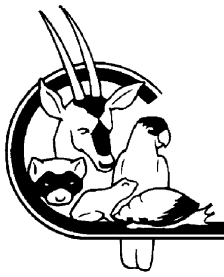
Sherburne National Wildlife Refuge Planning Workshop 3

March 12-15, 2002
Ostego, MN

FINAL REPORT

A Collaborative Workshop:

United States Fish & Wildlife Service
The Conservation Breeding Specialist Group (SSC/IUCN)



A contribution of the IUCN/SSC Conservation Breeding Specialist Group in collaboration with the United States Fish & Wildlife Service.

Blair, C., J. L. Eldridge, O. Byers, M. McGovern and U.S. Seal (eds.) 2002. *Sherburne National Wildlife Refuge Planning Workshop 3. Final Report.* IUCN/SSC Conservation Breeding Specialist Group: Apple Valley, MN.

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Planning Workshop 3

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EXECUTIVE SUMMARY

A. Introduction and Workshop Process

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Introduction to Comprehensive Conservation Planning

The Comprehensive Conservation Plan (CCP) of Sherburne National Wildlife Refuge is a required element of the National Wildlife Refuge Improvement Act of 1997 which states that all refuges will be managed in accordance with an approved CCP that when implemented will achieve the mission of the National Wildlife Refuge System (System) and the refuge purpose.

The National Wildlife Refuge Improvement Act of 1997 determined that the National Wildlife Refuge System was created to conserve fish, wildlife, and plants and their habitats and this conservation mission has been facilitated by providing Americans opportunities to participate in compatible wildlife-dependent recreation. For the purposes of the Act:

(1) The term 'compatible use' means a wildlife-dependent recreational use or any other use of a refuge that, in the sound professional judgment of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge.
(2) The terms 'wildlife-dependent recreation' and 'wildlife-dependent recreational use' mean a use of a refuge involving hunting, fishing, wildlife observation and photography, or environmental education and interpretation.

The Mission of the System

"The Mission of the System is to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

Sherburne National Wildlife Refuge and its Purpose

Sherburne National Wildlife Refuge (NWR) encompasses about 30,600 acres in an area of Minnesota known as the Anoka Sandplain. The landscape is interspersed with upland habitats dominated by oak, varying from dense forest, oak savanna, to prairie openings. The St. Frances River winds through the Refuge and impoundments have been created to restore dozens (24) of historic wetland basins along the ditch system of the 1920s and '30s originally designed to drain them. These and several other undrained wetlands comprise a mosaic of wetland types on the Refuge ranging from sedge meadows to deep-water marshes.

The history of the refuge began in the early 1940s. Local conservationists and sportsmen became interested in restoring the wildlife values of the St. Francis River Basin. Many of these supporters were interested in creating more waterfowl hunting opportunities in the region. The

Minnesota Conservation Department, now the Department of Natural Resources, conducted studies with the intention of managing the area as a state wildlife area. By the early 1960's it was apparent that the magnitude of the project was beyond the funding capabilities of the Minnesota Conservation Department at the time. The State of Minnesota formally requested the U.S. Bureau of Sport Fisheries and Wildlife, now known as the U.S. Fish and Wildlife Service, to consider the area for a National Wildlife Refuge.

The refuge was created under the legal authority of the Migratory Bird Conservation Act of Feb. 18, 1929. The Act created the Migratory Bird Conservation Commission and authorized the acquisition of lands from funds appropriated by Congress, and later, from funds generated by the sale of Federal Duck Stamps. The following is the only language in the Act, or subsequent amendments, pertaining to the types of lands authorized for acquisition:

Sec. 715d. Purchase or rental of approved areas or interests therein; gifts and devises; United States lands. The Secretary of the Interior may –

(2) Acquire, by gift or devise, any area or interests therein; which he determines to be suitable for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.

Introduction to the Workshop

This workshop is the third in a series of four organized to assist the Refuge staff and USFWS in the CCP process. The first workshop focused on developing a shared understanding of the refuge purpose, developing a vision for the future of the refuge and exploring key issues affecting the refuge and its future in the landscape. Workshop 2 was designed to guide the identification of refuge goals and management alternatives to achieve these goals. This third workshop brought people together to finalize the alternatives, develop objectives, and design example strategies for implementation of the objectives.

Participants were invited from a variety of organizations including representatives from the U.S. Fish and Wildlife Service, (Washington Office, Regional Office, Sherburne National Wildlife Refuge), U.S. Geological Survey, Chairmen from the Ojibwe Ceded Territories and Member Tribes of GLIFWC, Minnesota Department of Natural Resources, Sherburne County Commissioners and Administrators, The Nature Conservancy, Audubon Society, University of Minnesota, Friends of Sherburne National Wildlife Refuge, and refuge volunteers (See Section 8).

Twenty-four people including six representatives of the public participated in this 3 ½ day interactive process. This report presents the results of the enormous amount of effort and energy the participants contributed to the workshop. It is important to note again that this is the third in a four-workshop process and the results are preliminary and subject to review and revision.

Workshop Goals

1. Review unresolved issues from the first two workshops.

2. Reach agreement on management Alternatives for achieving refuge goals.

3. Develop and finalize management objectives for each alternative.

4. Begin identification of strategic directions for implementation.

Workshop Process

The workshop was organized at the request of the Regional Office of the U.S. Fish and Wildlife Service, in collaboration with the Conservation Breeding Specialist Group (CBSG) of the Species Survival Commission of the World Conservation Union (SSC/IUCN). To assure credible, fair, and independent conduct of the workshop and of the workshop results, CBSG was requested to design the workshop process, provide facilitation for the workshop, and to assemble and edit the report. Editing of the draft report was done with the assistance of a subset of the workshop participants. Outside review by non-participants was not part of the process. No content changes were made by the editors and the participants checked that accurate presentations were made of the work they had done during the workshop.

The workshop was conducted 12-15 March 2002 in the Otsego City Hall in Otsego, MN. The workshop extended over 3 ½ days with all lunches brought into the meeting room for maximum use of the time available. There were 24 participants with most present the entire duration of the workshop providing for sustained interactions and the benefits of full attention to the goals and process of the workshop. These participants, from more than 70 issued invitations, included state and federal wildlife agency personnel, NGOs representatives, academics from local universities, Friends of Sherburne representatives and public citizens. Participants and invitees are listed in the report (see Sections 8 and 9). In addition, public notice of the meeting was published in local newspapers and a notice was also included in a Sherburne newsletter sent to over 4,500 citizens who live near the refuge.

The CBSG team designed a planning process to achieve the organizer's stated outcome for the workshop and the participants involved. The intent was that the unresolved issues from the earlier Sherburne workshops would be reviewed, revised if necessary and agreed upon and management alternatives and associated objectives would be developed and finalized. If time allows, strategic direction for implementation of objectives would also be identified. Information and analysis generated and agreed upon in this and the two earlier workshops will become the core material for development of the Sherburne National Wildlife Refuge CCP.

Before getting started with the first task of this workshop, each participant was asked to introduce themselves and to write out and then read aloud answers to four introductory questions. This process allows for expression of individual perspectives without being immediately influenced by previous responses. This process indicates potential areas of common ground and provides a first insight into the diversity of perceived issues present in the

group. The process also provides a check on whether the workshop deliberations respond to the concerns and issues that are raised. Answers to these questions can be found in Section 8 of this report.

B. The Revised Refuge Purpose Clarification

The following is the final refuge purpose clarification after a series of discussions in which the groups reviewed the purpose statements from the previous two workshops

Refuge Purpose, Legislation, and Policy: Their Relationship to Management Direction

The purpose of a refuge is derived from the legislation under which the lands are acquired. Some refuges are established by legislation passed by Congress specifically for the refuge being established. However, most refuges are established under more general legislation already in existence. Sherburne National Wildlife Refuge was established in 1965 under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715d). That Act states that lands may be acquired "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds."

The intention of the Migratory Bird Conservation Commission in establishing the Refuge was primarily to provide habitat for migratory waterfowl (as per a USFWS new release dated May 18, 1965).

Considering the wording of the establishing legislation, along with recent policy and legislation, the Refuge purpose is interpreted to include all migratory birds as identified in the Code of Federal Regulations (50 CFR 10.13).

The Refuge purpose describes the authorized use of the Refuge as "... an inviolate sanctuary, or for any other management purpose, for migratory birds." The term "inviolate sanctuary", as interpreted by the Service, means that the Refuge will be managed to promote the health and well-being of migratory birds and their habitats. Other activities may also be accommodated, provided they are compatible with the Refuge purpose (as per Service Compatibility Policy, Federal Register 65 (202): 62484-62496).

The above interpretation of the migratory bird purpose of the refuge was the first consideration in determining management actions in this Plan. However, development of this Plan also considered the full diversity of native species that make up and depend upon healthy ecosystems. This is in accordance with the National Wildlife Refuge System Improvement Act of 1997 and the Service Policy on Maintaining the Biological Integrity, Diversity, and Environmental Health of the National Wildlife Refuge System; Notice (Federal Register 66 (10): 3810-3823).

C. The Management Alternatives

Management alternatives developed in Workshop II were revisited and more fully developed into the following paragraphs.

Alternative 1: Current Management

Current management is focused on upland habitats to approximate 1850s conditions based on the Refuge Landscape Plan as a guiding document. Wetlands are actively managed to benefit migratory birds. The Landscape Plan also allows for a re-evaluation of the impoundments as the structures deteriorate. Interpretive and environmental education programs on and off refuge contrast natural and managed systems and pre-settlement and settlement cultural history. Opportunities for hunting, fishing, wildlife observation, and wildlife photography are provided at levels consistent with existing plans and guidance. Off-refuge restoration programs are focused on the objectives of the Partners for Wildlife Program.

Alternative 2: Pre-settlement Habitat Conditions (1800-1850)

Vegetative communities and hydrology on the refuge would approximate native Anoka Sandplain habitats. Wildlife diversity would mirror the diversity of the habitats. Hunting, fishing, wildlife viewing, and wildlife photography would continue under current management direction with consideration for some mid-1800 experiences. Interpretive and environmental education programs on and off refuge would emphasize natural pre-settlement conditions and cultural history and natural processes. There would be strong emphasis on off-refuge outreach, private lands, and partnership activity with emphasis on natural processes, corridors, and restoration. Cultural resources of the refuge would be preserved. There is recognition that this alternative's habitat component will require a long-term restoration effort.

Alternative 3: Landscape Resource Protection Emphasis

This alternative recognizes that the refuge is part of a larger and rapidly changing landscape. The current management direction will be maintained on the refuge but new programs and staff will be focused on off-Refuge land conservation efforts. We would emphasize pursuit of a strong land conservation ethic through relationship-building with the local community, partners groups, and local governments. Outreach will be strategic: focusing on habitat restoration and protection with an emphasis on native vegetation. Restoration of native vegetation and wetlands on the refuge will be used as demonstration areas. Opportunities for hunting, fishing, wildlife observation, and wildlife photography will receive balanced emphasis to increase opportunities for all visitors to have personal experience with wildlife and native habitats. Interpretive and environmental education programs on and off the refuge will contrast managed landscapes with natural systems and pre-settlement with settlement cultural history. Cultural resources of the Refuge and the watershed will be valued, interpreted and preserved.

Alternative 4: Partial Presettlement Habitat Conditions with Managed Impoundments

Vegetative communities and hydrology on a portion of the refuge would approximate those communities typical of the Anoka Sandplain in the mid-1800s. Other areas will be maintained as impoundments with an emphasis on waterbird use during migration. Wildlife diversity will reflect the relative extent to which specific management actions (e.g., impoundments) are implemented. Choices of what lands are managed and how they are managed will impact that diversity. Interpretive and environmental education programs on and off-refuge would contrast natural and managed systems and pre-settlement and settlement cultural history. Visitor recreational activities are consistent with maintenance of sustainable populations of wildlife. There would be strong emphasis on off-refuge outreach, private lands, and partnership activity with emphasis on natural processes, corridors, and restoration. Cultural resources of the refuge would be preserved.

Alternative 5: Focused Management for Priority Wetland and Grassland Birds

The focus of this alternative would be management for priority wetland and grassland birds. Water management would be more intense and active than it is currently (or in any of the other alternatives), and upland management would emphasize more open grassland relative to the forest component. Wetland management for FWS Region 3 priority bird species would include a mixture of high water for emergent vegetation control and drawdowns that vary spatially and temporally to favor the seasonal occurrence of various bird groups (e.g., shorebirds, waterbirds). Current impoundments will be maintained, for the most part, with the caveat that appropriate impounded areas may be managed as marsh or sedge habitat. Tamarack restoration would be limited to the edges of pool areas within the system. Where possible, water management would mimic natural processes to provide for a diverse wetland bird community and preserve the river hydrologic regime (e.g., manage pools to mimic beaver dams or wet-dry cycles). Upland management would emphasize the more open end of the prairie-oak savanna continuum and include large blocks of prairie. This alternative would also emphasize more focused management to maximize production of wetland and grassland birds.

Interpretive and environmental education programs on and off the refuge would focus on the importance of managing for service priority wetland and grassland birds and their habitats on the refuge and on adjacent natural areas. High quality recreation opportunities for hunting, fishing, wildlife observation, and photography would be provided commensurate with the requirements of species on the refuge. Recreational opportunities and access would be limited to ensure protection of priority species during critical times. Outreach activities would encourage contiguous native habitat with an emphasis on grassland. Cultural resources of the refuge would be preserved.

D. Comparison of Objectives by Alternatives

Objectives were developed for the management alternatives by two groups; one focused on public use issues, while the other focused on biological issues. The results of these groups are summarized in the following table, which compares the objectives across the alternatives.
Participants in Public Use Group: Charlie Blair, Lloyd Knutson, Nancy Haugen, Gary Muehlenhardt, John Schomaker, Marv Ziner, David Fulton, Liz Bellantoni
Participants in Biological Group: Jan Eldridge, Bob Adamcik, Kevin Kenow, Tom Will, Brad Ehlers, Jeanne Holler, Jason Rohweder, Tom Larson, Dave Warburton, Paul Soler

(unless stated otherwise, all objectives will be implemented within 15 years of approval of this plan)

Alternative 1 Current Management	**Alternative 2 Pre-settlement Habitat Conditions (1800-1850)**	**Alternative 3 Landscape Resource Protection Emphasis**	**Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments**	**Alternative 5 Focused Management for Priority Wetland and Grassland Birds**
Goal 1: Uplands consist of a dynamic and diverse mosaic of Anoka Sandplain habitats native to this area, ranging from grasslands to oak savanna to forested areas, supporting Service priority species and others associated with these plant communities.				
1.1 Maintain existing grassland areas within 400 m of an impoundment and scattered throughout the oak savanna with none of these scattered areas being larger than 40 acres. Grasslands are characterized by <10% canopy closure, <5% shrub cover, and a diverse native grass and forb species mix.		1.1 Maintain existing grassland areas within 400 m of an impoundment and scattered throughout the oak savanna with none of these scattered areas being larger than 40 acres. Grasslands are characterized by <10% canopy closure, <5% shrub cover, and a diverse native grass and forb species mix.		1.1 Within 15 years of CCP=s approval, provide a minimum of 3 grassland blocks of at least 200 acres each. Grasslands are characterized by <10% canopy closure, <5% shrub cover, and a diverse native grass and forb species mix.
1.2 Provide a minimum of 1000 acres of oak savanna using current management. Grasslands greater than 40 acres may be planted to trees, leaving at least a 40 acre		1.2 Provide a minimum of 1000 acres of oak savanna using current management. Grasslands greater than 40 acres may be planted to trees, leaving at least a 40 acre		1.2 Provide a minimum of 1000 acres of oak savanna using current management, with the exception that grasslands will not be planted to trees. Oak savannas are

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
grassland opening. Oak savannas are characterized by 10-50% canopy closure, 5-35% relative cover of shrubs, and at least 25% relative cover of diverse native grasses and 25% relative cover of diverse native forbs.		grassland opening. Oak savannas are characterized by 10-50% canopy closure, 5-35% relative cover of shrubs, and at least 25% relative cover of diverse native grasses and 25% relative cover of diverse native forbs.		characterized by 10-50% canopy closure, 5-35% relative cover of shrubs, and at least 25% relative cover of diverse native grasses and 25% relative cover of diverse native forbs.
1.3 To initiate transition to oak savanna, convert a minimum of 1000 acres of existing oak woodland to a canopy cover of 10-50%. The herbaceous layer recovery will likely take longer than 15 years.		1.3 To initiate transition to oak savanna, convert a minimum of 1000 acres of existing oak woodland to a canopy cover of 10-50%. The herbaceous layer recovery will likely take longer than 15 years.		1.3 To initiate transition to oak savanna, convert a minimum of 1000 acres of existing oak woodland to a canopy cover of 10-50%. The herbaceous layer recovery will likely take longer than 15 years.
Goal 2: A diverse mosaic of riverine and wetland habitats meets the needs of Service priority riparian and other wetland dependent species.				
2.1 For the benefit of open water dependent species, provide 1 to 3 pools annually, from mid-April to July, in those years that weather conditions allow. Open water is defined as < 20 cm VOR* flooded to depths ranging from 50-200 cm, and must include at least 50% submersed aquatic vegetation. An edge of		2.1 For the benefit of open water dependent species, provide 1 to 3 pools annually, from mid-April to July, in those years that weather conditions allow. Open water is defined as < 20 cm VOR* flooded to depths ranging from 50-200 cm, and must include at least 50% submersed aquatic vegetation. An edge of		2.1 For the benefit of open water dependent species, provide at least 6 pools annually, from mid-April to July, in those years that weather conditions allow. Each pool should have a minimum of 200 acres of open water. Open water is defined as < 20 cm VOR* flooded to depths ranging from 50-200 cm, and must

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emergent native vegetation on at least 50% of the perimeter is desirable to provide food and cover for a variety of species.		emergent native vegetation on at least 50% of the perimeter is desirable to provide food and cover for a variety of species.		include at least 50% submersed aquatic vegetation. An edge of emergent native vegetation on at least 50% of the perimeter is desirable to provide food and cover for a variety of species.
2.2 To assess the feasibility of converting reed canary dominated areas to native species, by the end of the 15 years planning period, increase native sedge meadow/lowland graminoids by a minimum of 20 acres over the next 15 years, with 20-50 cm VOR* and vegetation heights varying from 30-100cm with water depth ranging from moist to 100 cm.		2.2 To assess the feasibility of converting reed canary dominated areas to native species, by the end of the 15 years planning period, increase native sedge meadow/lowland graminoids by a minimum of 20 acres over the next 15 years, with 20-50 cm VOR* and vegetation heights varying from 30-100cm with water depth ranging from moist to 100 cm.		2.2 To assess the feasibility of converting reed canary dominated areas to native species, by the end of the 15 years planning period, increase native sedge meadow/lowland graminoids by a minimum of 20 acres over the next 15 years, with 20-50 cm VOR* and vegetation heights varying from 30-100cm with water depth ranging from moist to 100 cm.
2.3 For the benefit of sedge meadow nesting birds, maintain existing sedge meadow with 20-50 cm VOR* and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.		2.3 For the benefit of sedge meadow nesting birds, maintain existing sedge meadow with 20-50 cm VOR* and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.		2.3 For the benefit of sedge meadow nesting birds, maintain existing sedge meadow with 20-50 cm VOR* and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.

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2.4 Lowland brush will not be actively managed for but will be maintained or created in varying amounts as a result of management actions focused upon other objectives.		2.4 Lowland brush will not be actively managed for but will be maintained or created in varying amounts as a result of management actions focused upon other objectives.		2.4 For the benefit of brush associated marsh birds; maintain a minimum of 2500 acres of lowland brush annually. 40-60% of the lowland brush acreage will have a VOR* of 20-50 cm, vegetation heights of 30-100 cm, and water depths from moist to 100 cm. In addition, 40-60% of the lowland brush acreage will have a VOR of 50-80 cm, brush heights between 70-150 cm, and water depths of moist-20 cm.
2.5 For the benefit of marsh nesting birds, cattail marsh will be maintained but will be managed so that it does not exceed two-thirds of the surface area of any given pool; 20-40% of the cattail acreage will have a VOR* of 50-80 cm.		2.5 For the benefit of marsh nesting birds, cattail marsh will be maintained but will be managed so that it does not exceed two-thirds of the surface area of any given pool; 20-40% of the cattail acreage will have a VOR* of 50-80 cm.		2.5 For the benefit of marsh nesting birds, annually manage 2500-4000 acres of cattail marsh; less than 70% of cattail is desirable on any one basin. 20-40% of the cattail acreage will have a VOR* of 50-80 cm.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
2.6 Maintain 202 acres of existing tamarack swamp and undertake restoration of tamarack swamp on the periphery of Rice Lake, Bohm Pool, and the wetland portion of section 16, township. 35 N, Range 28 W resulting in a total tamarack acreage of 932 acres		2.6 Maintain 202 acres of existing tamarack swamp and undertake restoration of tamarack swamp on the periphery of Rice Lake, Bohm Pool, and the wetland portion of section 16, township. 35 N, Range 28 W resulting in a total tamarack acreage of 932 acres		2.6 Maintain a minimum of 200 acres of existing tamarack swamp.
2.7 For the benefit of seed-eating fall migrants, manage (spring drawdown, fall flooding) to obtain 50-150 acres total across at least 2 basins of seasonal wetland habitat dominated (70-90%) by native annual plants flooded to depths ranging from wet to <20 cm during 15 September to freeze-up.		2.7 For the benefit of seed-eating fall migrants, manage (spring drawdown, fall flooding) to obtain 50-150 acres total across at least 2 basins of seasonal wetland habitat dominated (70-90%) by native annual plants flooded to depths ranging from wet to <20 cm during 15 September to freeze-up.		2.7 For the benefit of seed-eating fall migrants, manage (spring drawdown, fall flooding) to obtain 100-300 acres total across at least 3 basins of seasonal wetland habitat dominated (70-90%) by native annual plants flooded to depths ranging from wet to <20 cm during 15 September to freeze-up.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
2.8 For the benefit of fall migrating shorebirds and migrant waterfowl in the subsequent spring, provide one pool at least every third year with 30-50 acres of seasonal wetland habitat dominated (70-90%) by annual plants (resulting from a previous year fall draw down) flooded to depths ranging from wet to <20 cm from April 1 to May 31.		2.8 For the benefit of fall migrating shorebirds and migrant waterfowl in the subsequent spring, provide one pool at least every third year with 30-50 acres of seasonal wetland habitat dominated (70-90%) by annual plants (resulting from a previous year fall draw down) flooded to depths ranging from wet to <20 cm from April 1 to May 31.		2.8 For the benefit of fall migrating shorebirds and migrant waterfowl in the subsequent spring, provide 30-50 acres of seasonal wetland habitat dominated (70-90%) by annual plants (resulting from a previous year fall draw down) flooded to depths ranging from wet to <20 cm from April 1 to May 31.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
2.9 There is no goal to specifically benefit spring migrant shorebirds and pre-breeding dabbling ducks by encouraging chironomid densities.		2.9 There is no goal to specifically benefit spring migrant shorebirds and pre-breeding dabbling ducks by encouraging chironomid densities.		2.9 To benefit spring migrant shorebirds and pre-breeding dabbling ducks, manage impoundments to provide 30-50 acres of shallow water habitat characterized by sparsely distributed (<20% cover) short vegetation (<20cm) flooded to depths ranging from moist to 12 cm in a way that would encourage chironomid densities of more than 200 larva per square meter. To make invertebrates available to shorebirds, begin a slow drawdown in the spring by April 15, continuing through May 31.
2.10 For the benefit of fall migrant shorebirds and waterfowl, provide one pool at least every third year during mid-July to mid-September, provide 50-150 acres of sparsely (<20% cover) distributed short (<20 cm) native vegetation flooded to depths ranging from moist to 12 cm.		2.10 For the benefit of fall migrant shorebirds and waterfowl, provide one pool at least every third year during mid-July to mid-September, provide 50-150 acres of sparsely (<20% cover) distributed short (<20 cm) native vegetation flooded to depths ranging from moist to 12 cm.		2.10 For the benefit of fall migrant shorebirds and waterfowl, during mid-July to mid-September, provide 50-150 acres of sparsely (<20% cover) distributed short (<20 cm) native vegetation flooded to depths ranging from moist to 12 cm.

