gets done. Actively seek funding from available cost-share programs to pay for conservation work.

Strategy 4: Among LTT members, communicate information on the availability and capability of private contractors, coordinate native seed collection and distribution, share prescribed burn resources, organize coordinated weed control efforts such as the collection and distribution of bio-control agents, and collaborate on stream rehabilitation and needed wetland management issues such as water level control structures and fish barriers. Address issues where policy or permitting requirements of one partner hampers the ability of other partners to participate.

Strategy 5: Develop a land and water management educational program and support system for easement holders and other owners of prairie, grassland, or wetlands. This should include written materials, educational events, access to specialized equipment, and expert advice.

Outcome 4: Grazing and other Multifunctional Benefits of Grasslands

Grazing

Strategy 1: Within prairie focus areas (CLMAs) review grazing infrastructure on lands that would benefit from conservation grazing to identify missing components needed for landscape scale grazing. Prioritize missing grazing infrastructure and find funding to create new fencing and water sources.

Strategy 2: Among LTT members coordinate grazing needs on public lands to graze cooperatively on those and surrounding private lands. Include private grazing managers to explore possibilities (and stumbling blocks) for coordinated conservation grazing across public and private ownerships.

Strategy 3: Develop trust and strong working relations with local grazing leaders and organizations to achieve mutual goals in conservation grazing and economics. Compile and disseminate information to grazers that livestock perform well on native prairie and grasslands.

Pollination

Strategy 4: Work with private landowners to establish native prairie pollinator plantings in fields and on their margins (e.g. Iowa's STRIPS project). Encourage the use of floral rich seed mixes (pollinator friendly) in buffer and conservation plantings.

Strategy 5: Increase the use of flowering cover crops using native species when possible.

Strategy 6: Promote roadside management that is beneficial to pollinators.

Strategy 8: Promote pasture management and grazing practices that increase the amount of floral resources throughout the growing season.

Strategy 9: Provide landowners with resources, training and support for Integrated Pest Management aimed at reducing pesticide use (including biological control).

Strategy 10: Promote practices that reduce pesticide drift in fields that are near important prairie obligate insect populations including using strains of soybeans that are more aphid resistant, using equipment that reduces drift (wick application; boom sprayers set at minimum height, low drift nozzles, shield/shroud technology, and drift-reducing adjuvants), and limiting spraying times and wind conditions.

Strategy 11: Partner with USDA and UMN to add emphasis on IPM and native prairie plantings in their Private Pesticide Applicator Certification courses.

Strategy 10: Monitor/research pesticide levels on native prairies with important populations of prairie insects.

Native Seed

Strategy 11: Work with NRCS, FSA and SWCD to better incorporate/ encourage the use of native seed in their landowner assistance programs (i.e. buffers, perennial cover seed mixes, wetland restoration)

Strategy 12: Use ecologically appropriate seed in all prairie restorations within core areas.

Strategy 13: Develop and coordinate seed partnerships within the LTT focus areas to help identify restoration needs and local eco-type seed harvest opportunities that all partners can benefit from.

Outcome 5: Public Awareness and Appreciation of Prairie Systems and Grazing Management

Strategy 1: Engage native prairie landowners to educate about prairie ecology, prairie management, and prairie conservation and create interest in prairie protection.

Action 1: Meet with groups of priority landowners through socials (e.g. “Prairie and Pie”), field trips, workshops, and other venues.

Action 2: Create and/or support social networks of prairie landowners to communicate about prairie conservation news, opportunities, and management techniques.

Strategy 2: Meet with priority political bodies (county, township, SWCD, and others) during their regular or special meetings to describe the goals of the Prairie Plan and the activities of the LTT, then address their concerns to the extent possible.

Strategy 3: Meet with groups of grazing and agricultural stakeholders through field days or their regular meetings to discuss conservation grazing, how grass-based agriculture fits within the Minnesota Prairie Conservation Plan, and how public lands that would benefit from conservation grazing can be integrated within a coordinated landscape grazing system.

Strategy 4: Increase public awareness and interest in prairie systems and the threats to them.

Action 1: Write and distribute information to local newspapers and newsletters and prepare brochures, handouts, and/or fact sheets for distribution at public events and other venues visited by people interested in prairie and grasslands (e.g. SWCD Offices).

Action 2: Develop a website to serve as a hub to “Discover the Prairie” by showcasing prairies, encouraging visitation, and sharing prairie experiences.

Action 3: Create a public “identity” for the Prairie Plan that includes logo and other memorable “hooks”.

Action 4: Highlight Grassland Month through events and social media.

Action 5: Work with Chambers of Commerce and local tourism groups to promote prairie and grassland visitation and education.

Strategy 5: Promote native prairie plantings including both large-scale restorations and small-scale “backyard” sites or rain gardens to enhance pollinators, wildlife, and native plants.

Outcome 6: Reporting results

Strategy 1: Each partner involved in conservation activity develops capacity to digitize boundaries of all fee and easement tracts protected, restorations, fires, woody removal, and weed control projects with date project was completed. Each partner will compile yearly its shapefiles for each type of conservation action in a single database capable of being shared.

Strategy 2: Develop an inter-agency spatial database that tracks prairie plan land protection and management actions by different partners, so that accomplishments can be reported, and research/ monitoring projects can be created. Data will be made available to responsible entities.

Strategy 3: Reach agreement among all stakeholders for a method using remote sensing and GIS to measure current land cover of grassland, wetlands, and prairie in Minnesota. The results need to be easily updated as new imagery becomes available.

Strategy 4: Communicate new approaches, results and successes of the Prairie Plan to prairie conservation funders to facilitate new and continued funding for conservation actions in the Prairie Region. To the extent necessary, coordinate proposals from different Prairie Partners to avoid duplication and efficiently achieve common goals.

Outcome 7: Coordination and Funding

Strategy 1: Among LTT members, share information about activities, accomplishments, lessons learned on a regular basis (at least once a year). Report on success or failure of new conservation techniques or ideas.

Strategy 2: Provide training, information, and continuing education to LTT members and others about conservation programs available to different types of landowners including water quality, soil conservation, and agriculture based programs. Examples include the Private Lands Conservation Partners coordination meeting but other opportunities will be needed also.

Strategy 3: Prioritize and allocate existing funds available to specific projects.

Strategy 4: Among LTT members agree on funding needs for future projects. Identify LTT member(s) willing to write grant proposals for funding to carry out those projects.

Strategy 5: Develop or restore a funding source that will share costs for conservation management on private lands that not permanently protected.

Outcome 8: Organizing Structure

Strategy 1: Maintain or create effective Local Technical Teams

Action 1: Appoint a liaison from the State Working Group to each LTT.

Action 2: Ensure that each LTT has an interested and active lead to maintain conservation momentum. Lead is responsible for scheduling meetings, finding meeting space, developing agendas, inviting speakers, running meetings, maintaining the team membership list, and disseminating pre-meeting matters and/or post-meeting follow up.

Outcome 9: Research and Monitoring

Strategy 1: Develop a research agenda for the Prairie Plan to answer key questions about prairie management, restoration, and effectiveness of conservation actions. Promote potential projects with the academic/research community.

Strategy 2: Align the research and monitoring reporting/ results to the spatial accountability tracking database to better inform adaptive management actions in the future.