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Goal 3: A balanced diversity of native migratory birds and other native wildlife reflects an emphasis on Service priority species appropriate to Refuge habitats.				
3.1 Provide roosting area for up to 5,000 Sandhill Cranes. Public use is prohibited between September 1 and December 1. The area is characterized by 200 acres of shallow water (less than 46 cm) with 150 m buffer of open space surrounding the roost for a total roost and buffer area of 500 acres.		3.1 Provide roosting area for up to 5,000 Sandhill Cranes. Public use is prohibited between September 1 and December 1. The area is characterized by 200 acres of shallow water (less than 46 cm) with 150 m buffer of open space surrounding the roost for a total roost and buffer area of 500 acres.		3.1 Provide roosting area for up to 5,000 Sandhill Cranes. Public use is prohibited between September 1 and December 1. The area is characterized by 200 acres of shallow water (less than 46 cm) with 150 m buffer of open space surrounding the roost for a total roost and buffer area of 500 acres.
3.2 Within 15 years accommodate 80% of the Region 3 RCP species associated with historically occurring habitats within the Refuge as depicted on figure 13 (Practical Extent of Pre-European Settlement Vegetation) of the Refuge Landscape Plan.		3.2 Within 15 years accommodate 80% of the Region 3 RCP species associated with historically occurring habitats within the Refuge as depicted on figure 13 (Practical Extent of Pre-European Settlement Vegetation) of the Refuge Landscape Plan.		3.2 Within 15 years accommodate 80% of the Region 3 RCP species that potentially occur on Anoka Sandplain wetland and grassland habitats referenced in the objectives for goals 1 and 2.
3.3.Breeding bird point counts will continue to monitor abundance and distribution. Monitoring will comply with Region 3 monitoring protocol		3.3.Breeding bird point counts will continue to monitor abundance and distribution. Monitoring will comply with Region 3 monitoring protocol		3.3.Within two years of approval of this plan, initiate a 10 year monitoring plan to assess population levels and breeding productivity of wetland, grassland, and oak

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
Monitoring will occur two consecutive years followed by five years without monitoring.		Monitoring will occur two consecutive years followed by five years without monitoring.		savanna birds. The objective is to determine if the habitat is sufficient to sustain a source population of birds, define what constitutes source populations on the Refuge, and establish baseline information regarding breeding productivity.
3.4 Maintain deer population densities less than or equal to 16-18 deer per square mile.		3.4 Maintain deer population densities less than or equal to 16-18 deer per square mile.		3.4 Maintain deer population densities less than or equal to 12-14 deer per square mile.
3.5 Reducing the use of chemicals, emphasizing mechanical and biological control, efforts will focus on those species posing the biggest threat to natural vegetation/restoration efforts. Reduce the size or number of areas of occurrence of these non-native and/or invasive plant species by at least xx%.		3.5 Reducing the use of chemicals, emphasizing mechanical and biological control, efforts will focus on those species posing the biggest threat to natural vegetation/restoration efforts. Reduce the size or number of areas of occurrence of these non-native and/or invasive plant species by at least xx%.		3.5 Reduce non-native and/or invasive plant species in upland and wetland habitats to less than xx% of the refuge habitat base area. (Need to clarify)
Goal 4: A complex of natural areas, corridors, and watershed conservation practices in the surrounding landscape complements Refuge habitat and wildlife goals				

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
4.1 Within 2 years of plan approval, map natural and managed areas within a 15 mile buffer of the refuge boundary and identify potential corridors to facilitate wildlife movement between these areas.		4.1 Within 2 years of plan approval, map natural and managed areas within a 15 mile buffer of the refuge boundary and identify potential corridors to facilitate wildlife movement between these areas.		4.1 Within 2 years of plan approval, map natural and managed areas within a 15 mile buffer of the refuge boundary and identify potential corridors to facilitate wildlife movement between these areas.
4.2 Restore 400 wetlands off-refuge with priority given to those within the St. Francis River Watershed.		4.2 Restore 600 wetlands off-refuge with priority given to those within the St. Francis River Watershed.		4.2 Restore 400 wetlands off-refuge with priority given to those within the St. Francis River Watershed.
4.3 Restore off-refuge, 100 native upland areas of at least ten-acres with priority given to those lands that create contiguous grassland habitats with permanent easements and within xx miles of refuge.		4.3 Restore off-refuge, 150 native upland areas of at least ten-acres with priority given to those lands that create contiguous grassland habitats with permanent easements and within xx miles of refuge.		4.3 Restore off-refuge, 100 native grassland areas of at least ten-acres with priority given to those lands that create contiguous grassland habitats with permanent easements and within xx miles of refuge.
		4.4 brainstorm additional off-refuge objectives for this alternative		

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
Goal 5: Visitors enjoy wildlife dependent opportunities that further an appreciation of Refuge wildlife and habitats.				
Hunting 5.1 Provide at least 4 blinds for hunters with disabilities: (1) firearms deer and (3) waterfowl.	**Hunting** 5.1 Same as Alternative 5	**Hunting** 5.1 Same as Alternative 5	**Hunting** 5.1 Same as Alternative 5	**Hunting** 5.1 Maintain a white-tailed deer density of 12-14/mi2 through a firearms hunt, which meets the definition of quality in the FWS Manual (605 FW2). -Include hunting blind
5.2 Maintain at least 70 percent of the refuge open to deer gun hunting.	5.2 Same as Alternative 5	5.2 Same as Alternative 5	5.2 Same as Alternative 5	5.2 Opportunity for quality archery deer hunting is provided for 30? days within a limited zone on the refuge identified on Fig. X. (Archery hunting is not an effective mgmt. tool. The extended winter season may be in conflict with priority species).
5.3. Maintain at least 50 percent of the refuge open to small game hunting.	5.3 Same as Alternative 5	5.3 Same as Alternative 5	5.3 Same as Alternative 5	5.3 Provide small game hunting opportunities on XX acres in designated areas in Figure X. (Areas need to be designated because of conflicts with mig. birds. Small game to be defined by state regs).

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
				(Possibly no new hunts; i.e. spring turkey hunt).
5.4. Provide waterfowl hunting opportunities for both open water and river hunting.	5.4 Same as Alternative 5 5.4a Same as Alternative 5	5.4 Same as Alternative 5 5.4a Same as Alternative 5	5.4 Same as Alternative 5 5.4a Same as Alternative 5	5.4. Provide for no more than XX visits/day to ensure quality waterfowl hunting while maintaining sanctuary areas during migration. (Note that we are providing oppor. to meet RIA-Big 6 & youth hunting. Support youth waterfowling day. Perhaps increase sanctuary areas. -Include hunting blinds (3) --5.4a Consider a new objective for new hunting opportunities.
Fishing 5.5 Provide fishing opportunities on the St. Francis River at a minimum of 4 access points.	**Fishing** 5.5 Same as Alternative 1	**Fishing** 5.5 Same as Alternative 1	**Fishing** 5.5 Same as Alternative 1	**Fishing** 5.5 Provide quality-fishing opportunities on the St. Francis River at a minimum of 4 access points.
5.6 Construct a fishing pier on at least one location that can be used by anglers with disabilities.	5.6 Same as Alternative 1	5.6 Same as Alternative 1	5.6 Same as Alternative 1	5.6a Same as Alternative 1

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
Wildlife Observation and Photography 5.7 Provide a quality auto tour route on the Prairie's Edge Wildlife Drive that will maintain 10,000 visits per year.	5.7 Same as Alternative 5	5.7 Same as Alternative 5	5.7 Same as Alternative 5	5.7 Provide a quality auto tour route on the Prairie's Edge Wildlife Drive that will maintain at least 15,000 visits per year, but no more than 35,000, with no more than 20 vehicles on the route at one time (max. twice per year). (Check Sunday data to see if this is correct) (include strategy for monitoring use and re-evaluation)
5.8 Maintain a combined 10 miles of hiking trails on the Mahnomen and Blue Hill trails for WO/P**.	5.8 Same as Alternative 5	5.8 Same as Alternative 5	5.8 Same as Alternative 5	5.8 Maintain a combined 10 miles of trails, but not to exceed 25,000 visits per year (re-evaluate at threshold). --Construct 2 miles of trail in association with a new environmental center.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
5.9 Maintain at least 50 percent of refuge lands open for winter wildlife-oriented recreation.	5.9 Same as Alternative 5	5.9 Same as Alternative 5	5.9 Same as Alternative 5	5.9 Maintain a total of 6 to 8 platforms, observation blinds and/or towers. NTE 15,000 visits without re-evaluation.
Environmental Education 5.10 Provide facilities for teacher lead environmental activities for area schools. Target a 10 percent increase over present level within 5 years.	5.10 Message change to pre-settlement conditions.	5.10 Possible location change (off-site) w/ message to landscape & private land actions.	5.10 Message change to pre-settlement and water mgmt.	5.10 Provide facilities and a program for teacher-lead environmental activities for area schools, and refuge visitors, with a message emphasis on wetlands and grassland birds. Target a 10 percent increase within 5 years of CCP approval. (develop new curriculum soon). -Construct a new visitor center.
Interpretation 5.11 Provide at least 10 programs, events, festivals and tours annually to enhance visitor understanding of the refuge and it's mission.	5.11 Same as Alternative 5 w/ new program emphasis	5.11 Same as Alternative 5 w/ new program emphasis	5.11 Same as Alternative 5 w/ new program emphasis	5.11 By 2006, provide at least 10 programs, events, festivals and/or tours annually to enhance visitor understanding of the refuge and it's mission. Emphasis will be placed on wetlands and grassland birds. (monitoring strategies related to message retention)

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
5.12 Provide one auto tour route and 5 kiosks to interpret refuge habitats and wildlife.	5.12 Same as Alternative 5	5.12 Same as Alternative 5	5.12 Same as Alternative 5	5.12 By XXXX, XX % of visitors will understand and appreciate the interpretive theme of the refuge. (several monitoring strategies)
Goal 6: Visitors and local citizens demonstrate a strong conservation ethic that leads to support of the Refuge, conservation of the surrounding landscape, and global environmental awareness.				
6.1 Off-site outreach to schools and a visitor center	6.1 Same as Alternative 5	6.1 Same as Alternative 5 with a % increase. Respondents should indicate the community and individual responsibility for landscape conservation.	6.1 Same as Alternative 5	6.1 By 2006, 60 percent of neighbors, community leaders, and residents of nearby communities express an awareness of the refuge's mission and the need for increased local conservation.
6.2 Partners for Fish and Wildlife (Outreach)	6.2 Same as Alternative 5	6.2 Same as Alternative 5 with more landowner contacts.	6.2 Same as Alternative 5	6.2 By 2006, make XX contacts with private landowners in the St. Francis River Watershed to provide technical restoration assistance. (Message would focus on wetland loss and grassland bird declines)
Goal 7: The cultural resources and cultural history of the Refuge are valued and preserved, and connect Refuge staff, visitors, and the community to the area's past.				

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
7.1. Refuge staff will protect, conserve, and interpret the cultural resource sites and values on refuge. (Review objectives provided by Regional Historian)	7.1 Same as Alternative 5	7.1. Same as Alternative 5	7.1 Same as Alternative 2	7.1. Refuge staff will protect, conserve, and interpret the cultural resource sites and values on refuge. (Review objectives provided by Regional Historian).
	7.2 Within 15 years of plan approval, 70% of visitors will understand and appreciate the cultural history of the refuge. Message should emphasize pre- and early European settlement of the area.	7.2 Within 15 years of plan approval, 70% of visitors will understand and appreciate the cultural history of the refuge. - Message should focus more on European settlement (in context of watershed) and the degradation of landscape due to drainage and erosion.	7.2 Within 15 years of plan approval, 70% of visitors will understand and appreciate the cultural history of the refuge.	7.2 Within 15 years of plan approval, 70% of visitors will understand and appreciate the cultural history of the refuge.

*VOR = Visual Obstruction Reading (a common technique used to measure vegetation density)
**WO/P = Wildlife Observation and Photography

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Section 2

Unresolved Issues

Unresolved Issues

At the close of Sherburne Workshop 2 there were 3 items of business that were left unresolved: 1) final agreement on the refuge purpose interpretations; 2) agreement on rewording of Goal 1; and 3) a check of consistency of alternatives across all the goals. In the time between the last workshop and this one, the Refuge staff drafted a revised interpretation of the refuge purpose and Goal 1 to address all three of these issues.

> ***Refuge Purpose Clarification:*** *(As REVISED 3/1/02)*
>
> *The legal purpose of a refuge is derived from the legislation under which the lands are acquired. Some refuges are established by legislation passed by Congress specifically for the refuge being established. However, most refuges are established under more general legislation already in existence. Sherburne National Wildlife Refuge was established under the authority of the Migratory Bird Conservation Act (16 U.S.C. 715d). That act states that lands may be acquired "...for use as an inviolate sanctuary, or for any other management purpose, for migratory birds."*
>
> *At the time of the establishment of the Refuge, the intent of the Migratory Bird Commission was primarily migratory waterfowl. In recent years the Service has broadened the scope of interest for the National Wildlife Refuge system through policy and legislation. While not discounting the continued interest in migratory waterfowl, the Service has recognized the place the full diversity of species native to an area has in maintaining a healthy environment for all species. Therefore, the Refuge purpose includes all migratory birds as identified in the Code of Federal Regulations (50 CFR 10.13).*
>
> *The Refuge purpose describes the authorized use of the Refuge for migratory birds "...for use as an inviolate sanctuary, or for any other management purpose...." The term 'inviolate sanctuary' as interpreted by the Service does not mean that such an area should receive minimal or no disturbance or public use, however, the health and well being of the wildlife and their habitats must be accommodated before considering other uses on the Refuge.*

They presented the above revised statement on the first day and this was followed by significant discussion and debate in plenary. A synthesis group was formed to produce a version of the purpose interpretation taking into account the points brought up in the plenary discussion. The following statement is the product of this group.

> ***Refuge Purpose Clarification: (AS REVISED 3/12/02)***
>
> *The purpose of a refuge is derived from the legislation under which the lands are acquired. Some refuges are established by legislation passed by Congress specifically for the refuge being established. However, most refuges are established under more general legislation already in existence. Sherburne National Wildlife Refuge was established under the authority of the Migratory Bird Conservation Act (16 U.S.C. 715d). That Act states that lands may be acquired "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds."*
>
> *The intention of the Migratory Bird Conservation Commission in establishing the Refuge was primarily to provide habitat for migratory waterfowl. In recent years, the Service has broadened the scope of the National Wildlife Refuge System through policy and legislation. Therefore, the Refuge purpose is interpreted to include all migratory birds as identified in the Code of Federal Regulations (50 CFR 10.13).*
>
> *The Refuge purpose describes the authorized use of the Refuge as "... an inviolate sanctuary, or for any other management purpose, for migratory birds." The term "inviolate sanctuary", as*

interpreted by the Service, means that the Refuge will be managed to promote the health and well-being of migratory birds and their habitats. Other uses may also be accommodated, provided they do not significantly interfere with this purpose.

The Refuge purpose was the first consideration in determining management actions in this Plan. However, development of this Plan also considered the role of the full diversity of species native to the area in maintaining a healthy environment.

This version was presented, and after further discussion the synthesis group returned to plenary with a version with revisions including a change in title.

Refuge Purpose, Legislation, and Policy: Their Relationship to Management Direction (AS REVISED 3/13/02)

The purpose of a refuge is derived from the legislation under which the lands are acquired. Some refuges are established by legislation passed by Congress specifically for the refuge being established. However, most refuges are established under more general legislation already in existence. Sherburne National Wildlife Refuge was established in 1965 under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715d). That Act states that lands may be acquired "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds."

The intention of the Migratory Bird Conservation Commission in establishing the Refuge was primarily to provide habitat for migratory waterfowl (as per new release from the Service dated May 18, 1965). Considering the wording of the establishing legislation, along with recent policy and legislation, the Refuge purpose is interpreted to include all migratory birds as identified in the Code of Federal Regulations (50 CFR 10.13).

The Refuge purpose describes the authorized use of the Refuge as "... an inviolate sanctuary, or for any other management purpose, for migratory birds." The term "inviolate sanctuary", as interpreted by the Service, means that the Refuge will be managed to promote the health and well-being of migratory birds and their habitats. Other activities may also be accommodated, provided they are compatible with the Refuge purpose (as per Service Compatibility Policy, Federal Register 65 (202): 62484-62496).

The above interpretation of the Refuge purpose was the first consideration in determining management actions in this Plan. However, development of this Plan also considered the full diversity of native species that make up and depend upon healthy ecosystems. This is in accordance with the National Wildlife Refuge System Improvement Act of 1997 and the Service Policy on Maintaining the Biological Integrity, Diversity, and Environmental Health of the National Wildlife Refuge System; Notice (Federal Register 66 (10): 3810-3823).

This version was provided to the two working groups for final consideration. One group accepted it as is and the other suggested a single word change to the first sentence of the last paragraph. The final, accepted version, is on the following page:

Refuge Purpose, Legislation, and Policy: Their Relationship to Management Direction (AS REVISED 3/14/02)

The purpose of a refuge is derived from the legislation under which the lands are acquired. Some refuges are established by legislation passed by Congress specifically for the refuge being established. However, most refuges are established under more general legislation already in existence. Sherburne National Wildlife Refuge was established in 1965 under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715d). That Act states that lands may be acquired "... for use as an inviolate sanctuary, or for any other management purpose, for migratory birds."

The intention of the Migratory Bird Conservation Commission in establishing the Refuge was primarily to provide habitat for migratory waterfowl (as per Service new release dated May 18, 1965). Considering the wording of the establishing legislation, along with recent policy and legislation, the Refuge purpose is interpreted to include all migratory birds as identified in the Code of Federal Regulations (50 CFR 10.13).

The Refuge purpose describes the authorized use of the Refuge as "... an inviolate sanctuary, or for any other management purpose, for migratory birds." The term "inviolate sanctuary", as interpreted by the Service, means that the Refuge will be managed to promote the health and well-being of migratory birds and their habitats. Other activities may also be accommodated, provided they are compatible with the Refuge purpose (as per Service Compatibility Policy, Federal Register 65 (202): 62484-62496).

The above interpretation of the migratory bird purpose of the refuge was the first consideration in determining management actions in this Plan. However, development of this Plan also considered the full diversity of native species that make up and depend upon healthy ecosystems. This is in accordance with the National Wildlife Refuge System Improvement Act of 1997 and the Service Policy on Maintaining the Biological Integrity, Diversity, and Environmental Health of the National Wildlife Refuge System; Notice (Federal Register 66 (10): 3810-3823).

Note: One participant, while agreeing to accept this version, expressed that it is not superior to the version with which we ended workshop 2. The current version includes too much political language that dilutes the impact and is not meaningful to the reader.

Goal one was reworded by Refuge staff from that presented at the end of the second workshop as the following:

Goal 1: *Uplands consist of a dynamic and diverse mosaic of Anoka Sandplain habitats native to this area, ranging from grasslands to oak savanna to forested areas, supporting Service priority species and other associated with these plant communities.*

This re-wording was accepted as it is by the group.

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Section 3

Management Alternatives

Management Alternatives

Within the context of comprehensive conservation planning, the Service defines alternatives as: "Different sets of objectives and strategies or means of achieving refuge purposes and goals, helping fulfill the Refuge System mission, and resolving issues." Participants reviewed the alternatives that were drafted during the Sherburne workshop 2 in October 2001. Each of two working groups was tasked with reviewing all five alternatives. For each aspect of the alternative, participants considered what is needed to achieve the long-term Refuge Vision and then scaled back to the 15-year scope of the CCP. They were also asked to be sure that each alternative is consistent across all goals. The reports from each group were presented in plenary and the alternatives edited accordingly.

Working Group Reports

Group 1

Alternative 1: Current Management

- The landscape plan would be the guiding document for habitats.
- The impoundments would stay intact until they may become in disrepair, at which time their existence would be re-evaluated.
- Historic soil coverages would be studied to show where wetlands historically existed.
- The uplands would go toward pre-European settlement.
- How does this alternative relate to the vision?
    - Passive movement towards vision relative to wetlands that are impounded.
    - More active when talking about sedge meadow and tamarack swamp.
    - This alternative is inconsistent to the vision in some ways.
    - It represents more of an impoundment system than "functional St. Francis River system".

Alternative 2: Presettlement Conditions, 1850's

Long-term vision needs:
Wetlands:

- Pool 2 and Pool 3 would not be in existence
- Impoundments managed at (pre-settlement) historic wetland basin level
- Dikes removed from riparian area
- Unmanaged wetlands will be left as is

Uplands:

- Maximize Oak-Savanna potential

Off-refuge activities:

- Emphasize native restorations to compliment refuge work

General:

- Develop schedule for restoration, reconstruction and augmentation of species to "recreate" historic habitat condition on-refuge
- Get rid of exotics, aggressive natives to compromise restoration efforts

Alternative 3: Landscape Resource Protection Emphasis

Long-term vision needs:

- All aspects of Alt. 1 are maintained
- Intense off-refuge effort to restore native habitats as new funds and/or staff become available
- Work with developers and agricultural community to make urban development more compatible with refuge vision (e.g. water quality, native landscapes)

Alternative 4: Habitat Mosaic/Partial Pre-settlement Habitat Conditions

Long-term vision needs:

- Need to define criteria for what stays and what goes to pre-European settlement
- Keep what's best for waterfowl, send others to pre-settlement or look at natural range of variability to look at what is best to restore and leave the rest
- Also need to look at what impoundments effect others through the water movement system for reality check
- The future of uplands impacted by impoundments will be determined by influence of water table from those impoundments

Alternative 5
Long-term vision needs:

- Intensify impoundment management
    - Drawdowns throughout the year
    - Manage water levels to coincide with bird migration and other habitat needs
- For Uplands move toward open-end of oak savanna (2-5 trees/acre) and move towards larger blocks of prairie

Group 2

Alternative 1: Current Management

Uplands are managed to look like the Marchner and Kenow Map. The wetlands are management for large expanses of open and deep water. Fluctuating water but waterfowl migration driving the manipulations, food and resting.

> Deficiency: Are the wildlife in balance? The wetland management does not meet returning to the St. Frances River System. Alteration of ground water deficiency, is not reflecting diversity of wetlands that existed. Current plan has restored some of the functional value back. What is definition of functional?

The hydrological regime may not reflect a functional St. Francis River System...the word functional needs a definition.
Alternative 1 does not say anything about education, does not meet needs of paragraph 2 of the Vision statement. Needs to include the present education plan that is being used by the refuge. Educational and recreational program, cultural resources

Existing greenspace program would address the Vision but probably not enough.

Impression is that the refuge would meet to Vision in 100 years with current management. Present management does not expand as much as would be needed to affect green space called for in the Vision. Present management doesn't totally meet Vision.

Alternative 2: Presettlement Conditions, 1850's

Nothing that would not meet the Vision in 100 years. Refer to the Audubon article on white tail deer and turkey. We need to address recreational activities and define the BIG 6 more clearly. Use recreational components to help control wildlife populations, "wildlife in balance"

Deficiency of this alternative is that it does not include potential changes in climatic conditions. Making it very difficult to meet 1850's conditions.

100 Years: Upland communities, management could stay the same, the hydrology and wetland vision, wetland management would have to be dramatically changed, remove impoundments, Fill ditches. Return original basins, return to original drained wetlands. Return wetlands to original diversity.

15 Years: Designate way of returning the wetland to the original diversity. Hydrologic feasibility study, demonstration projects moving toward the 100 year return to wetlands.

Do not see a hydrology related goal. Should reconsider Goal List and Address the need for a hydrological Goal.

Alternative 3: Landscape Resource Protection Emphasis

This alternative would require a different kind of staffing skills than normal on a normal refuge. (Community activist, organizers landscape planning).

All of Alternative 1 would be relevant here.

Development of a watershed plan, which would lead to expand "conservation ethic" into a land use plan. Make "ethic" translate into community wide conservation behavior.

Conservation ethic would translate into land use planning and decisions in the off refuge watershed.

15 year: Work with developers, on placement of greenspace.

Alternative 4: Habitat Mosaic/Partial Pre-settlement Habitat Conditions

This one needs to address the recreation, needs BIG 6 programs, Middle of the road on some of these.

Revised Alternatives

These reports were presented in plenary and then the participants divided into five working groups, each taking one alternative and incorporating the plenary session comments into a revised version of the alternative. The following alternatives were presented in plenary and accepted by the group with minimal changes. The alternative descriptions below represent the final versions.

Alternative 1: Current Management

Current management is focused on upland habitats to approximate 1850s conditions based on the Refuge Landscape Plan as a guiding document. Wetlands are actively managed to benefit migratory birds. The Landscape Plan also allows for a re-evaluation of the impoundments as the structures deteriorate. Interpretive and environmental education programs on and off refuge contrast natural and managed systems and pre-settlement and settlement cultural history. Opportunities for hunting, fishing, wildlife observation, and wildlife photography are provided at levels consistent with existing plans and guidance. Off-refuge restoration programs are focused on the objectives of the Partners for Wildlife Program.

Alternative 2: Pre-settlement Habitat Conditions (1800-1850)

Vegetative communities and hydrology on the refuge would approximate native Anoka Sandplain habitats. Wildlife diversity would mirror the diversity of the habitats. Hunting, fishing, wildlife viewing, and wildlife photography would continue under current management direction with consideration for some mid-1800 experiences. Interpretive and environmental education programs on and off refuge would emphasize natural pre-settlement conditions and cultural history and natural processes. There would be strong emphasis on off-refuge outreach, private lands, and partnership activity with emphasis on natural processes, corridors, and restoration. Cultural resources of the refuge would be preserved. There is recognition that this alternative's habitat component will require a long-term restoration effort.

Alternative 3: Landscape Resource Protection Emphasis Revised 3/13/02 After Group Review

This alternative recognizes that the refuge is part of a larger and rapidly changing landscape. The current management direction will be maintained on the refuge but new programs and staff will be focused on off-Refuge land conservation efforts. We would emphasize pursuit of a strong land conservation ethic through relationship-building with the local community, partners groups, and local governments. Outreach will be strategic: focusing on habitat restoration and protection with

an emphasis on native vegetation. Restoration of native vegetation and wetlands on the refuge will be used as demonstration areas. Opportunities for hunting, fishing, wildlife observation, and wildlife photography will receive balanced emphasis to increase opportunities for all visitors to have personal experience with wildlife and native habitats. Interpretive and environmental education programs on and off the refuge will contrast managed with natural systems and pre-settlement with settlement cultural history. Cultural resources of the Refuge and the watershed will be valued, interpreted and preserved.

Alternative 4: Partial Presettlement Habitat Conditions with Managed Impoundments

Vegetative communities and hydrology on a portion of the refuge would approximate those communities typical of the Anoka Sandplain in the mid-1800s. Other areas will be maintained as impoundments with an emphasis on waterbird use during migration. Wildlife diversity will reflect the relative extent to which specific management actions (e.g., impoundments) are implemented. Choices of what lands are managed and how they are managed will impact that diversity. Interpretive and environmental education programs on and off-refuge would contrast natural and managed systems and pre-settlement and settlement cultural history. Visitor recreational activities are consistent with maintenance of sustainable populations of wildlife. There would be strong emphasis on off-refuge outreach, private lands, and partnership activity with emphasis on natural processes, corridors, and restoration. Cultural resources of the refuge would be preserved.

Alternative 5: Focused Management for Priority Wetland and Grassland Birds

The focus of this alternative would be management for priority wetland and grassland birds. Water management would be more intense and active than it is currently (or in any of the other alternatives), and upland management would emphasize more open grassland relative to the forest component. Wetland management for FWS Region 3 priority bird species would include a mixture of high water for emergent vegetation control and drawdowns that vary spatially and temporally to favor the seasonal occurrence of various bird groups (e.g., shorebirds, waterbirds). Current impoundments will be maintained, for the most part, with the caveat that appropriate impounded areas may be managed as marsh or sedge habitat. Tamarack restoration would be limited to the edges of pool areas within the system. Where possible, water management would mimic natural processes to provide for a diverse wetland bird community and preserve the river hydrologic regime (e.g., manage pools to mimic beaver dams or wet-dry cycles). Upland management would emphasize the more open end of the prairie-oak savanna continuum and include large blocks of prairie. This alternative would also emphasize more focused management to maximize production of wetland and grassland birds.

Interpretive and environmental education programs on and off the refuge would focus on the importance of managing for service priority wetland and grassland birds and their habitats on the refuge and on adjacent natural areas. High quality recreation opportunities for hunting, fishing, wildlife observation, and photography would be provided commensurate with the requirements of species on the refuge. Recreational opportunities and access would be limited to ensure protection of priority species during critical times. Outreach activities would encourage

contiguous native habitat with an emphasis on grassland. Cultural resources of the refuge would be preserved.

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Section 4

Objectives

Objectives

According to 602 FW 1.6 and Goals and Objectives Handbook, an objective is a concise statement of what we want to achieve, how much we want to achieve, when and where we want to achieve it, and who is responsible for the work. Objectives derive from goals and provide the basis for determining strategies, monitoring refuge accomplishments, and evaluating the success of strategies. Participants were asked to review the draft Objectives developed for the Alternatives 2 and 5 by the technical working groups since the last workshop, and prepare Objectives for the remaining 3 alternatives. The working groups were specifically tasked to apply the SMART criteria to each objective making them attainable, time-specific, and measurable.

The process began with participants dividing into two groups based on their professional affiliations to get roughly equivalent representations in each group. As work progressed it became evident that this working group composition was resulting in a number of people not having an opportunity to most effectively contribute their expertise. Therefore, the group was asked to reform into two working groups, one biology-focused and the other public use-focused, based on their interest and expertise. This change increased the energy level and the progress of each group.

Working Group Reports

Group 1
Began editing the habitat technical group's objectives. Changes are noted below.

Review of Objectives for Alternative 5

We first examined the Goals and whether an objective had been identified for each.

Upland Objectives (3)

Objective 1: Grasslands: O.K.
Objective 2: Oak Savanna: O.K.
Objective 3: Oak Savanna Conversion Start: See above.
Rewrite: Manage a minimum of 1000 acres of oak covertype to start the conversion from oak woodland to oak savanna with canopy cover 10-50%.
(Structure is more important; but consider 25% plant species diversity as a measure of success).
Strategy: Derive a species list for all habitat types (short-term).

Wetland Objectives (10)

Objective 1: Open Water.

Provide at least 6 pools annually, from mid-April to July, in those years that weather conditions allow. Pools should have a minimum of 200 acres of open water. (Narrative should include a 200-acre minimum for trumpeter swans.)

Objective 2: Sedge Meadows (convert Reed Canary):

Maintain existing XX acres of sedge meadow with 20-50 cm VOR and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.

Note: 20 acre target is an experiment. Ultimately we would like to convert more acres.

Objective 3: Sedge Meadows (existing):

Maintain existing sedge meadow with 20-50 cm VOR and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.

Strategy: Determine extent of sedge meadow on the refuge.

Objective 4: Lowland Brush:

~~By the end of the 15-year planning period,~~ Maintain a minimum of 2500 acres of lowland brush annually. 40-60% of the lowland brush acreage will have a VOR of 20-50 cm, vegetation heights of 30-100 cm and water depths from moist to 100 cm. In addition, 40-60% of the lowland brush acreage will have a VOR of 50-80 cm, brush heights between 70-150 cm, and water depths of moist-20 cm.

[explanatory paragraph for this objective should address the remaining acres currently in lowland brush]

Note: Brush species include willow and some alder and dogwood.

Objective 5: Cattail Marsh:
Objective 6:
Objective 7:
Objective 8:
Objective 9:
Objective 10:

Group 2

Alternative 5: Focused Management for Priority Wetland and Grassland Birds

1. Within 15 years of CCP's approval, provide a minimum of 3 grassland blocks of at least 200 acres each. Grasslands are characterized by <10% canopy closure, <5% shrub cover, and native grass species.

2. Provide a minimum of 2000 acres in oak savanna management. Oak savannas are characterized by 10-50% canopy closure, 5-35% relative cover of shrubs, and at least 25% relative cover of grasses and 25% relative cover of forbs.

Separate out the two objectives. Use only burning. Identify that the difference between the two is the ground cover that occurs.

- Open up oak cover type to achieve desired canopy; available oak woodland is 5,639 acres.
- Should there be a core area requirement?
- Need to include what we will be doing with the rest of the refuge
- Need to be explicit that we will not be planting grassland

Wetland Objectives.

1. Provide at least 6 pools annually (minimum of 200 ac. Open water/pool) from mid-April to July, over a 5-year average of open water. Open water is defined as < 20 cm VOR flooded to depths ranging from 50-200 cm, and must include at least 50% submergent vegetation. An edge of emergent vegetation on at least 50% of the perimeter is desirable to provide food and cover for a variety of species.

2. By the end of the 15 years planning period, increase sedge meadow/lowland graminoids (excluding reed canary grass) by a minimum of 20 acres (convert from reed canary grass) over the next 15 years, with 20-50 cm VOR and vegetation heights varying from 30-100cm with water depth ranging from moist to 100 cm.

3. Maintain existing XX acres of sedge meadow with 20-50 cm VOR and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.

4. Maintain a minimum of 2500 acres of lowland brush annually.

5. Annually manage 2500-4000 acres cattail (with desired parameters).

6-Annually manage 200 acres of tamarack swamp (protected from flooding)
7 and 8 Change "Provide" to "Manage for"
9 meet the SMART criteria.

Public Use

Hunting and Fishing: High quality recreation opportunities for hunting, fishing, wildlife observation, and photography would be provided commensurate with the requirements of species on the refuge.

Waterfowl, deer, request for spring turkey, predator hunting, mussel loader deer hunt, handicap hunt. Are they designed for population control (e.g. Deer, geese) or for recreational opportunity for others?

Fishing on River only. Pier for handicap fishing.

Issues:
Need to compare public use across all alternatives
Need to consolidate the bullets raised by focus groups.

Hunting/Fishing Themes:

- Quality of Experience (need to include bullets on hunting and fishing list and also a limit on the number of hunters on opening day, limiting hunters).
- Environmental Interpretation/education Related to Hunting/Fishing
- Hunters/Fishers with Disability Accessibility
- Maximize Opportunity (New Opportunity)
- Research
- Hunting as a management tool

Working Group Reports after more discussion

Biological Group Discussion:
Attendees: Jan Eldridge, Bob Adamcek, Kevin Kenow, Tom Will, Brad Ehlers, Jeanne Holler, Jason Rohweder, Tom Larson, Dave Warburton, Paul Soler

Alternative 4:
Description of the alternative needs to be expanded to clearly portray how the alternative differs from others

·Hybrid of Alternative 2 and 5
Difference from alternative 1: Impoundments to be reevaluated when maintenance needed to determine if they will be repaired or eliminated in alternative 1. In alternative 4, some impoundments will be identified to keep, others will be identified for elimination but the decision will be made up front.
·Diversity (including waterfowl) is a guiding principle in alt. 4; what does the diversity mean? **Waterbird use during migration** is highlighted as a primary emphasis
·Alt. 4 is more diverse, less focused on a single group of species or habitat condition than other alts.
·Diversity - define;

Alternative 5:
Goal 3 Discussion:
Goal 3: A balanced diversity of native migratory birds and other native wildlife reflects an emphasis on Service priority species appropriate to Refuge habitats.
Possible objectives brainstormed and crossed out as the group addressed them:
·~~wild plum and barbed wire for shrikes~~
·~~mimic wetland complexes so that they are out of sync for the variety of marsh birds; manage for vegetative interspersion for marsh birds~~
·~~Crane roosts: sanctuary aspect; only crane roost in east central MN;~~
·~~Eagle nests~~
·~~Invertebrate fauna for migrating shore birds~~
·Wild rice management for migrating waterfowl (wetland objective)
·~~nest boxes for red-headed woodpeckers~~
·~~cowbird control~~
·~~extensive monitoring program for birds~~
·population objectives for waterfowl; breeding and migrant
·~~reintroduce karner blue butterflies~~
·~~reintroduction of sharp-tailed grouse~~
·~~reintroduced elk and bison~~
·~~deer management~~
·~~trapping for management purposes~~
·peregrine falcon
·timber wolf
·~~inventory mussels~~
·~~Trumpeter swans~~
·~~Blandings turtles~~
·~~gopher snake~~
·Exotics control/invasive species

Crafted Objective wording
(numbers refer to objectives for each goal across the alternatives as seen in the following table)

3.1 Colonial nesting/roosting species (e.g., sandhill cranes) nesting/roosting sites will be Refuge Sandhill crane roosting sites in a sanctuary condition defined as shallow water areas less than 18 inches deep will support up to 5,000 cranes between September 1 and December 1with 150 m buffer of open space surrounding the roost for a total roost and buffer area of 500 acres.

3.2 Within 15 years accommodate 80% of the Region 3 RCP species that potentially occur on Anoka Sandplain wetland and grassland habitats referenced in the objectives for goals 1 and 2.

Strategy: Assess the potential for reintroduction of Service priority species which historically occurred in the area of the Refuge.

To promote the logger head shrike population, 10 clumps of native wild plum in xx acre open grassland areas will be planted.

Inventory mussels.

3.3 Within two years of approval of this plan, initiate a 10 year monitoring plan to assess population levels and breeding productivity of wetland, grassland, and oak savanna birds. The objective is to determine if the habitat is sufficient to sustain a source population of birds, define what source populations are on the Refuge, and establish baseline information regarding breeding productivity.

Strategy: USGS will develop the plan.

2.9 Manage impoundments to provide xx acres of shallow water habitat in a way that would encourage chironomid densities of more than 200 larva per square meter through slow drawdown in the spring from April 15 through May 31 to benefit migrant arctic nesting shorebirds.

- Need descriptive paragraph that would describe the 2 step process; annual growth and drawdown

2.5 Annually manage 2500-4000 acres of cattail marsh; less than 70% of cattail is desirable on any one basin. 20-40% of the cattail acreage will have a VOR of 50-80 cm.

Strategy: mimic wetland complexes so that they are out of sync for the variety of marsh birds; manage for vegetative interspersion for marsh birds

3.4 Maintain deer population densities less than or equal to 16-18 deer per square mile.

Objective ??:
Strategy: Use contract-trapping in the spring to control furbearers (mink, raccoon, and skunk) which depredate ground nesting birds.

Objective??:
Strategy: Minimize dike damage through the use of annual bid-trapping within state regulations to control furbearers (beaver, muskrat).

3.5 Reduce non-native and/or invasive plant species in upland and wetland habitats to less than xx% of the refuge habitat base.

Species to consider with strategies:
Siberian elm, black locust, loosestrife, spurge, spotted knapweed, reed canary, buckthorn, conifer, box elder

4.1 Within 5 years of plan approval, map natural and managed areas within a 15 mile buffer of the refuge boundary and identify potential corridors to facilitate wildlife movement between these areas.

4.2 Implement Service's Partners for Fish and Wildlife Program to give priority to grassland and wetland restorations and those restorations within the St. Francis River watershed.
A) Work with partners to restore XX wetlands with priority given to those within the St. Francis River Watershed.
B) Work with partners to restore XX grassland areas of at least ten-acres on lands with priority given to those with permanent easements and within 50 miles of refuge.

C) Strategically prioritize those potential restorations that allow potential for connection to each other and the refuge habitats.

Discussion regarding a change to the goal wording (**Goal 3: A balanced diversity of native migratory birds and other native wildlife reflects an emphasis on Service priority species appropriate to Refuge habitats.**)?
·Focus is on priority species but we have not limited ourselves to those species
·Balanced diversity of mig. Birds and other native wildlife; the diversity can occur on the managed habitats not necessarily on the original native habitats
·need to define diversity:
·Suggested change: An array of native migratory birds and other wildlife, reflects the breadth of native species representative of refuge habitats, with an emphasis on Regional priority species; discussion conclusion: keep existing wording
·'balanced' and 'diversity' are defined in the integrity chapter

Discussion on Criteria to Guide Development of Objectives for Alternative 4

Biological Group Discussion
Attendees: Jan Eldridge, Bob Adamcik, Kevin Kenow, Tom Will, Brad Ehlers, Jeanne Holler, Jason Rohweder, Tom Larson, Dave Warburton, Paul Soler

It was felt that further discussion of Alternative 4 was necessary to provide details to guide development of it's objectives. Specifically, the identification of criteria that will guide decisions regarding quantity of habitat that will go to pre-settlement habitat versus other habitats was needed.

<u>Guidelines:</u>
reasonableness, feasibility
·may be based upon area (compartment) of the refuge
·Trade offs wetlands, uplands, impoundments
·spatial gradients of openness
·current management - grasslands
·migratory birds
·transition areas; lowlands to uplands
·criterion character and form
·Impoundment system on refuge; portions that could be removed
<u>Potential Options:</u>
·choose areas want in natural areas first
·choose water areas first
·delineate givens first; areas won't change, minimum size requirements, high qualities habitats, barriers that prohibit specific active management to maintain, how much water is needed for the waterbirds,
·Manage pools 2 and 3 only
·Manage Texas shape

<u>Criteria for retaining an impoundment:</u>
·important to migrating and resident birds

·easy to manage water levels; feasibility of moving water into and out of; dependence on other impoundments
·focus impoundment retention in areas/blocks

Criteria for mid-1800's conditions:
·manage uplands and wetlands to the same natural mid-1800's condition
·focus restoration in blocks/areas
·returning to historic wetland diversity

Potential Decisions:
What is retained:
·Pool 2-as supplemental water reservoir
Other wetland discussions
·Natural lakes: Orrock, Josephine, Rice, Buck, Johnson's Slough, Round
maintain in a mid-1800's condition:
·Structure controlled wetlands where a spillway (fixed head structure) would work better:
·South Josephine
·Fox Pool
·Teal Pool
·East Bergerson Pool
·Blue Hill Pool
·Iron Pool
·Muskrat Pool
·Pool 3 can be managed for mid-1800's conditions; in a riverine habitat; water regime is independent of other pools; also is the only waterfowl hunting pool
·Pools that can be managed but are at the end of a line and would not affect other pools
Upland areas in good historic condition that will be retained in mid-1800's conditions:
·Santiago oak savanna
·No-Name Research natural area along County 4
·Tim Savanna (Northeadt of Nikko Rd.)

Comparison of Biological Objectives across Alternatives

Participants: Jan Eldridge, Bob Adamcik, Kevin Kenow, Tom Will, Brad Ehlers, Jeanne Holler, Jason Rohweder, Tom Larson, Dave Warburton, Paul Soler

(unless stated otherwise, all objectives will be implemented within 15 years of approval of this plan)

Alternative 1 Current Management	**Alternative 2 Pre-settlement Habitat Conditions (1800-1850)**	**Alternative 3 Landscape Resource Protection Emphasis**	**Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments**	**Alternative 5 Focused Management for Priority Wetland and Grassland Birds**
Goal 1: Uplands consist of a dynamic and diverse mosaic of Anoka Sandplain habitats native to this area, ranging from grasslands to oak savanna to forested areas, supporting Service priority species and others associated with these plant communities.				
1.1 Maintain existing grassland areas within 400 m of an impoundment and scattered throughout the oak savanna with none of these scattered areas being larger than 40 acres. Grasslands are characterized by <10% canopy closure, <5% shrub cover, and a diverse native grass and forb species mix.		1.1 Maintain existing grassland areas within 400 m of an impoundment and scattered throughout the oak savanna with none of these scattered areas being larger than 40 acres. Grasslands are characterized by <10% canopy closure, <5% shrub cover, and a diverse native grass and forb species mix.		1.1 Within 15 years of CCP=s approval, provide a minimum of 3 grassland blocks of at least 200 acres each. Grasslands are characterized by <10% canopy closure, <5% shrub cover, and a diverse native grass and forb species mix.
1.2 Provide a minimum of 1000 acres of oak savanna using current management. Grasslands greater than 40 acres may be planted to trees, leaving at least a 40 acre grassland opening. Oak savannas are characterized by		1.2 Provide a minimum of 1000 acres of oak savanna using current management. Grasslands greater than 40 acres may be planted to trees, leaving at least a 40 acre grassland opening. Oak savannas are characterized by		1.2 Provide a minimum of 1000 acres of oak savanna using current management, with the exception that grasslands will not be planted to trees. Oak savannas are characterized by 10-50% canopy closure, 5-35%

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
10-50% canopy closure, 5-35% relative cover of shrubs, and at least 25% relative cover of diverse native grasses and 25% relative cover of diverse native forbs.		10-50% canopy closure, 5-35% relative cover of shrubs, and at least 25% relative cover of diverse native grasses and 25% relative cover of diverse native forbs.		relative cover of shrubs, and at least 25% relative cover of diverse native grasses and 25% relative cover of diverse native forbs.
1.3 To initiate transition to oak savanna, convert a minimum of 1000 acres of existing oak woodland to a canopy cover of 10-50%. The herbaceous layer recovery will likely take longer than 15 years.		1.3 To initiate transition to oak savanna, convert a minimum of 1000 acres of existing oak woodland to a canopy cover of 10-50%. The herbaceous layer recovery will likely take longer than 15 years.		1.3 To initiate transition to oak savanna, convert a minimum of 1000 acres of existing oak woodland to a canopy cover of 10-50%. The herbaceous layer recovery will likely take longer than 15 years.
Goal 2: A diverse mosaic of riverine and wetland habitats meets the needs of Service priority riparian and other wetland dependent species.				
2.1 For the benefit of open water dependent species, provide 1 to 3 pools annually, from mid-April to July, in those years that weather conditions allow. Open water is defined as < 20 cm VOR* flooded to depths ranging from 50-200 cm, and must include at least 50% submersed aquatic vegetation. An edge of emergent native vegetation on at least 50% of the		2.1 For the benefit of open water dependent species, provide 1 to 3 pools annually, from mid-April to July, in those years that weather conditions allow. Open water is defined as < 20 cm VOR* flooded to depths ranging from 50-200 cm, and must include at least 50% submersed aquatic vegetation. An edge of emergent native vegetation on at least 50% of the		2.1 For the benefit of open water dependent species, provide at least 6 pools annually, from mid-April to July, in those years that weather conditions allow. Each pool should have a minimum of 200 acres of open water. Open water is defined as < 20 cm VOR* flooded to depths ranging from 50-200 cm, and must include at least 50% submersed aquatic

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
perimeter is desirable to provide food and cover for a variety of species.		perimeter is desirable to provide food and cover for a variety of species.		vegetation. An edge of emergent native vegetation on at least 50% of the perimeter is desirable to provide food and cover for a variety of species.
2.2 To assess the feasibility of converting reed canary dominated areas to native species, by the end of the 15 years planning period, increase native sedge meadow/lowland graminoids by a minimum of 20 acres over the next 15 years, with 20-50 cm VOR* and vegetation heights varying from 30-100cm with water depth ranging from moist to 100 cm.		2.2 To assess the feasibility of converting reed canary dominated areas to native species, by the end of the 15 years planning period, increase native sedge meadow/lowland graminoids by a minimum of 20 acres over the next 15 years, with 20-50 cm VOR* and vegetation heights varying from 30-100cm with water depth ranging from moist to 100 cm.		2.2 To assess the feasibility of converting reed canary dominated areas to native species, by the end of the 15 years planning period, increase native sedge meadow/lowland graminoids by a minimum of 20 acres over the next 15 years, with 20-50 cm VOR* and vegetation heights varying from 30-100cm with water depth ranging from moist to 100 cm.
2.3 For the benefit of sedge meadow nesting birds, maintain existing sedge meadow with 20-50 cm VOR* and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.		2.3 For the benefit of sedge meadow nesting birds, maintain existing sedge meadow with 20-50 cm VOR* and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.		2.3 For the benefit of sedge meadow nesting birds, maintain existing sedge meadow with 20-50 cm VOR* and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
2.4 Lowland brush will not be actively managed for but will be maintained or created in varying amounts as a result of management actions focused upon other objectives.		2.4 Lowland brush will not be actively managed for but will be maintained or created in varying amounts as a result of management actions focused upon other objectives.		2.4 For the benefit of brush associated marsh birds, maintain a minimum of 2500 acres of lowland brush annually. 40-60% of the lowland brush acreage will have a VOR* of 20-50 cm, vegetation heights of 30-100 cm, and water depths from moist to 100 cm. In addition, 40-60% of the lowland brush acreage will have a VOR of 50-80 cm, brush heights between 70-150 cm, and water depths of moist-20 cm.
2.5 For the benefit of marsh nesting birds, cattail marsh will be maintained but will be managed so that it does not exceed two-thirds of the surface area of any given pool; 20-40% of the cattail acreage will have a VOR* of 50-80 cm.		2.5 For the benefit of marsh nesting birds, cattail marsh will be maintained but will be managed so that it does not exceed two-thirds of the surface area of any given pool; 20-40% of the cattail acreage will have a VOR* of 50-80 cm.		2.5 For the benefit of marsh nesting birds, annually manage 2500-4000 acres of cattail marsh; less than 70% of cattail is desirable on any one basin. 20-40% of the cattail acreage will have a VOR* of 50-80 cm.
2.6 Maintain 202 acres of existing tamarack swamp and undertake restoration of tamarack swamp on the periphery of Rice Lake, Bohm Pool, and the wetland		2.6 Maintain 202 acres of existing tamarack swamp and undertake restoration of tamarack swamp on the periphery of Rice Lake, Bohm Pool, and the wetland		2.6 Maintain a minimum of 200 acres of existing tamarack swamp.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
portion of section 16, township. 35 N, Range 28 W resulting in a total tamarack acreage of 932 acres		portion of section 16, township. 35 N, Range 28 W resulting in a total tamarack acreage of 932 acres		
2.7 For the benefit of seed-eating fall migrants, manage (spring drawdown, fall flooding) to obtain 50-150 acres total across at least 2 basins of seasonal wetland habitat dominated (70-90%) by native annual plants flooded to depths ranging from wet to <20 cm during 15 September to freeze-up.		2.7 For the benefit of seed-eating fall migrants, manage (spring drawdown, fall flooding) to obtain 50-150 acres total across at least 2 basins of seasonal wetland habitat dominated (70-90%) by native annual plants flooded to depths ranging from wet to <20 cm during 15 September to freeze-up.		2.7 For the benefit of seed-eating fall migrants, manage (spring drawdown, fall flooding) to obtain 100-300 acres total across at least 3 basins of seasonal wetland habitat dominated (70-90%) by native annual plants flooded to depths ranging from wet to <20 cm during 15 September to freeze-up.
2.8 For the benefit of fall migrating shorebirds and migrant waterfowl in the subsequent spring, provide one pool at least every third year with 30-50 acres of seasonal wetland habitat dominated (70-90%) by annual plants (resulting from a previous year fall draw down) flooded to depths ranging from wet to <20 cm from April 1 to May 31.		2.8 For the benefit of fall migrating shorebirds and migrant waterfowl in the subsequent spring, provide one pool at least every third year with 30-50 acres of seasonal wetland habitat dominated (70-90%) by annual plants (resulting from a previous year fall draw down) flooded to depths ranging from wet to <20 cm from April 1 to May 31.		2.8 For the benefit of fall migrating shorebirds and migrant waterfowl in the subsequent spring, provide 30-50 acres of seasonal wetland habitat dominated (70-90%) by annual plants (resulting from a previous year fall draw down) flooded to depths ranging from wet to <20 cm from April 1 to May 31.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
2.9 There is no goal to specifically benefit spring migrant shorebirds and pre-breeding dabbling ducks by encouraging chironomid densities.		2.9 There is no goal to specifically benefit spring migrant shorebirds and pre-breeding dabbling ducks by encouraging chironomid densities.		2.9 To benefit spring migrant shorebirds and pre-breeding dabbling ducks, manage impoundments to provide 30-50 acres of shallow water habitat characterized by sparsely distributed (<20% cover) short vegetation (<20cm) flooded to depths ranging from moist to 12 cm in a way that would encourage chironomid densities of more than 200 larva per square meter. To make invertebrates available to shorebirds, begin a slow drawdown in the spring by April 15, continuing through May 31.
2.10 For the benefit of fall migrant shorebirds and waterfowl, provide one pool at least every third year during mid-July to mid-September, provide 50-150 acres of sparsely (<20% cover) distributed short (<20 cm) native vegetation flooded to depths ranging from moist to 12 cm.		2.10 For the benefit of fall migrant shorebirds and waterfowl, provide one pool at least every third year during mid-July to mid-September, provide 50-150 acres of sparsely (<20% cover) distributed short (<20 cm) native vegetation flooded to depths ranging from moist to 12 cm.		2.10 For the benefit of fall migrant shorebirds and waterfowl, during mid-July to mid-September, provide 50-150 acres of sparsely (<20% cover) distributed short (<20 cm) native vegetation flooded to depths ranging from moist to 12 cm.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
Goal 3: A balanced diversity of native migratory birds and other native wildlife reflects an emphasis on Service priority species appropriate to Refuge habitats.				
3.1 Provide roosting area for up to 5,000 Sandhill Cranes. Public use is prohibited between September 1 and December 1. The area is characterized by 200 acres of shallow water (less than 46 cm) with 150 m buffer of open space surrounding the roost for a total roost and buffer area of 500 acres.		3.1 Provide roosting area for up to 5,000 Sandhill Cranes. Public use is prohibited between September 1 and December 1. The area is characterized by 200 acres of shallow water (less than 46 cm) with 150 m buffer of open space surrounding the roost for a total roost and buffer area of 500 acres.		3.1 Provide roosting area for up to 5,000 Sandhill Cranes. Public use is prohibited between September 1 and December 1. The area is characterized by 200 acres of shallow water (less than 46 cm) with 150 m buffer of open space surrounding the roost for a total roost and buffer area of 500 acres.
3.2 Within 15 years accommodate 80% of the Region 3 RCP species associated with historically occurring habitats within the Refuge as depicted on figure 13 (Practical Extent of Pre-European Settlement Vegetation) of the Refuge Landscape Plan.		3.2 Within 15 years accommodate 80% of the Region 3 RCP species associated with historically occurring habitats within the Refuge as depicted on figure 13 (Practical Extent of Pre-European Settlement Vegetation) of the Refuge Landscape Plan.		3.2 Within 15 years accommodate 80% of the Region 3 RCP species that potentially occur on Anoka Sandplain wetland and grassland habitats referenced in the objectives for goals 1 and 2.
3.3.Breeding bird point counts will continue to monitor abundance and distribution. Monitoring will comply with Region 3 monitoring protocol		3.3.Breeding bird point counts will continue to monitor abundance and distribution. Monitoring will comply with Region 3 monitoring protocol		3.3.Within two years of approval of this plan, initiate a 10 year monitoring plan to assess population levels and breeding productivity of wetland, grassland, and oak

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
Monitoring will occur two consecutive years followed by five years without monitoring.		Monitoring will occur two consecutive years followed by five years without monitoring.		savanna birds. The objective is to determine if the habitat is sufficient to sustain a source population of birds, define what constitutes source populations on the Refuge, and establish baseline information regarding breeding productivity.
3.4 Maintain deer population densities less than or equal to 16-18 deer per square mile.		3.4 Maintain deer population densities less than or equal to 16-18 deer per square mile.		3.4 Maintain deer population densities less than or equal to 12-14 deer per square mile.
3.5 Reducing the use of chemicals, emphasizing mechanical and biological control, efforts will focus on those species posing the biggest threat to natural vegetation/restoration efforts. Reduce the size or number of areas of occurrence of these non-native and/or invasive plant species by at least ax%.		3.5 Reducing the use of chemicals, emphasizing mechanical and biological control, efforts will focus on those species posing the biggest threat to natural vegetation/restoration efforts. Reduce the size or number of areas of occurrence of these non-native and/or invasive plant species by at least xx%.		3.5 Reduce non-native and/or invasive plant species in upland and wetland habitats to less than xx% of the refuge habitat base area. (Need to clarify)
Goal 4: A complex of natural areas, corridors, and watershed conservation practices in the surrounding landscape complements Refuge habitat and wildlife goals.				
4.1 Within 2 years of plan approval, map natural and managed areas within a 15		4.1 Within 2 years of plan approval, map natural and managed areas within a 15		4.1 Within 2 years of plan approval, map natural and managed areas within a 15

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
mile buffer of the refuge boundary and identify potential corridors to facilitate wildlife movement between these areas.		mile buffer of the refuge boundary and identify potential corridors to facilitate wildlife movement between these areas.		mile buffer of the refuge boundary and identify potential corridors to facilitate wildlife movement between these areas.
4.2 Restore 400 wetlands off-refuge with priority given to those within the St. Francis River Watershed.		4.2 Restore 600 wetlands off-refuge with priority given to those within the St. Francis River Watershed.		4.2 Restore 400 wetlands off-refuge with priority given to those within the St. Francis River Watershed.
4.3 Restore off-refuge, 100 native upland areas of at least ten-acres with priority given to those lands that create contiguous grassland habitats with permanent easements and within xx miles of refuge.		4.3 Restore off-refuge, 150 native upland areas of at least ten-acres with priority given to those lands that create contiguous grassland habitats with permanent easements and within xx miles of refuge.		4.3 Restore off-refuge, 100 native grassland areas of at least ten-acres with priority given to those lands that create contiguous grassland habitats with permanent easements and within xx miles of refuge.
		4.4 brainstorm additional off-refuge objectives for this alternative		

Comparison of Recreation Objectives by Alternatives

Participants: Charlie Blair, Lloyd Knutson, Nancy Haugen, Gary Muehlenhardt, John Schomaker, Marv Ziener, David Fulton, Liz Bellantoni

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
Goal 5: Visitors enjoy wildlife dependent opportunities that further an appreciation of Refuge wildlife and habitats.				
Hunting 5.1 Provide at least 4 blinds for hunters with disabilities: (1) firearms deer and (3) waterfowl.	**Hunting** 5.1 Same as Alternative 5	**Hunting** 5.1 Same as Alternative 5	**Hunting** 5.1 Same as Alternative 5	**Hunting** 5.1 Maintain a white-tailed deer density of 12-14/mi2 through a firearms hunt which meets the definition of quality in the FWS Manual (605 FW2). - Include hunting blind
5.2 Maintain at least 70 percent of the refuge open to deer gun hunting.	5.2 Same as Alternative 5	5.2 Same as Alternative 5	5.2 Same as Alternative 5	5.2 Opportunity for quality archery deer hunting is provided for 30? days within a limited zone on the refuge identified on Fig. X. (Archery hunting is not an effective mgmt. tool. The extended winter season may be in conflict with priority species).

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
5.3. Maintain at least 50 percent of the refuge open to small game hunting.5.4 Same as Alternative 5	5.3 Same as Alternative 5	5.3 Same as Alternative 5	5.3 Same as Alternative 5	5.3 Provide small game hunting opportunities on XX acres in designated areas in Figure X. (Areas need to be designated because of conflicts with mig. birds. Small game to be defined by state regs). (Possibly no new hunts; i.e. spring turkey hunt).
5.4. Provide waterfowl hunting opportunities for both open water and river hunting.	5.4a Same as Alternative 5	5.4 Same as Alternative 5 5.4a Same as Alternative 5	5.4 Same as Alternative 5 5.4a Same as Alternative 5	5.4. Provide for no more than XX visits/day to ensure quality waterfowl hunting while maintaining sanctuary areas during migration. (Note that we are providing oppor. to meet RIA-Big 6 & youth hunting. Support youth waterfowling day. Perhaps increase sanctuary areas. - Include hunting blinds (3) -5.4a Consider a new objective for new hunting opportunities.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
Fishing 5.5 Provide fishing opportunities on the St. Francis River at a minimum of 4 access points.	**Fishing** 5.5 Same as Alternative 1	**Fishing** 5.5 Same as Alternative 1	**Fishing** 5.5 Same as Alternative 1	**Fishing** 5.5 Provide quality fishing opportunities on the St. Francis River at a minimum of 4 access points.
5.6 Construct a fishing pier on at least one location that can be used by anglers with disabilities.	5.6 Same as Alternative 1	5.6 Same as Alternative 1	5.6 Same as Alternative 1	5.6 Same as Alternative 1
Wildlife Observation and Photography 5.7 Provide a quality auto tour route on the Prairie's Edge Wildlife Drive that will maintain 10,000 visits per year.	5.7 Same as Alternative 5	5.7 Same as Alternative 5	5.7 Same as Alternative 5	5.7 Provide a quality auto tour route on the Prairie's Edge Wildlife Drive that will maintain at least 15,000 visits per year, but no more than 35,000, with no more than 20 vehicles on the route at one time (max. twice per year). (Check Sunday data to see if this is correct) (include strategy for monitoring use and re-evaluation)

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
5.8 Maintain a combined 10 miles of hiking trails on the Mahnomen and Blue Hill trails for WO/P**.	5.8 Same as Alternative 5	5.8 Same as Alternative 5	5.8 Same as Alternative 5	5.8 Maintain a combined 10 miles of trails, but not to exceed 25,000 visits per year (re-evaluate at threshold). - Construct 2 miles of trail in association with a new environmental center.
5.9 Maintain at least 50 percent of refuge lands open for winter wildlife-oriented recreation.	5.9 Same as Alternative 5	5.9 Same as Alternative 5	5.9 Same as Alternative 5	5.9 Maintain a total of 6 to 8 platforms, observation blinds and/or towers. NTE 15,000 visits without re-evaluation.
Environmental Education 5.10 Provide facilities for teacher lead environmental activities for area schools. Target a 10 percent increase over present level within 5 years.	5.10 Message change to pre-settlement conditions	5.10 Possible location change (off-site) w/ message to landscape & private land actions.	5.10 Message change to pre-settlement and water mgmt.	5.10 Provide facilities and a program for teacher-lead environmental activities for area schools, and refuge visitors, with a message emphasis on wetlands and grassland birds. Target a 10 percent increase within 5 years of CCP approval. (develop new curriculum soon). - Construct a new visitor center.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
5.5 Interpretation 5.11 Provide at least 10 programs, events, festivals and tours annually to enhance visitor understanding of the refuge and it's mission.	5.10 Same as Alternative 5 w/ new program emphasis	5.10 Same as Alternative 5 w/ new program emphasis	5.10 Same as Alternative 5 w/ new program emphasis	5.10 By 2006, provide at least 10 programs, events, festivals and/or tours annually to enhance visitor understanding of the refuge and it's mission. Emphasis will be placed on wetlands and grassland birds. (monitoring strategies related to message retention)
5.12 Provide one auto tour route and 5 kiosks to interpret refuge habitats and wildlife.	5.11 Same as Alternative 5	5.11 Same as Alternative 5	5.11 Same as Alternative 5	5.11 By XXXX, XX % of visitors will understand and appreciate the interpretive theme of the refuge. (several monitoring strategies)
Goal 6: Visitors and local citizens demonstrate a strong conservation ethic that leads to support of the Refuge, conservation of the surrounding landscape, and global environmental awareness.				
6.1 Off-site outreach to schools and a visitor center	6.1 Same as Alternative 5	6.1 Same as Alternative 5 with a % increase. Respondents should indicate the community and individual responsibility for landscape conservation.	6.1 Same as Alternative 5	6.1 By 2006, 60 percent of neighbors, community leaders, and residents of nearby communities express an awareness of the refuge's mission and the need for increased local conservation.

Alternative 1 Current Management	Alternative 2 Pre-settlement Habitat Conditions (1800-1850)	Alternative 3 Landscape Resource Protection Emphasis	Alternative 4 Partial Presettlement Habitat Conditions with Managed Impoundments	Alternative 5 Focused Management for Priority Wetland and Grassland Birds
6.2 Partners for Fish and Wildlife (Outreach)	6.2 Same as Alternative 5	6.2 Same as Alternative 5 with more landowner contacts.	6.2 Same as Alternative 5	6.2 By 2006, make XX contacts with private landowners in the St. Francis River Watershed to provide technical restoration assistance. (Message would focus on wetland loss and grassland bird declines)
Goal 7: The cultural resources and cultural history of the Refuge are valued and preserved, and connect Refuge staff, visitors, and the community to the area's past.				
7.1. Refuge staff will protect, conserve, and interpret the cultural resource sites and values on refuge. (Review objectives provided by Regional Historian)	7.1 Same as Alternative 5	7.1. Same as Alternative 5	7.1 Same as Alternative 2	7.1. Refuge staff will protect, conserve, and interpret the cultural resource sites and values on refuge. (Review objectives provided by Regional Historian).
	7.2 Within 15 years of plan approval, 70% of visitors will understand and appreciate the cultural history of the refuge. Message should emphasize pre- and early European settlement of the area.	7.2 Within 15 years of plan approval, 70% of visitors will understand and appreciate the cultural history of the refuge. - Message should focus more on European settlement (in context of watershed) and the degradation of landscape due to drainage and erosion.	7.2 Within 15 years of plan approval, 70% of visitors will understand and appreciate the cultural history of the refuge.	7.2 Within 15 years of plan approval, 70% of visitors will understand and appreciate the cultural history of the refuge.

*VOR = Visual Obstruction Reading (a common technique used to measure vegetation density)
**WO/P = Wildlife Observation and Photography

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Sherburne National Wildlife Refuge Planning Workshop 3

March 12-15, 2002
Ostego, MN

FINAL REPORT

Section 5

Plenary Session Notes

Plenary Session Notes

TUESDAY, 12 MARCH 2002

Unfinished business from previous two workshops

1. Purpose clarification: Charlie read the 1965 testimony before the Migratory Bird Commission to gain authorization of refuge. The original purpose was for restoring wetlands and migratory waterfowl. How did the refuge get established? Is there a decision document that states this? The refuge staff clarified the purpose keeping this history in mind and tried to keep the focus consistent.

2. Vision clarification: Clarified vision to make it consistent with the goals. Took out "pre-European" statement. Emphasized native sandplain communities.

3. Goals clarification: goals must be consistent with alternatives. The refuge staff re-worded goal 1. Why was 1800 time reference taken out? Goal 1 conflicted with alternative 5 because alternative 5 brings the refuge back to prairie, whereas in the 1800s there was prairie only along the river. The staff didn't want to pin the ecosystems down to a timeframe or snapshot in time. They wanted to allow for a broader range of habitat types.

(small groups discussed these clarifications)

Presentations

Group 1:
Purpose: Found an inconsistency in the 2nd paragraph of the purpose, in that the discussion focused on a full diversity of species and at the end narrows to migratory birds. Change final sentence to: "…emphasizes all migratory birds as identified in the CFR while recognizing the value of the full diversity of species native to the area."

Vision: replace climatic change to "…climate and other environmental conditions". Is climatic an environmental condition? Recognition of initial discussion that the refuge should be able to respond to climatic change.

Goal 1: discussed the words area vs. region but decided to keep "area"

Group 2:
Goal 1: concern that the change in this goal to different wording and meaning changed after they thought consensus was reached. Concern for the process, after this workshop will they reword everything that was already reached in consensus at this workshop?

Plenary:
The refuge staff changed the goal to be consistent to the alternatives. Don't think that the meaning of the goal did change.
How much change will take place after we thought consensus was reached?

The original goal 1 was inconsistent with the planning policy, that's why it was changed.
This workshop is a process. The fact that this change was brought back to the group for acceptance makes sure that these changes are agreed on and not just changed without group acceptance.
Feel like we need more discussion about this change and the process. We should change the alternative to meet the goal instead of the goal to meet the alternative. We need to stay within the planning policy, which states that the goals must be consistent with the alternatives.
The service reserves the right for the final decision on everything agreed upon at this series of workshops. If things change from the consensus here, it is not a problem with the workshop process; it is because the Service gets to make the final decision.
Focus groups were working on this also.
To what extent do the alternatives guide the goals since the goals were written first? The process is purpose-vision-goals-alternatives-objectives-strategies. To what point do you go backwards? Alternatives are interpretations of the goals? The alternatives can be used to go back and clarify and broaden the goals.

Group 1's change to the purpose statement is not true. It's part of the policy in other areas, but not the purpose. The purpose only recognizes migratory birds.

Washington office needs to wordsmith the purpose based on solicitor's input.

Review of Management Alternatives

Alternative 1
Group 2:
does not mention big 6. what does functional mean in regards to the river system. Does this alternative follow the vision?
Group 1:
Assumption: the alternatives are already consistent with the goals. Compared the vision to the alternatives to see if the are consistent. Wetland impoundments re-evaluated according to criteria. Passive management to the wetlands to fit the vision rather than active. More active when reaching sedge meadow and tamarack. Under this alternative there is more impoundments needed for the St. Francis River. Uplands go toward pre-settlement condition because that's the current management plan.
Discussion:
Group 1 included public use and Group 2 did not. Group 2 thinks they should have included public use.
Concern that the current plan doesn't address off-refuge land.

Alternative 2:
Group 2:
Listed the six uses and how they fit with the alternative. Can we really restore the 1800s conditions? Think not, because it could be limited by climatic conditions. Need to clearly establish a hydrological goal. Think there is not a hydrological goal presently.
Group 1:

Focused on specific actions that needed to occur in order to put alternative 2 in place. Dikes would be removed from riparian area. Uplands would be pushed to maximum Oakland savanna habitat. Unmanaged wetlands would be left as they are. Off refuge activity would be active to create similar habitats to the refuge. Develop a schedule for reconstruction of these habitats on the refuge. Would include an aggressive campaign against non-native invasive species.

Discussion:

Big six managed so they are not impacting the goals, e.g. too many deer. Wildlife should be in balance. Needs to be met to be consistent with vision statement.

Alternative 3:

Group 2: different staffing for off-refuge work. Funds go toward community organizers, partnerships and work with developers. Conservation ethic would translate into land use planning and decisions. All of on-refuge comments from alternative 1 are to be incorporated in those alternatives.

Group 1: similar views on this alternative. Funds and staff go toward intensive off-refuge effort and achieving water quality.

Discussion:

Concern about native land on off-refuge. Emphasize native landscape but it shouldn't be the only thing. Keep it green and keep the plough off it. Even farming is better (for cranes) than development. More conservation ethic in farmers?

Can't be too concerned with specific species off-refuge. Push for restoration of habitats that are declining off-refuge.

Can't impound the borders of the refuge to 1800s habitat. Agriculture and some development will be there, we want to try to get them more conservation friendly.

Our way to approach this is outreach.

Zoning is in place on the riverway.

We can address these details in the objectives and strategies.

Alternative 4:

Group 1:

What makes this alternative? Need to define the criteria that decides what part of the landscape stays under current wetland management and what part goes to pre-settlement conditions? Have to consider the whole system of impoundments, can't just start taking some out. Making trade-offs between uplands and wetlands. Make choices for impoundments first.

Group 2:

Didn't get that far.

Alternative 5:

Group 1:

Intensify impoundment management. More draw downs and timing of draw downs coincides with migratory patterns. Uplands encouraged to go toward upland savanna.

Do we really need all 5 alternatives? What's different between all these alternatives? Do they cover the whole spectrum? Add species and public use?

Group 2:

Didn't get that far.

Discussion:
Restoration of hydrology would be intense. This would be a one-time restoration, then the system should function on it's own.
How many alternatives are necessary? A reasonable range is 3-4.

WEDNESDAY, 13 MARCH 2002

Revisit Purpose Clarification

Plenary:
Is the statement in the 2nd paragraph true? Purpose is focused on migratory birds, emphasizing waterfowl.
The service has broadened the scope of the NWRS through policy and that is the justification to mean all species.
Policy and legislation refers to species other than migratory birds. Migratory birds=waterfowl?
Purpose includes all migratory birds.
Broadening the scope of the NWRS, then limiting it back down?
The act states migratory birds.
Make the definition of migratory birds clear.
Original purpose is to provide habitat to migratory birds. Now include everything? Put waterfowl before other migratory birds.
What's the relationship between migratory birds and all waterfowl?
It says migratory birds but it intends waterfowl. If there were a conflict, they would lean towards waterfowl.
Put migratory birds before all other species.
The new idea is "in recent years" things have changed, the migratory bird definition has broadened, and the refuge is considering other species too.
This is the purpose and the purpose is broad, so we may not need to be this specific about different kinds of migratory birds.
Don't use the word "conflict". Use instead "choice". You can choose to modify the habitat for certain species, but it may not be the best choice ecologically.
Don't say we'll go back to ducks over other migratory birds. Ducks were the focus in the 1960s, the focus has since changed.
There is no problem with this legally.
This plan needs to be broad and visionary and not limiting from the start, unless there's legislation which says it will be waterfowl first. It does not say this legally.
Don't go into the detail of the intent of the migratory bird act. Purpose should be broad.
Suggest a citation for the testimony and the refuge improvement act.
The testimony is approved by Washington. Charlie will look for more.
Say that since the original intent was migratory waterfowl, this will be kept in mind in the future.
Resolve how you introduce other elements
Resolve how you focus on waterfowl.

Alternative 1

Discussion:

Pre-settlement flows or levels for the functioning river system?
Need to go back and define functionality? Redo the vision? Have impoundments on the river and still have it functional?
Landscape plan includes impoundment management
Is there anywhere in this alternative that would go for convincing zoning and landowners to keep their land unchanged?

Alternative 2:

Discussion:

Statement looked good, but added a sentence about the big 6, and recognize that this alternative would be more long-term than 15 years. Plan, hydrology studies, etc.

Alternative 3:

Current management direction will continue with exception to the outreach program. Outreach should focus on habitat restoration and protection with emphasis on native restoration.
Include that refuge should serve as a demonstration area for the types of management techniques used on the refuge.
All big 6 uses should be emphasized, not just hunting.
People will value the native habitat more if they can actually see it.

Discussion:

Rather than saying "big 6 uses" write it all out. Not everyone will know big 6.
Can you achieve equal emphasis on the big 6? Would the word "balance" be better?
How would they change from the present? I see them equal and balanced now.
More off-refuge?
Use the word "continue".
Equal and full for big 6? Try different words? Use the word balance instead of equal.
How do you give equal emphasis to hunting and photography? Have a photography season? Or photography day?
Target off-refuge education to biggest threats to refuge wildlife?

Alternative 4:

Balance the spirit of the alternative with the suggestions from the groups and incorporate more of the vision statement.
There's not as measurable set point.
Changed the name of the alternative.
Main change was to try to reflect the balance between management and impoundments and the mechanism in making changes.

Discussion:

Need to develop a plan or strategy as to which lands are managed and which are not.
Going back to mid 1800 conditions? Do you mean on the refuge or the Anoka Sandplain.
Prairie wasn't originally found on the refuge, only the Anoka Sandplain.
Is it appropriate to put prairie on the refuge if it wasn't originally? Would prairie work on the refuge presently? Are conditions right?
This would keep us consistent with the revision of goal 1.

Define this alternative after writing objectives for it, rather than narrowing it now.

Alternative 5

Add outreach to habitat component. Take specific statements out of the text that would be more appropriate for objectives.
More water management.
Existence of the impoundments does not destroy the riverine cycle (wet and dry seasons).
Grassland blocks for grassland birds.
Predator control is too specific for alternatives, maybe a strategy.
Interpretive programs focus on wetland and grassland birds, hunting, photography.
Cultural resources would be preserved
Discussion:
Retain all impoundments under this alternative?
Yes, in order to manage for wetland birds. Agreed.
Wetland management would be for maximum bird use, and to mimic natural processes. These statements may conflict.
Put where possible at the beginning of the sentence.
List of service priority birds. Do we really want to list species? Because in the future this may change. Stick with bird groups instead (shorebirds, waterbirds, etc.).
Leave it at groups to leave it more broad.
Could say service priority bird species. Or is it really region 3 priorities?
Don't cast in stone that impoundments will stay.
Guard against all the alternatives sounding the same, leave them sounding different so there's more to work with.
Water management more intense and active than what? Than currently. State that.
Priority species at the regional level is to choose species that represent groups. Use those species as part of groups.

Objectives:

Focus groups met previously to draft objectives. These objectives were discussed in small groups.

Discussion about Upland Objectives:

Objective 1: Provide a minimum of 3 grassland block of at least 200 acres.
200 acres each? 200 acres total? It's 200 acres each.
Should we have a core area of Oak Savanna?
Objective 2: Provide a minimum of 2,000 acres in oak savanna management.
What do we do about the other parts of the uplands? Manage them as they are currently being managed? This objective only deals with a portion of the upland acres. If we do nothing, they'll turn into something else. We need some form of management.
The focus group meant that these areas would be managed as they are currently being managed.
Take out "bur oak savanna" and just say "oak savanna". There are pin oak and red oak present there also.
Should we combine these two objectives into one?
Do we create oak savanna through planting or burning? Burning would be the major tool.

Stay with two separate objectives because the ground cover is very different between the 700 acre stand and the 300 acre stand. But make the objectives more clear. Develop these differences more in the strategies.
Objective 3:
Start oak savanna conversion.
Keep all 3 objectives.

Discussion about Wetland Objectives:

Objective 1:
Annual average of at least 6 pools. This is not accomplishable in a drought year. Climatic conditions would not allow. We want at least 6 pools, but we don't want to limit to 6.
Add "where weather conditions allow" at the beginning. This accounts for drought years.
In that objective are you going to include what the definition of open water is? Or include it in a foot note?
It will be in the objective.
Objective 2:
Increase sedge meadow.
Accepted as written, but note that 20 acres of sedge meadow was an experiment. If that works, it can be applied to other areas.
Objective 3:
Maintaining existing sedge meadow. No acreage noted. Don't know what there is presently.
Strategy is to determine the acreage of sedge meadow presently.
Objective 4:
Why does it have to be at the end of the 15 year planning period? Get rid of this statement.
Accepted.
Objective 5:
Accepted as written. Change "provide" to "annually managed". Provide implies that you will increase.
Objective 6:
200 annually managed acres of tamarack on edges of refuge. There is more than 200 acres of tamarack presently on the refuge. Can we achieve this objective for tamarack while maintaining the pools in objective 1? Would it flood the tamarack stand? Can we realistically achieve this?
Yes.
Accepted.
Objective 7:
Accepted, but change "provide" to "managed for".
Objective 8-10:
Not enough time to discuss fully. Accepted.

Hunting and Fishing Objectives:

Extra things asked for: hunting for disabled, deer muzzle hunting, and turkey hunt.
Some of these objectives need to be consolidated.
Fishing is limited to the river. Could provide a pier for handicapped to fish.
Could develop themes for public use.
Small groups to develop themes. Then we will revisit in plenary.

THURSDAY, 14 MARCH 2002

Revisit Purpose Clarification

Group 2: Thought the purpose was fine how it was. Suggestion to take out all the legal references since the general public isn't familiar with these references.

Group 1: Change first sentence to say more about migratory birds. The purpose means migratory birds. In the end say that we recognize the migratory bird purpose, but recent legislation has opened it up to more species also.

Both groups are fairly comfortable with the purpose and are ready to let it rest.

Plenary: Public Use Themes

Groups split into Biological Group and Public Use Group.

Alt. 3: Intent of Alt 3 is to direct our efforts to water quality and habitat off the refuge, if you increase hunts and an additional trail inside the refuge, this will use a lot of funds that should be directed towards off-refuge.
The group didn't consider cost or staff when writing these objectives.
How can fishing be the same across all alternatives with differences in impoundments?
Impoundments don't affect fishing because fishing is only on the river.
Alt. 2: Achieve pre-settlement conditions for the wildlife? Or public?
Go back to statement where all of these have to be compatible with the biology and habitat needs.
Alt. 5: Public use program in support of biological program; this is how it is currently.
The hunting program would be used to increase hunting to control deer populations as urbanization increases. Evaluate hunting for small game (recreational not biological).
Not use the words "biological programs".
Limit public use to areas where there is not a resting place for waterfowl.
Look at biological impacts of public use opportunities.
Healthy wildlife populations must be compatible to public use.
Alt. 5 and 2: less hunting opportunities.
Alt. 3 and 4: additional hunting opportunities.
Alt. 2: could emphasize muzzle loader hunts for increased deer populations.
Recommend noting how hunting is changing on each objective written.
Alt 4: focus on wetlands, does that mean less on uplands? Education on both, but more on wetlands because of impoundments.
Recreational opportunities could be the same for all 5 alternatives. They don't have to be, but could be.
Alt. 4: Wildlife corridors connect with other wildlife communities. Not urban communities.
Alt. 3: Communities means Urban communities.
Is there a core group of recreational opportunities common to each alternative an then add different additional opportunities to each alternative.

Plan calls for a visitor center currently. Emphasis on the visitor center would change across the alternatives. Do any alternatives not cover a visitor center? No, it would be useful in all. The only one where it would be not as useful if focus moves to off-refuge.
What about Alt. 2 were you return to pre settlement?
Alt. 4: Wildlife corridors, how does that fit with public use? An objective for public use may not need to address corridors?
Because to create corridors you need to move off-refuge.
Alt. 3: Create habitat off-refuge, and getting the urban community involved in that project. If we're going to be successful off-refuge, we need buy-in from surrounding communities. It may also need to be useful to these communities.

Plenary: Draft Objectives

Public Use Group

Goal 5, Alternative 5:
Hunting: Quality hunt? The definition is in the manual, covers safety, ethics, etc.
If we're hunting deer because its strictly recreational, should not imply that hunting is to thin deer to avoid habitat damage.
Public does like to view deer also.
Is the number 12-14 deer per square mile a goal? If you drop down to 10 in one year will you still hunt for recreation, or not to save population?
Is deer density appropriate in the public use objectives? Doesn't it apply more to habitat?
You can reference the habitat goal.
Important part of this objective is that it meets a quality hunt. The density of deer should go under habitat goal.
Small game hunting: ok
Visits: Do you mean hunter visits per day? Yes, note that.
Specify where the sanctuary is.
Fishing: why list a minimum of 4 access points?
Presently there are 6 access points.
There is a lot of bank fishing presently that litters the bank and adds to erosion. That is why they would establish a fishing pier.
A pier may imply that there are a lot of fish to be caught, and there are not.
Time/season related to fishing?
Not ice fishing.
Wildlife Observation/photography: trails, auto tour route.
Provide general criteria for quality observation: crowds, etc.
How would you restrict the amount of vehicles on the road at once? This will be established in the strategies. There are maybe only 2 days a year where there's 20. So will you regulate this number? If you have it there, its assuming you'll enforce it.
This is for the quality of the visitor.
Could establish strategies that will encourage less cars at once.
Did you think about any more experience based objectives? These seem more opportunity based.
Yes we did think about that. We could look at this for education objectives.

Experience based objectives are hard to measure.
Maintain 15,000 visits? Is that an average?
It's the minimum. Adjust wording to reflect this.
Would a maximum be more important if you're keeping biological requirements in mind?
We talked about that concept, but we don't see there being too many cars on the auto route.
Develop carrying capacity for autos?

Biological Group

Goal 1, Alternative 5

1.1. Grasslands: How many native grass species? Need to define. Why 3 grassland blocks? Because it's in the habitat objectives.
The 3 blocks can be anywhere on the refuge? They would be in areas where it's already open now.

1.2. Oak Savannas: Only two forbs? Add number and document why grasslands will not be planted to trees. We're focusing on Kenow savanna. Document what current management means.

1.3. Oak Savanna: does this mean that in these 15 years we're not going to do anything to creating the understory required for an oak savanna? Don't have to in the wooded area. It may take more than 15 years to reach this. Treat the forest with fire to achieve this objective. 1,000 acres may be too much to convert in 15 years. If we don't have a good fire year, we may need to use mechanical means such as firewood cutting.

Goal 2, Alternative 5

2.1. Water Pools: each pool should have a minimum of 200 acres of open water. Need to discuss this objective further.

2.2. Increase sedge meadow: this objective is a trial.

2.3. Maintain existing sedge meadow: we don't know how much we have currently, need to find out. We don't want to lose any amount of sedge meadow we have currently.

2.4. Maintain lowland brush: in Minnesota brush is a managed habitat.

2.5. Cattail Marsh: ok.

2.6. Maintain Tamarack Swamp: ok

2.7. Wetland habitat: annual plants, which ones? Whatever comes up. Not targeting any particular species.

2.8. Wetland habitat: spring flood for migration North. Add dates-April 1 to May 30.

2.9. Wetland habitat: add specific dates. Rewrite tomorrow morning.

2.10. Short Native Vegetation: add "to benefit migrant shorebirds".

2.11. Chironomids to attract waterfowl: Look at tomorrow.

Goal 3. Alternative 5.

3.1. Sandhill Crane roosting: this has to be in a sanctuary. If the cranes move would you need to create sanctuary somewhere else?

3.2. 80% of RCP Species: possibly reintroducing some species. Wildlife outcome based objective.

3.3. Monitoring Plan: what is a source population? This monitoring plan will determine that. Define what constitutes a source population. Right now we don't know much about the success of breeding birds. This monitoring program will provide this information. Revisit.

3.4. Deer population density: what is the rational for 16-18? It is a healthy population for woody vegetation. We don't know for grassland vegetation. Change to 12-14 to be consistent with the public use group. Write a rational for the number.
3.5. Control of exotic species: ok

Goal 4, Alternative 5

4.1. Identify corridors: within 2 years of plan approval.
4.2. Partners for fish and wildlife program: emphasis on native grassland. Secondary watershed would be Battle Brook. Say something about how the priority increases as you move closer to the refuge.

FRIDAY, 15 MARCH 2002

Plenary: revised objectives for Alternative 5.

Public Use Group

Goal 3:

3.3: Clarified Prairie's Edge Wildlife Drive. Maximum of 35,000 visits, but don't know how this would impact the wildlife. No more than 20 vehicles on the route at one time. Define these more in strategies.
3.2: Maximum of 25,000 visits per year, but don't know how this impacts wildlife. Add a strategy to measure the impact.

Goal 5:

5.1: Education programs can develop experience-based objectives.
Do you have a target time for the development of the curriculum? Or is it already there?
Could add another objective that deals with the development of the curriculum.
The curriculum now doesn't emphasize wetlands and grasslands.
Opportunity objective, try to see if visitors are understanding the message about wetland birds and retaining it.

Goal 6:

6.1-6.3: Discuss monitoring in strategies. No comments.
Goal 7: No comments.

Biological Group

Goal 1:

1.1: Removed text that would fit better under strategies. Explain "diverse" in the notes.
1.2: Same.
1.3: This change will take place outside the realm of the CCP (more than 15 years).

Goal 2:

2.2. Converting reed canary grass to sedge is experimental.
2.7-2.8: Added what benefits from these objectives (waterfowl).

Goal 3:

Is there a trigger to monitor the drawdowns to prevent invasive species (purple loosestrife)? So that when purple loosestrife grows, you can flood it to control it.
Add these details in the strategies.
Strategy could also be the current biological control of purple loosestrife (bugs).
Specify the area.

This will take some work.
3.3: Source/sink population definition. What would you do if after the monitoring you found out it was a sink population? Develop a new objective to address this.
Right now there is no objective that addresses how do deal with sink populations.
A sink population is still providing a dynamic with source populations; it is not necessarily bad.
Goal 4:
Separated off-refuge land uses in objectives. Add measurements of wetland? The objective doesn't seem very smart.
Restore means that they were there once.
4.3: "within 50 miles of refuge". Will we be going out this far?
The closer to the refuge, the more priority the land is. In close proximity to the Refuge, the partners program covers.
Think about the word structure for how we would prioritize the areas for restoration.

At this point, since we are way behind schedule for what we wanted to accomplish at this workshop, do we move ahead and finish what's left, or do we go back and clarify what we've done?

More specifically, do we clarify alternative 4 (since it's a combination of 2 and 5), or create conceptual objectives for alternatives 1-4? Some of the refuge staff would like to clarify alternative 4. There is a good core group of biological people that would be useful in clarifying alternative 4.

Do we even need alternative 4, since in the final CCP we can take pieces from different alternatives?
Yes we need it to see how to combine these pieces.

Does everyone want to break at noon? Or stay later to do both?
Most people can stay later. They're not deciding on a fourth workshop yet.

The public use group could start with conceptual objectives, and the biological group clarify alternative 4. Need to use the GIS people while they're here.

Discuss alternative 4 in plenary to identify criteria that will guide decisions regarding quantity of habitat that will go to pre-settlement habitat verses other habitats.

Alternative 4:
Restore part of the refuge to pre-settlement

1. areas of refuge
2. spatial gradients
3. current management (grasslands)
4. migratory birds
5. transition areas, lowland-upland

Look at the impoundment system on the refuge and identify places to take out impoundments and revert back to pre-settlement conditions, and places it's not feasible to remove impoundments with it not affecting the whole refuge. (refer to GIS map)

Since the biological group is discussing this most, let the public use group start drafting conceptual objectives across alternatives 1-4. Make some movement towards accomplishing both tasks. If anyone wants to switch groups that's fine.

Plenary: Objectives

Public Use Group

Objectives similar across all alternatives.
Interpretation program themes would be different across alternatives.
For 4 of the big 6 activities, attempt to measure experiences.
Public use program would basically stay the same as presently as far as amount of effort.
Content would change.

Should we be more aggressive in public use? We can address this in the strategies.

Sherburne National Wildlife Refuge Planning Workshop 3

March 12-15, 2002
Ostego, MN

FINAL REPORT

Section 6

GIS Presentation

GIS Presentation

GIS-Decision Support Tools for Comprehensive Conservation Planning
Summary of presentation made at the Sherburne NWR Planning Workshop III
by Kevin Kenow and Jason Rohweder on 13 March 2002

The Upper Midwest Environmental Sciences Center (UMESC) is providing GIS support to the U.S. Fish and Wildlife Service (FWS) in the development of Comprehensive Conservation Plans for six pilot refuges in FWS Regions 3 and 6. Specifically, UMESC is (1) compiling relevant GIS data layers in an ArcView 3.x project for each refuge, (2) developing and providing spatial decision support system tools to regional refuge planners, refuge staffs, and the USGS-CCP Project Team to facilitate the CCP process, and (3) assisting with development of land cover/land use and other digital databases where needed and as funding permits.

Work has progressed on the development and implementation of two decision support system tools for the CCP process. The first tool is an ArcView 3.x query tool that couples species-habitat information to spatial data and is useful in identifying those habitats most supportive of a diversity of wildlife species of special concern to refuge managers. Second, is an ArcView 3.x edit tool that provides planners and mangers the opportunity to depict future landscapes under various management scenarios by interactively making polygon-specific changes to a refuge base coverage.

Query Tool.
A species-habitat matrix was developed for FWS Region 3 Conservation Priority Species identified in a Sherburne NWR CCP prioritization scheme. The Sherburne NWR 1999 vegetation database (updated from 1992 classification) served as the basis for vegetation communities used in the matrix. Habitat potential for each vegetation type was ranked on a simple scoring scheme (0=no potential, 1=low, 2=medium, or 3=high) for each species. The scoring was based on expert opinion of refuge and regional biologists (Jean Holler, Jim Mattsson, Tom Will, Bob Russell, Jan Eldridge). Regional biologist involvement was encouraged to ensure consistency among refuges while providing flexibility to meet individual refuge differences in habitat values with respect to individual species ranges. Thus far, very simple species-habitat matrices have been developed. It is recognized that a more complex matrix development [e.g., point count, habitat models, multi-season, multi-lifestage] might also be incorporated. Separate matrices were developed for Sherburne NWR to allow for evaluation of both breeding and migration seasons.

The application of the query tool is limited by the level of detail provided by the available spatial land cover. Land cover layers are general in nature and typically do not provide information concerning the specific habitat requirements of animal species (e.g., appropriate visual obstruction, vegetation height, litter depth, floristic composition). Consequently, we made some assumptions/generalizations about how well vegetation types met specific needs of each species. To make comparison to future landscape scenarios, we included anticipated vegetation types not currently present on the refuge (e.g., lowland grassland – sedge, big woods). We also developed an existing (1999) oak savanna class by identifying those areas that consisted of "oak" cover and had a basal area # 60 in^2. To account for area-sensitive species (upland sandpiper, northern harrier, sandhill crane, loggerhead shrike) in the analysis, we generated grassland categories of < 25 ha, 25-50 ha, > 50 ha of core area. Core area was calculated for each land cover (1999, 15 yr, 100 yr) by buffering each grassland polygon in upon itself 50 meters and determining the remaining inside area surrounded by the buffer.

The CCP Query Tool allows the user to choose from different matrices linked to specific vegetation layers. The query tool allows species-specific queries and an array of outputs (including tables, charts,

spatial data layers, and map layouts for Probable Species Occurrence, Probable Species Richness, Potential Species Habitat, and report that summarizes statistics for each query).

Oak savanna, cattail marsh, upland grass, and open water ranked highest among available vegetation classes in species richness and probable species occurrence (weighted by scores) based on an analysis that included all 41 Sherburne NWR CCP priority species.

Edit Tool.
The CCP Edit Tool is used to alter the vegetation layers used within the CCP Query Tool to create depictions of future landscapes. The tool allows the user to select specific polygons that are to be changed to a new cover type. If the new designation for the polygon matches an adjacent polygon, the border between the two is dissolved automatically and the area is recalculated for the resulting polygon. The Edit Tool also allows for calculation of core area for individual polygons as well as the entire vegetation layer.

To demonstrate the use of the edit tool, we developed future landscape depictions (15 years and 100 years into the future) of Sherburne NWR by making polygon-specific changes to vegetation based on draft objectives developed for CCP Alternative No. 5. Specifically, locations of three large (200+ acres) blocks of upland grass and about 2,000 acres of oak savanna were identified for the 15-year scenario. An additional two large blocks of upland grass were created specifically for the 100-year scenario. Resulting acreages of upland grass and oak savanna are summarized (Table 1).

The matrix for selected breeding species was linked to the current, 15-year, and 100-year vegetation layers. We utilized the query tool to measure change in the overall potential of the resulting assemblage of vegetation types by comparing the area-weighted average potential species occurrence (AWAPSO) scores. The AWAPSO score was defined by summing the product of the area of each habitat type and the average matrix score for the suite of species under consideration for each habitat type, and dividing the result by the total refuge area. The resulting AWAPSO scores were used to assess differences in potential for a suite of 13 grassland birds (bobolink, dickcissel, eastern meadowlark, field sparrow, grasshopper sparrow, Henslow's sparrow, loggerhead shrike, northern harrier, sandhill crane, sedge wren, Swainson's hawk, upland sandpiper, and western meadowlark) among the current, 15-year, and 100-year scenarios (Table 1).

Table 1. Resulting grassland acreages and Area Weighted Average Potential Species Occurrence (AWAPSO) scores* for 1999 and future landscapes based on Alternative 5.

Based on bobolink, dickcissel, eastern meadowlark, field sparrow, grasshopper sparrow, Henslow's sparrow, loggerhead shrike, northern harrier, sandhill crane, sedge wren, Swainson's hawk, upland sandpiper, and western meadowlark

Sherburne National Wildlife Refuge Planning Workshop 3

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FINAL REPORT

Section 7

Visitor Use Survey Presentation

Opinions on Sherburne National Wildlife Refuge

Visitor Use Study

2001-2002

Summary Tables for Summer and Fall Visitors 2001

Michelle Payton
Graduate Research Assistant
Program in Conservation Biology

David C. Fulton
Assistant Unit Leader
USGS-BRD
Minnesota Cooperative Fish and Wildlife Research Unit

Dorothy H. Anderson
Leader
Cooperative Park Studies Program
Department of Forest Resources

University of Minnesota
St. Paul, MN

March 2002

Summary Tables for Summer 2001 Visitors

Table 1. Participation in activities. Summer respondents were asked: "Please indicate how many times during the past year you participated in these activities at Sherburne National Wildlife Refuge."

Activity[1]		1-5 times/yr (1)	6-10 times/yr (2)	11-30 times/yr (3)	31 times/yr or more (4)	Did not participate in activity[2] (9)
	N	Percent	Percent	Percent	Percent	Percent
Wildlife observation and Photography						
Using spotting scopes	157	53.5	9.6	8.9	3.8	24.2
Observation on wildlife drive	157	51.0	18.5	17.2	5.1	8.3
Bird watching	157	47.1	16.6	17.2	7.6	11.5
Watching wildlife	157	43.9	15.9	17.2	9.6	13.4
Photography	157	35.7	7.6	4.5	1.9	50.3
Studying nature	157	31.8	12.7	14.6	7.6	33.1
Wildlife education and Interpretation						
Viewing interpretive exhibits	157	47.8	15.3	3.2	3.2	30.6
Talking with interpreter	157	41.4	2.5	1.9	1.9	52.2
Participating in interpretive programs	157	24.8	5.1	1.9	1.9	66.2
Fishing						
Fishing off bank	157	7.6	1.9	0.6	1.3	88.5
Fishing from canoe	157	3.2	0.6	0	0	96.2
Hunting						
Upland bird hunting	157	7.0	1.9	1.9	0	89.2
Waterfowl hunting	157	4.5	0.6	0	0	94.9
Gun deer hunting	157	3.8	0.6	0	0	95.5
Archery deer hunting	157	3.2	1.9	1.3	0	93.6
Small game hunting	157	3.2	0.6	0	0	96.2
Disability blinds hunting	157	1.3	0	0	0	98.7

[1] Activities separated into six major USFWS categories: wildlife observation and photography, wildlife education and interpretation, fishing, and hunting. Activities ordered from most common activities to least common activities within each category. Most common activities were those activities for which the greatest percentage of respondents participated at least once in the past year.

[2] Missing data also included in this category.

NOTE: Table continues on next page.

Table 1 (cont.). Participation in activities. Summer respondents were asked: "Please indicate how many times during the past year you participated in these activities at Sherburne National Wildlife Refuge."

Activity[1]	N	1-5 times/yr (1) Percent	6-10 times/yr (2) Percent	11-30 times/yr (3) Percent	31 times/yr or more (4) Percent	Did not participate in activity[2] (9) Percent
Other activities						
Hiking wildlife drive	157	46.5	7.0	1.9	0	44.6
Hiking MT and BH trails	157	45.9	6.4	2.5	1.3	43.9
Wildflower viewing	157	41.4	15.3	12.7	8.9	21.7
Viewing scenery	157	35.0	18.5	17.2	11.5	17.8
Hiking off trail	157	17.2	5.1	2.5	0	75.2
Berry picking	157	11.5	1.3	0	0	87.3
Biking wildlife trail	157	11.5	1.9	0.6	0	86.0
Snowshoeing	157	10.8	2.5	1.9	0	84.7
X-country skiing on trail	157	10.8	3.8	0.6	0.6	84.1
Biking other roads	157	7.6	1.3	0	0	91.1
Canoeing SF River	157	6.4	0.6	0.6	0.6	91.7
X-country skiing off trail	157	3.8	1.9	1.9	0	92.4
Other activities	157	3.2	0.6	1.3	1.9	93.0
Mushroom picking	157	1.9	0.6	0	0	97.5

[1] Activities separated into six major USFWS categories: wildlife observation and photography, wildlife education and interpretation, fishing, and hunting. Activities ordered from most common activities to least common activities within each category. Most common activities were those activities for which the greatest percentage of respondents participated at least once in the past year.

[2] Missing data also included in this category.

Table 2. Importance of experiences. Summer respondents indicated how important each experience was to their satisfaction during their most recent visit to Sherburne NWR[1].

Experience	N	Mean[2]	Very Unimportant (1) Percent	Unimportant (2) Percent	Somewhat Unimportant (3) Percent	Neither (4) Percent	Somewhat Important (5) Percent	Important (6) Percent	Very Important (7) Percent
Develop my skills and abilities	129	4.81	3.9	9.3	6.2	20.2	22.5	19.4	18.6
Experience excitement	130	4.98	4.6	6.2	4.6	15.4	26.2	26.9	16.2
Gain a sense of self-confidence	125	4.08	10.4	12.0	6.4	35.2	12.0	14.4	9.6
Be on my own	127	4.19	11.0	13.4	6.3	26.8	14.2	14.2	14.2
See wildlife	144	6.28	2.1	0.0	0.7	0.7	8.3	37.5	50.7
Experience nature	138	6.26	2.2	0.0	1.4	0.7	9.4	34.1	52.2
Gain a greater sense of independence or autonomy	125	4.09	10.4	13.6	4.8	33.6	13.6	13.6	10.4
Do things my own way	126	3.84	11.9	13.5	7.1	38.1	11.1	11.9	6.3
Use my equipment	127	4.29	11.0	9.4	3.9	26.8	24.4	12.6	11.8
Learn about the natural history of the area	129	5.10	2.3	3.1	3.1	20.2	31.8	24.0	15.5
Experience new and different things	131	5.21	2.3	3.8	3.1	16.8	28.2	26.7	19.1
Learn more about nature	134	5.80	1.5	1.5	1.5	6.0	23.9	32.1	33.6
Do something with my family	133	5.51	6.0	2.3	3.0	11.3	12.8	30.1	34.6
Be with friends	129	4.67	6.2	5.4	3.9	34.1	15.5	20.2	14.7
Be with other people who enjoy the same things I do	132	5.05	6.8	3.8	4.5	16.7	18.2	30.3	19.7
Talk to new and varied people	124	4.34	7.3	8.1	8.1	26.6	28.2	13.7	8.1
View the scenic beauty	140	6.16	2.1	0.0	0.7	1.4	12.1	40.0	43.6

[1] Respondents were asked to reflect upon their most satisfying activity during their most recent visit while rating the importance of experiences.
[2] Means based on response categories: 1=very unimportant, 2=unimportant, 3=somewhat unimportant, 4=neither, 5=somewhat important, 6=important, 7=very important.
NOTE: Table continues on next page.

Table 2 (cont.). Importance of experiences. Summer respondents indicated how important each experience was to their satisfaction during their most recent visit to Sherburne NWR[1].

Experience	N	Mean[2]	Very Unimportant (1) Percent	Unimportant (2) Percent	Somewhat Unimportant (3) Percent	Neither (4) Percent	Somewhat Important (5) Percent	Important (6) Percent	Very Important (7) Percent
Enjoy the smells and sounds of nature	139	6.01	2.9	0.0	1.4	4.3	13.7	36.0	41.7
Think about my personal and/or spiritual values	132	4.78	8.3	6.1	5.3	22.0	17.4	19.7	21.2
Do something creative such as take photographs	132	4.81	5.3	4.5	3.0	28.8	22.0	22.0	14.4
Maintain physical fitness	130	4.46	6.2	10.0	4.6	26.9	26.2	15.4	10.8
Release tension, relieve stress	133	5.29	6.0	5.3	3.0	9.0	21.8	25.6	29.3
Get away from the usual demands of life	137	5.44	6.6	4.4	2.9	3.6	21.9	28.5	32.1
Get away from family for a while	129	3.32	24.8	12.4	8.5	31.0	12.4	5.4	5.4
Experience solitude	130	4.71	10.0	6.2	6.2	17.7	20.0	20.8	19.2
Get away from crowds of people	135	5.11	6.7	5.9	4.4	14.1	17.8	23.7	27.4
Get away from the noise back home	134	4.69	9.0	5.2	5.2	22.4	22.4	17.9	17.9
Help others develop their skills	129	4.36	10.1	10.1	1.6	30.2	20.2	16.3	11.6
Help others (e.g., my children) develop values and ethics	128	4.77	8.6	10.9	1.6	24.2	9.4	19.5	25.8
Feel a sense of pride in my heritage	130	4.42	9.2	8.5	3.1	33.8	14.6	17.7	13.1
Enjoy a place that is special to me	133	5.37	3.8	4.5	3.0	9.0	24.1	30.8	24.8
Participate in activities that I wouldn't be able to otherwise	132	4.84	3.0	5.3	5.3	32.6	16.7	18.9	18.2
Other experiences	17	5.47	0.0	5.9	0.0	35.3	0.0	17.6	41.2

[1] Respondents were asked to reflect upon their most satisfying activity during their most recent visit while rating the importance of experiences.
[2] Means based on response categories: 1=very unimportant, 2=unimportant, 3=somewhat unimportant, 4=neither, 5=somewhat important, 6=important, 7=very important.

Table 3. Attainment of important experiences. Summer respondents were asked to indicate how much they were able to attain those experiences that were important to them during their most recent visit to Sherburne NWR.

Experience	N	Mean[1]	Did not attain Percent	Somewhat attained Percent	Moderately attained Percent	Totally Attained Percent
Develop skills and abilities	77	2.84	5.2	29.9	40.3	24.7
Experience excitement	86	3.05	7.0	19.8	34.9	38.4
Gain sense of self-confidence	48	2.69	10.4	35.4	29.2	25.0
Be on my own	49	2.92	12.2	16.3	38.8	32.7
See wildlife	122	3.11	4.1	18.9	38.5	38.5
Experience nature	119	3.31	0.0	13.4	42.0	44.5
Gain greater sense of independence	48	2.77	10.4	27.1	37.5	25.0
Do things my way	38	2.84	15.8	15.8	36.8	31.6
Use equipment	59	2.92	10.2	22.0	33.9	33.9
Learn natural history of area	80	2.60	10.0	35.0	40.0	15.0
Experience new things	82	2.68	7.3	35.4	39.0	18.3
Learn more about nature	105	2.82	1.9	33.3	45.7	19.0
Do something with family	93	3.35	9.7	6.5	22.6	61.3
Be with friends	60	2.95	18.3	10.0	30.0	41.7
Be with other people who enjoy same things I do	82	3.01	9.8	13.4	42.7	34.1
Talk to new and varied people	63	2.49	17.5	38.1	22.2	22.2
View scenic beauty	116	3.40	0.9	12.1	33.6	53.4
Enjoy smells and sounds of nature	112	3.30	0.0	15.2	39.3	45.5
Think about personal or spiritual values	70	2.94	5.7	25.7	37.1	31.4

[1] Means based on response categories: 1=did not attain, 2=somewhat attained, 3=moderately attained, 4=totally attained.

NOTE: Table continues on next page.

Table 3 (cont.). Attainment of important experiences. Summer respondents were asked to indicate how much they were able to attain those experiences that were important to them during their most recent visit to Sherburne NWR.

Experience	N	Mean[1]	Did not attain Percent	Somewhat attained Percent	Moderately attained Percent	Totally Attained Percent
Do something creative such as photography	65	2.68	18.5	26.2	24.6	30.8
Maintain physical fitness	62	2.60	8.1	40.3	35.5	16.1
Release tension or stress	90	3.18	0.0	20.0	42.2	37.8
Get away from usual demands of life	98	3.22	1.0	19.4	35.7	43.9
Get away from family for a while	35	2.74	17.1	22.9	28.6	31.4
Experience solitude	71	2.92	7.0	23.9	39.4	29.6
Get away from crowds of people	80	3.24	2.5	18.8	31.3	47.5
Get away from noise back home	67	3.24	1.5	16.4	38.8	43.3
Help others develop their skills	62	2.53	19.4	29.0	30.6	21.0
Help others (children) develop values and ethics	64	2.86	14.1	15.6	40.6	29.7
Feel a sense of pride in my heritage	55	2.69	9.1	32.7	38.2	20.0
Enjoy a place that is special to me	91	3.16	1.1	18.7	42.9	37.4
Participate in activities that I wouldn't be able to otherwise	63	2.94	7.9	23.8	34.9	33.3
Other experiences	9	3.33	0.0	0.0	66.7	33.3

[1] Means based on response categories: 1=did not attain, 2=somewhat attained, 3=moderately attained, 4=totally attained.

Table 4. Landscape and Community Components. Summer respondents indicated how important each component is to society.

Components	Very Unimportant (1) Percent	Unimportant (2) Percent	Somewhat Unimportant (3) Percent	Neither (4) Percent	Somewhat Important (5) Percent	Important (6) Percent	Very Important (7) Percent
Maintaining unique habitat	3.9	0.0	0.7	0.7	5.9	23.5	65.4
Maintaining diversity of native plants and animals	3.3	0.0	0.0	0.7	4.6	23.8	67.5
Providing flood control	3.4	2.0	2.0	10.9	32.7	29.3	19.7
Storing and purifying water	3.4	1.4	2.7	7.4	25.7	28.4	31.1
Restoring the native landscape	3.4	1.4	2.7	1.4	14.2	25.7	51.4
Improving ecosystem health	2.7	0.0	0.0	2.0	10.0	30.0	55.3
Maintaining scenic beauty	3.3	0.0	0.0	1.3	9.3	35.8	50.3
Helping clean the air	2.7	0.0	1.4	3.4	10.9	27.9	53.7
Maintaining natural and undeveloped lands	3.3	0.0	0.0	0.0	6.6	23.0	67.1
Providing habitat for wildlife	3.9	0.0	0.0	0.7	1.3	17.6	76.5
Experiencing a serene and healthy environment	3.3	0.0	0.0	1.3	10.6	32.5	52.3
Preserving a part of our history	3.4	1.3	1.3	4.7	16.1	34.2	38.9
Providing a place for family and friends to come together	3.3	2.0	2.0	11.2	25.7	26.3	29.6

NOTE: Table continues on next page.

Table 4 (cont.). Landscape and Community Components. Summer respondents indicated how important each component is to society.

Components	Very Unimportant (1) Percent	Unimportant (2) Percent	Somewhat Unimportant (3) Percent	Neither (4) Percent	Somewhat Important (5) Percent	Important (6) Percent	Very Important (7) Percent
Providing hunting opportunities	15.9	14.6	8.6	15.9	16.6	11.3	17.2
Providing a place where all people are welcome	2.7	0.0	3.4	6.7	15.4	27.5	44.3
Providing diverse recreation opportunities	4.7	5.3	4.7	7.3	28.7	30.7	18.7
Aiding the region's overall economy	7.4	5.4	7.4	21.6	26.4	19.6	12.2
Providing opportunities for photography	4.0	0.7	4.0	13.2	31.1	24.5	22.5
Ensuring the natural and undeveloped land will exist for future generations	2.7	0.0	0.0	0.0	5.4	22.8	69.1
Providing educational and interpretive opportunities to learn about this natural area	3.4	0.7	1.3	0.7	14.8	36.2	43.0
Providing opportunities to view wildlife	3.3	0.0	0.0	0.0	9.2	33.6	53.9
Being able to see my tax dollars being put to use	5.3	3.3	2.7	15.3	19.3	24.0	30.0
Other	6.7	0.0	0.0	13.3	0.0	6.7	73.3

Table 5. Potential Problems. Summer respondents were asked to evaluate how much each situation detracted from their experience at Sherburne NWR.

Problems	Did not detract (1)	Slightly detracted (2)	Moderately detracted (3)	Strongly detracted (4)	Very strongly detracted (5)	No opinion[1] (9)
	Percent	Percent	Percent	Percent	Percent	Percent
Litter and trash left by others	46.2	17.1	7.6	8.2	7.6	13.3
People not obeying Refuge rules	49.4	10.8	7.0	8.9	4.4	19.6
People not following hunting regulations	39.2	3.8	3.2	1.9	12.7	39.2
Pet owners not obeying rules	43.7	7.0	6.3	5.1	8.9	29.1
Other visitors being inconsiderate	46.2	7.6	7.0	4.4	8.2	26.6
Not enough law enforcement present	58.2	6.3	3.2	1.9	0.0	30.4
Insufficient information signs	56.3	13.9	3.2	1.9	1.9	22.8
Too many information signs	65.2	1.9	0.6	1.3	1.3	29.7
Insufficient interpretive exhibits	52.5	8.9	9.5	0.6	0.6	27.8
Too many interpretive exhibits	64.6	3.2	2.5	0.0	0.6	29.1
Insufficient informational brochures to take home	57.6	12.7	4.4	1.3	0.6	23.4
Insufficient availability of Refuge maps	58.2	9.5	3.8	1.9	1.9	24.7
Inadequate accessibility for visitors with disabilities	58.2	2.5	2.5	1.3	2.5	32.9
Poor trail maintenance	64.6	3.2	3.8	0.6	1.9	25.9
Poor road maintenance	65.8	5.7	3.8	0.6	1.3	22.8
Conflict with people engaging in other activities	64.6	2.5	2.5	1.3	3.8	25.3

[1] Missing data also included in this category.

NOTE: Table continues on next page.

Table 5 (cont.). Potential Problems. Summer respondents were asked to evaluate how much each situation detracted from their experience at Sherburne NWR.

Problems	Did not detract (1)	Slightly detracted (2)	Moderately detracted (3)	Strongly detracted (4)	Very strongly detracted (5)	No opinion[1] (9)
	Percent	Percent	Percent	Percent	Percent	Percent
Grass not mowed along road and at parking areas	72.8	1.9	1.3	0.0	1.3	22.8
Too much mowing along roads	59.5	3.2	3.2	3.2	1.9	29.1
Little racial or ethnic diversity of visitors at the Refuge	58.2	2.5	2.5	0.0	1.3	35.4
Inadequate availability of staff	62.0	7.6	2.5	1.9	0.0	25.9
Refuge rules not restrictive enough	61.4	2.5	1.3	0.6	1.9	32.3
Refuge rules too restrictive	53.2	5.1	5.1	3.2	3.2	30.4
Feeling unwelcome in the Refuge	70.3	0.0	0.0	1.3	2.5	25.9
Expectations of Refuge resources not met	58.2	5.1	4.4	1.3	1.9	29.1
Prescribed fire program not extensive enough	53.2	3.2	3.8	0.0	2.5	37.3
Prescribed fire program too extensive	48.7	3.8	4.4	0.0	7.0	36.1
Too many people	62.0	6.3	2.5	1.3	3.8	24.1
Other	5.7	0.0	0.0	1.3	2.5	90.5

[1] Missing data also included in this category.

Table 6. Management Actions. Summer respondents indicated whether they 'oppose' or 'support' each management action at Sherburne NWR[1].

Management Actions	N	Strongly Oppose (1) Percent	Moderately Oppose (2) Percent	Slightly oppose (3) Percent	Neither oppose or support (4) Percent	Slightly support (5) Percent	Moderately support (6) Percent	Strongly support (7) Percent	No opinion[1] (9) Percent
Provide more information signs	157	2.5	5.7	5.7	26.1	12.1	23.6	10.2	14.0
Provide fewer information signs	157	17.2	8.3	16.6	33.1	2.5	1.3	1.3	19.7
Design and construct additional interpretive exhibits	157	3.8	1.9	3.8	17.2	17.2	29.9	12.7	13.4
Attempt to attract a larger racial and ethnic diversity of visitors	157	5.1	2.5	3.8	37.6	7.0	8.9	9.6	25.5
Build more hiking trails	157	1.9	6.4	4.5	14.6	19.1	17.8	21.0	14.6
Provide more hunting opportunities	157	20.4	10.8	7.6	22.3	5.1	5.1	11.5	17.2
Provide less hunting opportunities	157	17.8	2.5	4.5	27.4	5.1	8.3	15.9	18.5
Provide more refuge maps to visitors	157	0.6	1.9	1.9	35.0	22.3	12.7	12.1	13.4
Provide more informational brochures to visitors	157	0.6	1.9	2.5	30.6	26.8	10.8	13.4	13.4
Provide more exhibits to help visitors learn about refuge resources	157	1.3	1.3	2.5	15.9	21.7	28.7	19.7	8.9
Control purple loosestrife, leafy spurge, and other invasive species	157	1.9	0.6	1.9	11.5	10.2	19.7	42.7	11.5
Limit the number of hiking trails provided	157	12.7	14.0	17.8	17.8	11.5	9.6	3.8	12.7
Close access to areas in the Refuge at specific times to promote nesting	157	2.5	2.5	5.7	10.2	10.8	12.1	46.5	9.6
Increase use of prescribed burning to restore habitats	157	6.4	0.6	7.0	25.5	13.4	18.5	13.4	15.3
Decrease use of prescribed burning	157	14.6	10.2	10.2	32.5	5.7	2.5	7.6	16.6
Close the Refuge to pets to reduce wildlife disturbance	157	8.3	7.0	8.3	18.5	12.1	11.5	21.7	12.7
Provide more educational opportunities	157	0.6	0.6	0.6	14.0	21.7	24.8	23.6	14.0
Other	157	1.9	0.0	0.0	0.0	0.6	0.0	5.7	91.7

[1] Missing data also included in this category.

Summary Tables for Fall 2001 Visitors

Table 1. Participation in activities. Fall respondents were asked: "Please indicate how many times during the past year you participated in these activities at Sherburne National Wildlife Refuge."

Activity[1]		1-5 times/yr (1)	6-10 times/yr (2)	11-30 times/yr (3)	31 times/yr or more (4)	Did not participate in activity[2] (9)
	N	Percent	Percent	Percent	Percent	Percent
Wildlife observation and Photography						
Observation on wildlife drive	193	45.1	10.4	4.7	2.6	37.3
Watching wildlife	193	38.3	10.9	11.9	5.7	33.2
Bird watching	193	31.1	8.8	7.8	4.1	48.2
Studying nature	193	26.9	7.8	9.8	4.7	50.8
Using spotting scopes	193	24.4	5.2	1.0	1.6	67.9
Photography	193	18.1	7.8	4.1	0.5	69.4
Wildlife education and Interpretation	193					
Viewing interpretive exhibits	193	25.4	7.3	1.0	2.1	64.2
Talking with interpreter	193	13.0	2.6	0.0	0.5	83.9
Participating in interpretive programs	193	7.3	1.0	0.0	1.6	90.2
Fishing	193					
Fishing from canoe	193	7.8	1.6	1.6	0.5	88.6
Fishing off bank	193	6.2	3.1	1.6	0.0	89.1
Hunting	193					
Gun deer hunting	193	18.1	11.9	1.6	0.5	67.9
Upland bird hunting	193	17.6	5.7	2.6	0.5	73.6
Waterfowl hunting	193	14.0	9.3	4.7	2.6	69.4
Small game hunting	193	6.7	5.2	2.1	0.5	85.5
Archery deer hunting	193	4.1	3.6	4.7	2.1	85.5
Disability blinds hunting	193	0.5	0.0	0.0	0.0	99.5

[1] Activities separated into six major USFWS categories: wildlife observation and photography, wildlife education and interpretation, fishing, and hunting. Activities ordered from most common activities to least common activities within each category. Most common activities were those activities for which the greatest percentage of respondents participated at least once in the past year.

[2] Missing data also included in this category.

Table 1 (cont.). Participation in activities. Fall respondents were asked: "Please indicate how many times during the past year you participated in these activities at Sherburne National Wildlife Refuge."

Activity[1]	N	1-5 times/yr (1) Percent	6-10 times/yr (2) Percent	11-30 times/yr (3) Percent	31 times/yr or more (4) Percent	Did not participate in activity[2] (9) Percent
Other activities						
Viewing scenery	193	35.8	9.8	13.0	8.3	33.2
Hiking MT and BH trails	193	29.0	9.8	4.1	1.6	55.4
Wildflower viewing	193	25.4	5.7	5.2	4.7	59.1
Hiking wildlife drive	193	24.9	9.8	4.7	0.5	60.1
Hiking off trail	193	17.1	8.3	6.2	2.1	66.3
Biking other roads	193	11.9	1.0	0.0	0.0	87.0
Canoeing SF River	193	7.8	1.6	1.6	0.5	88.6
Biking wildlife trail	193	7.8	2.6	0.5	0.5	88.6
Snowshoeing	193	7.3	0.5	1.0	0.0	91.2
X-country skiing on trail	193	6.2	2.6	1.6	0.0	89.6
Berry picking	193	5.7	0.0	0.0	0.0	94.3
Other activities	193	3.1	2.6	0.5	0.5	93.3
X-country skiing off trail	193	2.6	1.0	1.0	0.0	95.3
Mushroom picking	193	2.6	0.0	1.0	0.5	95.9

[1] Activities separated into six major USFWS categories: wildlife observation and photography, wildlife education and interpretation, fishing, and hunting. Activities ordered from most common activities to least common activities within each category. Most common activities were those activities for which the greatest percentage of respondents participated at least once in the past year.

[2] Missing data also included in this category.

Table 2. Importance of experiences. Summer respondents indicated how important each experience was to their satisfaction during their most recent visit to Sherburne NWR[1].

Experience[2]	N	Mean[3]	Very Unimportant (1) Percent	Unimportant (2) Percent	Somewhat Unimportant (3) Percent	Neither (4) Percent	Somewhat Important (5) Percent	Important (6) Percent	Very Important (7) Percent
See wildlife	181	6.1	5.5	0.6	1.1	1.1	10.5	26.0	55.2
Experience nature	171	6.1	5.3	1.8	1.8	1.2	7.0	28.1	55.0
View the scenic beauty	173	5.9	3.5	1.7	1.7	1.7	19.7	26.0	45.7
Enjoy the smells and sounds of nature	175	5.9	2.9	1.1	2.9	2.3	17.1	33.1	40.6
Get away from the usual demands of life	172	5.8	4.7	1.2	1.2	6.4	18.6	25.0	43.0
Release tension, relieve stress	166	5.7	4.2	1.2	1.8	9.0	20.5	28.3	34.9
Enjoy a place that is special to me	171	5.5	4.1	1.8	2.9	13.5	17.5	28.1	32.2
Learn more about nature	161	5.4	4.3	3.1	1.9	8.1	26.1	31.7	24.8
Do something with my family	165	5.4	5.5	4.8	1.2	15.2	16.4	21.2	35.8
Get away from crowds of people	168	5.4	5.4	5.4	2.4	10.1	17.9	25.6	33.3
Experience excitement	166	5.2	3.6	4.8	7.8	10.8	22.3	28.3	22.3
Be with friends	167	5.2	4.8	3.0	1.8	22.8	16.2	30.5	21.0
Participate in activities that I wouldn't be able to otherwise	159	5.2	2.5	3.1	2.5	27.0	21.4	19.5	23.9
Be with other people who enjoy the same things I do	168	5.1	5.4	5.4	1.8	20.8	14.9	27.4	24.4
Experience new and different things	158	5.0	3.8	5.1	1.9	17.1	31.6	25.9	14.6
Maintain physical fitness	166	5.0	7.2	1.8	3.6	18.7	23.5	25.9	19.3
Experience solitude	165	5.0	6.1	5.5	6.1	12.7	26.7	21.8	21.2

[1] Respondents were asked to reflect upon their most satisfying activity during their most recent visit while rating the importance of experiences.
[2] Order of experiences based on mean.
[3] Means based on response categories: 1=very unimportant, 2=unimportant, 3=somewhat unimportant, 4=neither, 5=somewhat important, 6=important, 7=very important.

Table 2 (cont). Importance of experiences. Summer respondents indicated how important each experience was to their satisfaction during their most recent visit to Sherburne NWR[1].

Experience[2]	N	Mean[3]	Very Unimportant (1) Percent	Unimportant (2) Percent	Somewhat Unimportant (3) Percent	Neither (4) Percent	Somewhat Important (5) Percent	Important (6) Percent	Very Important (7) Percent
Help others (e.g., my children) develop values and ethics	160	5.0	6.9	4.4	4.4	25.0	13.1	20.6	25.6
Other experiences	26	5.0	3.8	0.0	15.4	26.9	11.5	7.7	34.6
Develop my skills and abilities	171	4.9	5.8	9.4	6.4	14.0	18.7	25.7	19.9
Think about my personal and/or spiritual values	168	4.9	8.9	4.2	3.6	17.9	23.8	17.9	23.8
Get away from the noise back home	168	4.9	8.3	5.4	4.8	19.0	19.0	17.9	25.6
Be on my own	162	4.8	7.4	8.6	5.6	14.8	19.8	24.1	19.8
Use my equipment	167	4.8	4.2	10.8	6.0	16.8	22.8	19.8	19.8
Feel a sense of pride in my heritage	164	4.8	7.3	3.0	6.7	29.9	11.6	21.3	20.1
Gain a greater sense of independence or autonomy	153	4.7	3.3	9.2	3.3	31.4	19.6	19.0	14.4
Learn about the natural history of the area	159	4.7	4.4	8.2	5.0	25.2	26.4	18.9	11.9
Do things my own way	160	4.6	3.8	10.6	4.4	26.3	22.5	19.4	13.1
Help others develop their skills	168	4.6	6.0	7.1	4.2	30.4	17.9	20.2	14.3
Gain a sense of self-confidence	158	4.4	7.0	12.0	5.7	26.6	17.1	19.6	12.0
Talk to new and varied people	164	4.4	4.9	9.8	8.5	29.9	23.2	14.6	9.1
Do something creative such as take photographs	161	4.4	7.5	7.5	5.6	32.3	20.5	20.5	6.2
Get away from family for a while	159	3.7	17.6	12.6	4.4	35.8	14.5	7.5	7.5

[1] Respondents were asked to reflect upon their most satisfying activity during their most recent visit while rating the importance of experiences.
[2] Order of experiences based on mean.
[3] Means based on response categories: 1=very unimportant, 2=unimportant, 3=somewhat unimportant, 4=neither, 5=somewhat important, 6=important, 7=very important.

Table 3. Attainment of important experiences. Fall respondents were asked to indicate how much they were able to attain those experiences that were important to them during their most recent visit to Sherburne NWR[1].

Experience[2]	N	Mean[3]	Did not attain (1) Percent	Somewhat attained (2) Percent	Moderately Attained (3) Percent	Totally Attained (4) Percent
See wildlife	133	2.95	4.5	26.3	39.1	30.1
Experience nature	122	3.36	0.8	14.8	32.0	52.5
View scenic beauty	130	3.32	0.0	18.5	31.5	50.0
Enjoy smells and sounds of nature	129	3.39	0.8	14.0	31.0	54.3
Get away from usual demands of life	118	3.32	0.8	16.9	31.4	50.8
Release tension or stress	112	3.26	0.9	16.1	39.3	43.8
Enjoy a place that is special to me	105	3.24	1.0	22.9	27.6	48.6
Learn more about nature	105	2.69	2.9	44.8	33.3	19.0
Do something with family	92	3.28	7.6	13.0	22.8	56.5
Get away from crowds of people	102	3.07	2.9	26.5	31.4	39.2
Experience excitement	100	2.95	5.0	25.0	40.0	30.0
Be with friends	83	3.27	3.6	14.5	33.7	48.2
Participate in activities that I wouldn't be able to otherwise	76	3.05	7.9	18.4	34.2	39.5
Be with other people who enjoy same things I do	84	3.3	4.8	14.3	27.4	53.6
Experience new things	88	2.53	9.1	40.9	37.5	12.5
Maintain physical fitness	88	2.82	3.4	37.5	33.0	26.1
Experience solitude	94	2.87	6.4	28.7	36.2	28.7
Help others (children) develop values and ethics	73	2.75	12.3	27.4	32.9	27.4

[1] Only respondents who rated the particular experience as somewhat important, important, or very important (5, 6, or 7) in Table 2 are considered in this table.
[2] Order of experiences based on means from Table 2.
[3] Means based on response categories: 1=did not attain, 2=somewhat attained, 3=moderately attained, 4=totally attained.
NOTE: Table continues on next page.

Table 3 (cont). Attainment of important experiences. Fall respondents were asked to indicate how much they were able to attain those experiences that were important to them during their most recent visit to Sherburne NWR[1].

Experience[2]	N	Mean[3]	Did not attain (1) Percent	Somewhat attained (2) Percent	Moderately Attained (3) Percent	Totally Attained (4) Percent
Other experiences	6	3.33	16.7	0.0	16.7	66.7
Develop skills and abilities	89	2.74	0.0	37.1	51.7	11.2
Think about personal or spiritual values	87	3.15	0.0	28.7	27.6	43.7
Get away from noise back home	82	3.24	1.2	18.3	35.4	45.1
Be on my own	83	3.12	7.2	18.1	30.1	44.6
Use equipment	79	3.14	1.3	26.6	29.1	43.0
Feel a sense of pride in my heritage	66	2.85	4.5	30.3	40.9	24.2
Gain greater sense of independence	57	2.93	0.0	35.1	36.8	28.1
Learn natural history of area	66	2.26	16.7	51.5	21.2	10.6
Do things my way	70	3.09	1.4	28.6	30.0	40.0
Help others develop their skills	65	2.75	7.7	30.8	40.0	21.5
Gain sense of self-confidence	60	2.75	3.3	40.0	35.0	21.7
Talk to new and varied people	52	2.56	9.6	42.3	30.8	17.3
Do something creative such as photography	61	2.41	23.0	27.9	34.4	14.8
Get away from family for a while	35	3.43	0.0	8.6	40.0	51.4

[1] Only respondents who rated the particular experience as somewhat important, important, or very important (5, 6, or 7) in Table 2 are considered in this table.
[2] Order of experiences based on means from Table 2.
[3] Means based on response categories: 1=did not attain, 2=somewhat attained, 3=moderately attained, 4=totally attained.

Table 4. Landscape and Community Components. Fall respondents indicated how important each component is to society.

Components[1]	N	Mean[2]	Very Unimportant (1) Percent	Unimportant (2) Percent	Somewhat Unimportant (3) Percent	Neither (4) Percent	Somewhat Important (5) Percent	Important (6) Percent	Very Important (7) Percent
Providing habitat for wildlife	190	6.2	7.9	0.0	1.1	1.6	5.3	13.2	71.1
Ensuring the natural and undeveloped land will exist for future generations	186	6.1	6.5	0.5	2.2	4.3	7.5	16.7	62.4
Maintaining unique habitat	187	5.9	7.5	0.0	3.2	3.2	9.6	24.6	51.9
Maintaining natural and undeveloped lands	187	5.9	7.0	0.5	2.7	2.7	10.2	24.1	52.9
Providing opportunities to view wildlife	188	5.9	6.9	0.5	0.5	3.7	10.1	36.7	41.5
Maintaining diversity of native plants and animals	186	5.8	7.0	0.5	3.8	4.3	10.2	26.3	47.8
Maintaining scenic beauty	187	5.8	6.4	1.1	1.6	3.2	15.5	28.3	43.9
Helping clean the air	188	5.8	5.9	0.5	2.7	4.3	15.4	28.7	42.6
Experiencing a serene and healthy environment	185	5.8	7.6	0.0	1.1	3.8	13.0	29.7	44.9
Improving ecosystem health	186	5.7	4.8	1.1	7.0	5.4	15.6	24.2	41.9

[1] Order of components were based on mean.
[2] Means based on response categories: 1=very unimportant, 2=unimportant, 3=somewhat unimportant, 4=neither, 5=somewhat important, 6=important, 7=very important.

NOTE: Table continues on next page.

Table 4 (cont). Landscape and Community Components. Fall respondents indicated how important each component is to society.

Components[1]	N	Mean[2]	Very Unimportant (1) Percent	Unimportant (2) Percent	Somewhat Unimportant (3) Percent	Neither (4) Percent	Somewhat Important (5) Percent	Important (6) Percent	Very Important (7) Percent
Preserving a part of our history	185	5.6	5.9	1.6	2.2	8.6	19.5	23.8	38.4
Providing a place where all people are welcome	187	5.6	7.0	1.1	2.7	6.4	15.0	28.3	39.6
Providing educational and interpretive opportunities to learn about this natural area	185	5.5	4.9	1.1	2.7	8.1	23.8	28.1	31.4
Storing and purifying water	185	5.4	5.4	3.2	4.3	9.2	16.8	29.2	31.9
Providing a place for family and friends to come together	186	5.4	7.0	2.7	1.6	9.1	17.7	32.3	29.6
Providing hunting opportunities	189	5.4	7.9	5.8	6.3	7.4	9.0	13.8	49.7
Being able to see my tax dollars being put to use	187	5.4	7.5	3.7	2.1	13.9	11.8	25.1	35.8
Providing diverse recreation opportunities	185	5.3	5.9	3.2	3.2	10.3	23.2	27.6	26.5
Providing flood control	185	5.2	5.9	4.9	7.0	10.3	19.5	27.0	25.4
Restoring the native landscape	187	5.2	8.0	4.3	5.9	5.9	24.6	19.8	31.6
Other	28	5.2	7.1	3.6	3.6	32.1	0.0	10.7	42.9
Providing opportunities for photography	187	5.1	4.3	3.2	3.7	18.2	26.2	29.4	15.0
Aiding the region's overall economy	186	4.7	7.0	7.0	8.1	14.0	30.6	16.7	16.7

[1] Order of components were based on mean.
[2] Means based on response categories: 1=very unimportant, 2=unimportant, 3=somewhat unimportant, 4=neither, 5=somewhat important, 6=important, 7=very important.

Table 5. Potential Problems. Fall respondents were asked to evaluate how much each situation detracted from their experience at Sherburne NWR.

Problems	Did not detract (1)	Slightly detracted (2)	Moderately detracted (3)	Strongly detracted (4)	Very strongly detracted (5)	No opinion[1] (9)
	Percent	Percent	Percent	Percent	Percent	Percent
Litter and trash left by others	34.2	23.8	13.0	9.8	9.8	9.3
People not obeying Refuge rules	43.5	13.0	8.8	11.4	6.2	17.1
People not following hunting regulations	42.0	7.8	7.3	5.7	13.0	24.4
Pet owners not obeying rules	51.3	4.7	7.3	7.3	5.2	24.4
Other visitors being inconsiderate	46.1	11.4	7.3	6.7	9.8	18.7
Not enough law enforcement present	57.5	8.3	5.7	3.6	3.6	21.2
Insufficient information signs	64.2	10.4	4.7	3.1	2.1	15.5
Too many information signs	68.4	6.2	1.0	2.1	0.5	21.8
Insufficient interpretive exhibits	55.4	9.3	4.7	2.6	0.5	27.5
Too many interpretive exhibits	63.7	4.1	1.0	1.0	0.0	30.1
Insufficient informational brochures to take home	61.7	9.3	5.7	2.1	1.6	19.7
Insufficient availability of Refuge maps	62.7	5.2	7.8	4.7	2.1	17.6
Inadequate accessibility for visitors with disabilities	50.3	5.2	2.6	2.1	1.0	38.9
Poor trail maintenance	68.4	5.7	1.0	1.6	0.5	22.8
Poor road maintenance	66.8	5.7	2.6	3.1	0.5	21.2
Conflict with people engaging in other activities	66.8	6.2	2.1	2.1	1.6	21.2

[1] Missing data also included in this category.

NOTE: Table continues on next page.

Table 5 (cont.). Potential Problems. Fall respondents were asked to evaluate how much each situation detracted from their experience at Sherburne NWR.

Problems	Did not detract (1)	Slightly detracted (2)	Moderately detracted (3)	Strongly detracted (4)	Very strongly detracted (5)	No opinion[1] (9)
	Percent	Percent	Percent	Percent	Percent	Percent
Grass not mowed along road and at parking areas	73.6	4.1	1.0	0.5	0.0	20.7
Too much mowing along roads	64.8	6.7	3.1	1.6	0.0	23.8
Little racial or ethnic diversity of visitors at the Refuge	57.0	4.7	2.1	0.5	1.0	34.7
Inadequate availability of staff	60.6	6.7	1.6	2.1	1.0	28.0
Refuge rules not restrictive enough	66.8	3.1	1.6	2.1	0.0	26.4
Refuge rules too restrictive	50.3	8.3	6.2	6.2	5.2	23.8
Feeling unwelcome in the Refuge	69.4	2.6	1.6	2.1	1.6	22.8
Expectations of Refuge resources not met	58.5	7.8	4.7	1.0	0.5	27.5
Prescribed fire program not extensive enough	56.0	4.7	3.1	1.6	1.0	33.7
Prescribed fire program too extensive	53.4	2.1	4.1	5.2	4.1	31.1
Too many people	48.2	14.5	7.8	6.7	4.1	18.7
Other	8.8	1.0	0.5	3.6	5.2	80.8

[1] Missing data also included in this category.

Table 6. Management Actions. Fall respondents indicated whether they 'oppose' or 'support' each management action at Sherburne NWR[1].

Management Actions	N	Strongly Oppose (1) Percent	Moderately Oppose (2) Percent	Slightly oppose (3) Percent	Neither oppose or support (4) Percent	Slightly support (5) Percent	Moderately support (6) Percent	Strongly support (7) Percent	No opinion[1] (9) Percent
Provide more information signs	193	3.6	4.7	5.7	37.3	11.4	13.5	9.8	14.0
Provide fewer information signs	193	7.8	7.8	13.5	43.5	2.6	1.6	2.6	20.7
Design and construct additional interpretive exhibits	193	2.6	3.1	8.3	31.6	12.4	18.7	8.8	14.5
Attempt to attract a larger racial and ethnic diversity of visitors	193	8.3	6.7	4.7	40.4	4.7	3.6	5.2	26.4
Build more hiking trails	193	6.2	2.1	9.8	24.4	11.9	16.6	16.6	12.4
Provide more hunting opportunities	193	7.3	6.2	4.1	12.4	5.2	7.8	43.5	13.5
Provide less hunting opportunities	193	45.1	6.2	1.6	17.1	3.1	4.1	7.8	15.0
Provide more refuge maps to visitors	193	0.5	2.1	1.0	40.9	11.4	13.5	15.0	15.5
Provide more informational brochures to visitors	193	0.5	1.6	2.1	35.2	16.1	13.5	14.0	17.1
Provide more exhibits to help visitors learn about refuge resources	193	1.6	0.5	5.2	28.0	16.1	21.8	11.9	15.0
Control purple loosestrife, leafy spurge, and other invasive species	193	0.0	0.5	1.6	17.1	14.0	16.6	32.6	17.6
Limit the number of hiking trails provided	193	14.0	10.9	11.9	29.0	6.7	6.7	6.2	14.5
Close access to areas in the Refuge at specific times to promote nesting	193	1.6	3.1	10.4	13.5	11.9	19.7	30.1	9.8
Increase use of prescribed burning to restore habitats	193	7.3	3.6	3.1	26.9	11.9	15.5	18.1	13.5
Decrease use of prescribed burning	193	13.5	10.4	8.8	31.1	5.7	5.7	7.3	17.6
Close the Refuge to pets to reduce wildlife disturbance	193	17.1	7.8	9.8	23.3	7.3	10.4	13.0	11.4
Provide more educational opportunities	193	0.5	1.0	1.6	30.6	18.1	17.6	13.5	17.1
Other	193	0.0	0.0	0.0	0.5	1.0	0.5	4.1	93.8

[1] Missing data also included in this category.

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Section 8

Participants List, Information and Answers to Introductory questions

U. S. Fish and Wildlife Service (USFWS)

Washington D.C. Office (WO)
Bob Adamcik
NWRS
4401 N. Fairfax Drive, Room 670
Arlington, VA 22203
703-358-2359
bob_adamcik@fws.gov

Liz Bellantoni
NWRS
4401 N. Fairfax Drive, Room 670
Arlington, VA 22203
703-358-2422
liz_bellantoni@fws.gov

Twin Cities Ecological Services Field Office
Dave Warburton
USFWS
4101 E. 80th St.
Bloomington, MN 55425
612-725-3548 (ext. 203)
fax: 612-725-3609

Regional Office, Region 3 (RO)
Jan Eldridge
Planner, USFWS
BHW Federal Building
1 Federal Drive
Ft. Snelling, MN 55111
612-713-5430
jan_eldridge@fws.gov

Tom Larson
Chief, Ascertainment and Planning
USFWS
NWRS/AP
BHW Federal Building
1 Federal Drive
Ft. Snelling, MN 55111
612-713-5430
thomas_larson@fws.gov

Gary Muehlenhardt
Planner, USFWS
NWRS/AP
BHW Federal building
1 Federal Drive
Ft. Snelling, MN 55111
612-713-5477
gary_muehlenhardt@fws.gov

Barbara Pardo
Joint Venture Coordinator
U.S. Fish and Wildlife Service
1 Federal Dr.
Fort Snelling, MN 55111
612-713-5433

John Schomaker
USFWS Region 3 Planner
1 Federal Drive
Ft. Snelling, MN 55111-4056
612-713-5476
john_schomaker@fws.gov

Tom Will
USFWS Region 3
Nongame Migratory Bird Biologist
BHW Federal Building
1 Federal Drive
Ft. Snelling, MN 55111
612-713-5362
tom.will@fws.gov

Sherburne National Wildlife Refuge
Charlie Blair
Sherburne NWR
17076 293rd Ave.
Zimmerman, MN 55398
763-389-3323 ext 211
charles_blair@fws.gov

Brad Ehlers
Sherburne NWR
17076 293rd Ave.
Zimmerman, MN 55398
763-389-3323 ext 212
brad_ehlers@fws.gov

Nancy Haugen
Sherburne NWR
17076 293rd Ave.
Zimmerman, MN 55398
763-389-3323 ext 213
nancy_haugen@fws.gov

Jeanne Holler
Sherburne NWR
17076 293rd Ave.
Zimmerman, MN 55398
763-389-3323 ext 214
jeanne_holler@fws.gov

Paul Soler
Sherburne NWR
17076 293rd Ave.
Zimmerman, MN 55398
763-389-3323 ext 215
paul_soler@fws.gov

U. S. Geological Survey (USGS)

Kevin Kenow
Upper Midwest Environmental Sciences Center
2630 Fanta Reed Road
LaCrosse, WI 54603
608-781-6278
kevin_kenow@usgs.gov

Jason Rohweder
Upper Midwest Environmental Sciences Center
575 Lester Ave.
Onalaska, WI 54650
Jason_rohwedeer@usgs.gov

David Fulton
Research Coop Unit (USGS)
University of Minnesota
Minneapolis, MN

Representatives of the Public

Tom Casey
2854 Cambridge
Mound, MN 55364
952-472-1099
casey@wavefront.com

Marv Ziner
Friends of Sherburne Refuge
617 Gates Ave.
Elk River, MN 55330
763-441-2882
mdziner@aol.com

Sam Droege
Patuxent Wildlife Sciences Center
Laurel, MD

St. Cloud State University

William Faber
St. Cloud State University
Department of Biological Sciences
MS 262
720 4th Avenue South
St. Cloud, MN 56301-4498
320-255-4135
wfaber@stcloudstate.edu

Non-Government Organization

Garth Fuller
The Nature Conservancy
Program Director
Central Minnesota Office
Cushing, MN 56443
218-575-3032

John Peck
Central Minnesota Audubon Society
St. Cloud, MN

Minnesota Department of Natural Resources

Lloyd Knudson
Farmland Wildlife Program Leader
MDNR Division of Wildlife
500 Lafayette Rd.
St Paul, MN, 55155
651-296-0704
lloyd.knudson@dnr.state.mn.us

Conservation Breeding Specialist Group

(Facilitators)

Dr. Ulie Seal, Dr. Onnie Byers, Moriya McGovern
CBSG
12101 Johnny Cake Ridge Road
Apple Valley, MN 55124
952-997-9800
office@cbsg.org

Question 1: Please provide your contact information and a brief identification of organization, area of expertise, and area of primary interest. Did you participate in Sherburne Workshop 1 and or 2?

1. Tom Casey: I participated in workshops 1 and 2
2. Brad Ehlers: I participated in workshops 1 and 2
3. Jan Eldridge: I participated in workshops 1 and 2
4. William Faber: I did not participate in the first 2 workshops; area of expertise is wildlife management and ecology; primary interest: to partake in the CCP process and provide my expertise and opinions on Sherburne's CCP.
5. Garth Fuller: I did not participate in the first 2 workshops; area of expertise is conservation planning, ecoregional planning and project coordination; primary interest: managing lands for native biodiversity enhancement and maintenance in the urban/rural interface.
6. Nancy Haugen: I participated in workshops 1 and 2; area of expertise: public use specialist
7. Jeanne Holler: I participated in workshops 1 and 2
8. Kevin Kenow: I participated in workshops 1 and 2
9. Lloyd Knudson: I participated in workshops 1 and 2
10. Tom Larson: I participated in workshops 1 and 2; area of expertise: refuge management, planning
11. John Peck: retired SCSU Bird Professor, central MN Audubon Society. Modest expertise in conservation easements (MN Land Trust).
12. Barbara Pardo: I did not participate in workshops 1 and 2. Expertise in waterfowl management, habitat and regional/continental population goals.
13. Jason Rohweder: I participated in workshop 1 only
14. John Schomaker: I participated in workshops 1 and 2
15. Paul Soler: I participated in workshops 1 and 2
16. Dave Warburtohn: I did not participate in workshops 1 and 2. Expertise in water quality and environmental contaminants.
17. Tom Will: I participated in workshops 1 and 2
18. Marv Ziner: I participated in workshops 1 and 2. Expertise: retired science/agriculture teacher. Interest: Environmental Ed

Question 2: What is your personal goal for this workshop?

1. Tom Casey: Provide comments from citizen's perspective, and learning from others the opportunities and challenges for the Refuge.
2. Brad Ehlers: Get done with the meetings and on with the writing.
3. Jan Eldridge: To accomplish tasks with maximum buy in.
4. William Faber: To contribute in any and every way I can to developing a solid and beneficial 15 year CCP for the Refuge.
5. Garth Fuller: To learn how the Nature Conservancy can help and work with the FWS in the maintenance and enhancement of native biodiversity in the Sherburne area.
6. Nancy Haugen: For the Refuge to have a good management plan that keeps wildlife interests first with opportunities for the public to participate in the 6 priority public use activities
7. Jeanne Holler: Process oriented, to get alternatives fully developed and objectives for each alternative.
8. Kevin Kenow: Provide GIS support to process.
9. Lloyd Knudson: Provide input from perspective of State conservation agency.
10. Tom Larson: To observe the process and learn from it, and to advance the Sherburne CCP process.
11. John Peck: No goals
12. Barbara Pardo: to learn about the planning process; understand the refuge objectives for waterfowl and other migratory birds
13. Jason Rohweder: offer my GIS expertise to aid in the CCP process
14. John Schomaker: Learn process and techniques of workshop
15. Paul Soler: To ensure the Refuge is managed/protected according to a well thought out plan
16. Dave Warburtohn: To learn about the Refuge management goals and issues which I can use in a current project evaluating potential contaminant impacts to the Refuge
17. Tom Will: To complete an exemplary CCP for the Refuge. One that will stand as the CCP by which all the others are judged!
18. Marv Ziner: Develop a workable long term plan.

Question 3: Has any important problem for the conservation planning process been missed in the first two workshops? What is it?

1. Tom Casey: no
2. Brad Ehlers: I feel adequate coverage was made.
3. Jan Eldridge: Doing well, we need data involvement, that should happen now.
4. William Faber: cannot comment on since I wasn't involved in the first 2 workshops.
5. Garth Fuller: don't know.
6. Nancy Haugen: ?
7. Jeanne Holler: haven't really dealt with urbanization.
8. Kevin Kenow: blank
9. Lloyd Knudson: blank
10. Tom Larson: blank
11. John Peck: I was not at the first two workshops
12. Barbara Pardo: none
13. Jason Rohweder: none

14. John Schomaker: none
15. Paul Soler: none.
16. Dave Warburtohn: Cannot comment, I am a late arrival to the SNWR CCP process.
17. Tom Will: none
18. Marv Ziner: none.

Question 4: What, in your view, is the most valuable outcome of the Sherburne National Wildlife Refuge planning process?

1. Tom Casey: the details (workplan) is in place to achieve, the vision statement, fully functioning native ecosystem with the off-refuge planning process and land use in synch with the refuge vision.
2. Brad Ehlers: a consensus of majority to manage the refuge for the next 15 years.
3. Jan Eldridge: new contacts, core for a CCP, wide variety of involvement.
4. William Faber: considering all interest groups, formulate a realistic and attainable management strategy (CCP) which can be implemented and followed over its 15 year entirety for the Refuge.
5. Garth Fuller: a dynamic plan that articulates detailed goals and objectives in a manner that allows FWS managers to steward Sherburne's; important resources into a changing future.
6. Nancy Haugen: Developing a clear vision for the management of Sherburne Refuge.
7. Jeanne Holler: direction for future to provide consistency in management for the Refuge.
8. Kevin Kenow: provide a well thought out vision and management plan for the Refuge based on diverse viewpoints.
9. Lloyd Knudson: hopefully it will provide a document that will guide the management of the Refuge for many years. Providing a balanced approach for resource protection/public recreation/maintaining primary responsibilities of national refuge system.
10. Tom Larson: staff agreement on the future management of the Refuge, management direction based upon sound science, public support for the management direction.
11. John Peck: protection and enhancement of biodiversity using modern conservation biology.
12. Barbara Pardo: A clear and concise long-range plan that will benefit priority migratory birds and habitats (not a mish-mash of programs and strategies that strive to provide all possible habitat types).
13. Jason Rohweder: Formulating an acceptable strategy to ensure the Refuge is valuable for years to come to a disparate user group and the refuges wildlife
14. John Schomaker: Exposure to diverse views among participants.
15. Paul Soler: We will have a plan to go by.
16. Dave Warburtohn: A long-range plan that will serve as the primary reference for identifying and implementing strategies to positively influence on-and off-refuge land use decisions to conserve the Refuge resources.
17. Tom Will: A clear direction and mandate arrived at by a consensus of stakeholders through which Refuge staff and volunteers can achieve on the ground conservation of migratory birds, other wildlife, native vegetation, and functional ecological communities
18. Marv Ziner: To unify local, county governmental units, communities, outdoor organizations so that they become partners with the Refuge.

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Section 9

Invitation List

Invitation List

U. S. Fish and Wildlife Service (USFWS)

Washington D.C. Office
Bob Adamcik
Liz Bellantoni
Steve Farrell

Regional Office, Region 3
Nita Fuller
Don Hultman
Tom Worthington
Tom Larson
Jim Mattsson
Barbara Pardo
Tom Will
John Dobrovolny
John Schomaker
Jan Eldridge
Gary Muehlenhardt
Tom Magnuson
Rick Schuldt

Sherburne National Wildlife Refuge
Charles Blair
Jeanne Holler
Brad Ehlers
Gary Swanson
Nancy Haugen
Paul Soler

Agassiz National Wildlife Refuge
Margaret Anderson

Rice Lake National Wildlife Refuge
Mary Stefanski

Upper Mississippi River National Wildlife and Fish Refuge
Eric Nelson

Minnesota Waterfowl Association
Mark McNamara
Dean Flicker

Ecological Services
Dave Warburton
Nick Rowse

Ashland Fishery Resource Office
Mark Dryer
Frank Stone

U. S. Geological Survey (USGS)
Sam Droege
David Fulton
Jason Rohweder
Kevin Kenow
Rick Schroeder
Dave Hamilton
Dorothy Anderson
Murray Laubhan

Tribal Governments of Ojibwe Ceded Territories
Melanie Benjamin
gaiashkibos
Thomas Maulson
Peter Defoe
Sandra Rachal
David Merrill
Curt Kalk

Minnesota Department of Natural Resources (MNDNR)
Fred Bengston
Hannah Dunevitz
Patricia Fowler
Dave Pauly
Pam Perry
Dave Schad
Lloyd Knudson

County Administrators
Brian Benson
Nancy Riddle

County Commissioners
Arne Engstrom
Terry Nagorski
Ray Friedl
Betsy Wergin
Rachel Leonard

Representatives of the Public

John Tester
Bill Berg
Tom Casey
Judith Hidde
Mike Niziolek
Marv Ziner
Catherine Zimmer
Shirley Jones

Non-Governmental Organizations (NGOs)

The Nature Conservancy
Jennifer Brown
Garth Fuller

Audubon Society
Betsy Daub
Brian Jungels
John Peck

Educational Institutions

University of MN, St. Paul
Kim Chapman
Mark Davis

University of MN, St. Cloud
Bill Faber

St. Johns University, Collegeville
Marcus Webster

World Conservation Union (IUCN)

Conservation Breeding Specialist Group (Facilitators)
Ulie S. Seal
Onnie Byers
Moriya McGovern

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Appendix I.

Objectives as developed in Focus Groups previous to this Workshop

Education and Interpretation

Interpretive efforts tied to restoration efforts and preservation of natural areas and greenways connecting the refuge to other communities and resources. (9)

Within ___ years, develop an outreach program that is as active of the refuge as it is on the refuge. This will enable the service to reach a much greater number of people. (7)

All visitors have knowledge of and access to information regarding the threat of urban sprawl and how to mitigate its impacts! (6)

Within _____ years, the refuge builds a visitor center to serve as a hub for educational, informational and recreational activities. (6)

Within ___ years, ____% of the citizenry in the area (60 mile radius) report that they have heard of and feel positive about the mission and goals of the refuge, based on a random survey (5)

Within 5 years, all refuge visitors recognize the 'blue goose' as a symbol of the National Wildlife Refuge System. (4)

Within 2 years of the Plan's approval, concentrate on outreach (off refuge) to save max. migrating bird habitat in the vicinity of the refuge. (4)

100% of students (K-12) in Sherburne County should have been exposed to the NWR through at least on structural field trip during their K-12 years. (4)

All visitors have knowledge of and access to information regarding 1) mid-1800s flora and fauna as they compare to current condition of flora and fauna; and 2) what is being done (and can be done) to achieve mid-1800s conditions! (3)

Within next 3 years add staff and increase by 2 times the number of volunteers to be able to provide more educational opportunities and be able to advertise to the community. (3)

Within 7 years, Sherburne National Wildlife Refuge will provide an environmental education program to 90% of the visitors that immerses people in the ecological processes of every local ecosystem: oak savanna, all wetlands types, prairie, and hardwood forest (3).

Visitor Center now. (3)

Annually, provide environmental education for x# of elementary students to provide an understanding of natural processes within the environment. (3)

The refuge needs to take the lead in providing examples in environmental planning to surrounding landowners and government agencies. (2)

In ___ years for most of the visitors to understand the goals of the refuge system and pass it on. (2)

An educational priority for the refuge should be to help visitors of the refuge understand how management activities performed on the refuge are designed to bring the habitat to mid-1800 conditions. (2)

Within X years, provide self-guided interpretation for each eco-type/wildlife spp. Existing on refuge which would target 100% of visitors regardless of the purpose of their visit. (2)

Within 3 years, provide for a 20% increase in the number of off-refuge public contacts on the need to protect the watershed of the St. Francis River. (2)

Within _____ years of the plan's approval, have specific educational programs in place for students from grade ___ to grade _____. (2)

Increase school field trips to educate and allow observation time to reach every student (100%) in surrounding communities with a few days in each grade, within the next 15 years by increasing #'s each year. (2)

In 15 years Sherburne National Wildlife Refuge will deliver an environmental education program, emphasizing low fossil fuel use, for 90% of individuals within 20 miles under the age of 21. (2)

Within 10 years develop a visitor center on the refuge that will be a center for pubic education and interpretation. (1)

The goal in ten years to have refuge visitors be able to identify 50% of what they see (wildlife and botany). (1)

Increase outreach environmental education by 100% within a 40-mile radius of the refuge. (1)

In 5 years double the student participation in environmental education. (1)

In 3-5 years provide space and building as tools to educate young people and the public in how to better handle and propagate the many species of animals and plants that are part of our refuge. (1)

Within ___ years, the refuge will prepare signage and other written materials providing readily accessible information on issues such as invasive species, migratory species using the refuge, habitat management strategies, etc. (1)
Increase interpretive programs – hikes, programs, etc. – on weekends during peak use periods. (1)

In the next 5 years, increase educational and interpretive programs and facilities (1)

Hunting and Fishing

9--Within 5 years 80% of those who hunt the refuge have a quality hunt. 'Quality hunt' defined: 1) solitude (sights, sounds, smells), 2) see other wildlife, 3) unique habitat appreciation, 4) seeing huntable species with potential of taking (taking as a bonus). Promote hunting ethics in brochures.

7--Within two years, 75% of hunters / fisherpersons will report strong support for and understanding of habitat/resource management regulations.

7--Within 10 years increase hunter educational opportunities by 100% within a 40 mile radius of the refuge.

6--Within 5 years develop an annual hunter survey process to monitor hunter satisfaction, conflict issues for 75% of deer hunters.

6--The refuge will provide a diversity of hunting opportunities as compatible with wildlife populations.

6--Hunting and fishing opportunities are totally consistent with the refuge's ecological goals (i.e. maintain ecological balance of diversity between nature wildlife and nature flora).

6--Goal: visitors enjoy wildlife-dependent opportunities that further an appreciation of refuge wildlife and habitats. Object: annually provide opportunity for X # of hunters/ fishers to harvest in order to keep wildlife in a healthy, perpetuated state as determined by professional wildlife managers.

5--Within two years of plan approval, consider a turkey hunt on some portion of the area.

5--Within 5 years the refuge will provide at least one access point for fishing that is accessible to disabled anglers.

5--Within 5 years provide spring turkey hunting.

5--People hunting and fishing on the refuge, over the next 15 years, develop knowledge and skills to enhance and help sustain the ecosystem that supports the organism being harvested.

4--Within 3 years of the plan's approval, at least 70% of firearms deer hunters and 80% of archery deer hunters will report satisfying hunting experiences on the refuge.

4--Provide a quality hunting experience by finding ways to reduce hunter densities.

4--0People hunting and fishing on the refuge, over the next 15 years, apply their knowledge and skills to enhance and help sustain the ecosystem that supports the organism being harvested. = Action on or off refuge.=

3--Within 5 years, decrease the number of 1.5-year-old white tail bucks harvested by 50%.

3--Within 5 years of plan approval, a carp control plan will have been completed and implemented to reduce their effects on the fisheries and invertebrate (migratory bird) resources.

3--Within 3 years of the plan's approval, environmental education will stress more the value of hunting and fishing in creating an awareness of the real natural environment.
3--Increase the boundary lines of 'Area C' for waterfowl hunting. Western side of Rice Lake.

3--In an annual random survey 70% of hunters on the refuge will report satisfying hunting experiences.

2--Within 5 years provide handicap-accessible fishing for 70% of visitors at SNWR on St. Frances River.

2--Within 3 years, wildlife identification leaflets could be produced for the less informed. 'Interpretation.'

2--Within ___ years, ___% of waterfowl hunters will report improvements in waterfowl habitat.

2--Within ___ years of the plan's approval, the number of deer hunters (firearms) will be between ___ and ___.

2--Within ___ years of the plan's approval, at least ___ people with disabilities will hunt on SNWR.

2--Hunting and fishing does not interfere with wildlife viewing, photography, education and other non-consumptive wildlife-development recreation, except to the extent necessary to maintain a balance of diversity (goal #3) of nature species.

2--Accessible blinds. Make turkey hunting available to the physically challenged; make fishing dock for physically challenged.

1--Within two years of plan approval, consider a deer-muzzleloader hunt on some portion of the area.

1--Within one year of the plan approval, small game hunters (upland and waterfowl) report a quality experience with few conflicts between users.

1--Within 5 years, 50% of waterfowl hunters will report seeing increased numbers of waterfowl.

1--Within 5 years young people will be trained in fishing skills.

1--Within 5 years of plan approval, a research study will have examined the correlation between squirrel numbers and raptor-resident (winter) species – primarily barred owls.

1--Within 5 years of plan approval, 75% of participants will experience a quality deer-firearms hunt.

1--Within 5 years of plan approval, 75% of participants will experience a quality waterfowl hunt.

1--Within 5 years improve waterfowl production and use of the refuge by ?%.

1--Within 5 years 80% of those who hunt the refuge not only have a quality hunt, but also understand the mission and purpose of the NWR system.

1--Within 3 years increase understanding of hunting for management to general community.

1--Within 10 years provide a 50% increase in shoreline and non-motorized fishing opportunities.

1--Within ___ years, ___% of fishermen/women will report improvements/increases in fish habitat.

1--Will there be a time in the future that a deer hunt on this refuge will be conducted on the basis of a lottery? Related reasons: a) safety, b) making the hunt more enjoyable.

1--Upon completion of SNWR CCP, refuge staff will have a dominant role in determining hunting and fishing opportunities.

1--Limit numbers of hunters for specific seasons to prevent over crowding and negative experiences (drawing/lottery).

1--Increase wildlife habitat areas to enhance the #s targeted.

1--In a random survey 70% of people fishing will report a satisfying experience.

1--Deer Hunting – to improve quality of the hunting experience in the next two years.

1--Communication – within two years 80% of hunters / fisherpersons within a 50 mile area will be aware of the refuge as a place to hunt and fish.

1--Communication – within two years 80% of H/F within a 50 mile area will be aware of the rules and guidelines established by the refuge for H/F.

1--By 2004, 90% of anglers report an uncrowded fishing experience on the refuge as measured by annual surveys.

1--Broad Based – Open as much of the refuge as possible (resource first) to as many people as possible (quality and safety), for as many activities as possible (legal), for as much time as possible (resource) yearly.

Observation and Photo

7--Within 2 years inventory existing and potential observation areas. Relative to specific species.

6--Within 5 years of the plan's approval, 85% of visitors understand the importance of migratory bird nesting areas and why they are off-limits to the public seasonally.

6--Develop a seasonal schedule for observation areas, to maximize awareness and minimize disruption to species and habitats. Will allow refuge to manage observation areas for the benefit of users and resources.

5--Within 5 years the refuge will provide ____ of wildlife photographers per year the opportunity for quality off-trail photographic opportunities.

5--In 15 years, establish a wildlife observation/photography opportunity that utilizes little to no fossil fuel (lowers CO_2 production from recreation).

4--Within 10 years increase wildlife diversity on this refuge to include buffalo and/or elk both at one time native to this area.

3--Within 5 years, construct ____ blinds (taking appropriate steps to protect birds observed) near wetland (mudflat, etc.) habitats on the Wildlife Drive for use by observers/photographers.

3--Within 5 years inventory refuge visitors to identify species and/or habitat preferred for observation and photography.

3--Within 2 years of the plan's approval, formulate areas and maximum use for the areas where these (photo and wildlife observation) activities can occur without affecting wildlife resources.

3--Within ___ years, the refuge will establish a program of seminars / guided hikes / etc. focused on wildlife observation and/or photography.

3--Within ___ years of the plan's approval, at least ___% of visitors who come to SNWR to observe wildlife will have a positive experience, as determined by a random survey.

3--Wildlife observation and photography opportunities take priority over consumptive wildlife opportunities (hunting and fishing) in the event of a conflict.

3--In an annual random survey 70% of visitors on the Wildlife Drive and hiking trails will report a satisfying wildlife observation experience.

3--In 5 years, people will photograph or observe organisms to capture: 1) the significance of its design for success in its ecosystem; 2) their role in a natural ecosystem.

3--Develop a viewable wildlife program that would maximize observation / photographic potential while at the same time have little or no negative impact to wildlife.

2--Within three years, provide ___ opportunities for wildlife observation and photography with an emphasis on migratory bird viewing.

2--Within 5 years, ___% of refuge visitors will report that they had the opportunity to view wildlife on a national wildlife refuge; part of a national system.

2--Within 5 years have established wildlife observation areas for the public to utilize. Have them in areas where large amounts of wildlife congregate to minimize disturbing wildlife and people.

2--Within ___ years the refuge will develop a way to help visitors appreciate wildlife signs as much as seeing wildlife.

2--Wildlife observation and photography opportunities are totally consistent with the ecological goals of the refuge (i.e., maintain an ecological balance of diversity of nature flora and fauna).

2--Wildlife observation and photography opportunities are provided without additional artificial structures.

2--Seasonally provide access and opportunity for viewing most species existing on refuge and make available to X# of school children per year.

2--In the next 5 years improve the trail system to encompass more habitat types.

2--In 5 years ___% of visitors to the refuge will have a good understanding of wildlife watching ethics.

2--Improve communication and coordination with area schools to increase youth field trips / environmental education to ____ people.

1--Within 5 years have people from the community who are coming to observe wildlife be able to see more wildlife and be accessible by wheelchair while getting out into the environment.

1--Within 2 years of the plan's approval, develop a written regulation for photography use of the refuge – both professional and amateur.

1--Within ___ years, the refuge will establish a program of one-day (or more/less?) workshops on wildlife identification and/or photography for school children.

1--Wildlife observation and photography opportunities are provided through education of human impacts to the refuge.

1--Wildlife and photography opportunities are encouraged through publication of phenological records.

1--The refuge will provide at least 2 blinds (used by reservation system) to facilitate wildlife viewing and photography opportunities.

1--Open refuge roads to foot travel earlier in the year to increase viewing opportunities of different portions of the refuge in the summer.

1--Offer guided wildlife observation trips (morning, day and night) to give visitors opportunity to see all types of wildlife.

1--Improve observation areas on a yearly basis.

1--Have available to the public an undetermined number of blinds that are unobtrusive to the birds (critters) and environment. This would be goal-oriented to productive subject photography.

1--Allow fewer closed areas on the refuge to improve and promote hiking (overdriving) and viewing. *Review the idea of human disturbance on the land. Just maybe, this is mostly a non-issue.

Sherburne National Wildlife Refuge
Objectives for Alternatives 2 and 5

January 23-25, 2002

Participants

Bill Bronder	Sherburne Co. SWCD
Dean Flicker	MN Waterfowl Assn.
Mark McNamara	MN Waterfowl Assn.
Lloyd Knutson	MN DNR
Dave Johnson	MN DNR
Dave Martin	Friends of Sherburne NWR
Robin DeLong	Friends of Sherburne NWR
Tom Will	USFWS-Division of Migratory Birds
Jan Eldridge	USFWS-Ascertainment & Planning
Gary Muehlenhardt	USFWS-Ascertainment & Planning
Chris Mursu	Sherburne NWR
Sally Zodrow	Sherburne NWR
Gary Swanson	Sherburne NWR
Brad Ehlers	Sherburne NWR
Charlie Blair	Sherburne NWR
Jeanne Holler	Sherburne NWR
Murray Laubhan	USGS-MESC
Dave Hamilton	USGS-MESC

Background Information

Refuge Purpose
The purpose of Sherburne NWR is to conserve, manage, and where appropriate, restore a diversity of native migratory birds and their habitats in a way that ensures the continuing presence and viability of these populations for the benefit of present and future generations of Americans.

Refuge Vision
…The refuge conserves/maintains a mosaic of restored high-quality native Anoka Sandplain communities. The upland habitats are dynamic, ranging from grasslands to oak savannas to forests. These are interspersed with a variety of wetland and riverine habitats ranging from sedge meadow to deep water. The Refuge's hydrologic regime includes a functional St. Francis River riparian system, with clean water flowing into and out of the Refuge. The wildlife and habitat are in balance with natural forces and management reflects an adaptive response to climate, using pre-European settlement vegetation as a guide.

Alternative 2: Pre-settlement Habitat Conditions (1800-1850)
Vegetative communities and hydrology on the refuge would approximate mid-1800s conditions. Wildlife diversity would mirror the diversity of the habitats. Interpretive and environmental education programs on and off refuge would emphasize natural pre-settlement conditions and cultural history and natural processes. There would be strong emphasis on off-refuge outreach, private lands, and partnership activity with emphasis on natural processes, corridors, and restoration. Cultural resources of the Refuge would be preserved.

Alternative 5: Focused Management for Priority Wetland and Grassland Birds
Alternative 5 would place an emphasis on more intense, active water management. Oak savanna management would emphasize a more open grassland component over a forest component. Wetland management for Service priority bird species would include a mixture of high water for emergent vegetation control and drawdowns to favor different bird groups (shorebirds, marsh birds, eagles, waterfowl). Most pools would be in a half-full scenario to fulfill a diverse wetland bird community. Maintain a minimum flow on the river when possible. This alternative would also emphasize more focused management like predator control, nest structures, and putting Bohm Pool back on line.

Relationship of Purpose, Vision, Goals, and Objectives
The relationship among the refuge purpose, vision, alternatives, goals, and objectives is outlined in the draft handbook "Writing Refuge Management Goals and Objectives." The refuge purpose(s) is specified in or derived from the legal documents establishing, authorizing, or expanding a refuge. The vision is a concise statement of what the planning unit should be, or what the refuge hopes to do, based primarily upon the Refuge System mission and specific refuge purposes, and other mandates. Goals are descriptive, open-ended, and often broad, statements of desired future conditions that convey a purpose but do not define measurable units. Goals are the same across all alternatives. Alternatives are different sets of objectives and strategies for achieving the goals. Objectives are concise statements of what is to be achieved, how much is needed, where and when it is needed, and who is responsible for the work. Objectives should meet the SMART criteria (specific, measurable, achievable, results-oriented, time-specific).

Benefits and Rationale for Objectives
Explanatory text should follow each objective outlining the species that will benefit from the habitat and providing a rationale for the objective. The rationale should present the scientific/management justification for the objective (e.g., resources the habitat provides; information used to determine the number of acres or the patch size, time of year when resources are needed, vegetation heights and densities, water depths). This scientific justification is important for explaining the refuge's reasoning to the Regional Office and various outside organizations that will critically review the CCP document. Notes on rationale were recorded

for some objectives at the workshop; a rationale should eventually be provided for each objective in the CCP. During the workshop, a preliminary list of benefits was developed for each objective in Alternative 5 based primarily on priority species. Many other species will benefit from these habitat conditions; those species should be identified and added to the benefits when the CCP is written.

Summary Tables

Several tables were generated during the workshop to summarize information from previous workshops and to facilitate discussions. These tables are provided in the following files:

community_comparisons.doc

A recurring point of confusion during discussions was the difference in terminology for communities used in the Kenow map (the basis for Alternative 2), the current vegetation data layer (ArcInfo/ArcView), and previous workshops (used in both alternatives). This table shows the correspondence among the three sets of community types and provides estimates for the acres in each.

upland_community_structure_use.doc

This table lists each of the upland community types (prairie, oak savanna, oak woodland-brushland, dry oak forest, big woods), presents the structural definitions agreed upon at a previous workshop, and lists priority bird species using each community with any specific habitat requirements.

wetland_community_structure_use.doc

Two tables defining wetland communities, priority species use, and any specific habitat requirements.

In addition, the most recent Region 3 RCP list was reviewed and revised with respect to Sherburne NWR. The revised table is in the Excel spreadsheet file "Sherburne_Priority_Species_v3a.xls".

Alternative 5 - Priority wetland and grassland birds

PRIORITY SPECIES:

- native migratory birds
- use the Region 3 RCP list as a guide - consider the species ranked 1-3 in the Excel spreadsheet "Sherburne_Priority_Species_v3a.xls"
- other species of interest:
  - DNR: prairie vole, eastern spotted skunk, Blandings turtle, eastern hognose snake, bull snake, Uncas skipper, white-tailed deer (will affect upland vegetation)
  - Mussels [RCP]: black sandshell, round pigtoe, elktoe, threeridge (no survey of St. Francis River mussels)

Insects: Karner blue butterfly (State & Federal), Uncas skipper (State)

UPLAND OBJECTIVES:

In the following objectives, relative cover is the percent of ground obscured from above relative to other species in the specified vegetation layer or layers (relative cover values for this classification consider only shrubs, grasses, and forbs). Relative cover values add to 100%, but the absolute cover values may be less than or greater than 100%. The following example illustrates the difference.

Vegetation component	*Absolute Cover*	*Relative Cover*
shrub	*10%*	*20%*
grass	*20%*	*40%*
forb	*20%*	*40%*
Total	*50%*	*100%*

1. Provide a minimum of 3 grassland blocks of at least 200 acres. Grasslands are characterized by < 10% canopy closure, < 5% shrub cover, and native grass species.

   Notes:
   - there are currently about 8 "blocks" of 80-100 ac grasslands but there are inclusions of marsh & shrubs
   - the upper range required for nesting upland sandpipers would be blocks of 160 ac,
   - bigger blocks are better for a number of grassland birds,
   - there is potential for 5 blocks of at least 200 acres each
   - when defining blocks:
     - don't include areas with permanent wetlands, semipermanent wetlands, and woodlands
     - areas with temporary & seasonal wetlands and roads are OK because temporary & seasonal wetlands go dry and provide a food source
     - permanent/semipermanent wetlands at edge of blocks are less of a problem than if in the middle of a block
     - block shape is important (edge:area ratio?) therefore try to minimize edge:area
   - maybe use the 1992 soil drainage class to identify "potential areas"

2. Provide a minimum of 1000 acres of oak savanna. Oak savannas are characterized by 10-50% canopy closure, 5-35% relative cover of shrubs, and at least 25% relative cover of grasses and 25% relative cover of forbs.

   Notes:
   - oak savanna in the 1999 ArcInfo/ArcView vegetation data layer can identified by a query with cover=oak and basal area <= 60, the estimate of current area is 732 ac
   - oak woodland in the 1999 ArcInfo/arcView vegetation data layer can be identified by a query with cover=oak and basal area > 60, the estimate of current area is 5639 ac

3. Provide a minimum of an additional 1000 acres of oak covertype with canopy cover 10-50% to start the conversion to oak savanna.

   Notes:
   - add a brief paragraph explaining why reducing the canopy cover is a necessary first step but that development of the other vegetation components of oak savanna will take longer

Upland communities not included in this alternative:

oak woodland-brushland
dry oak forest
big woods

***a paragraph should be included explaining why these communities are not addressed with objectives in this alternative

WETLAND OBJECTIVES

In the following objectives, VOR stands for Visual Obstruction Reading, a measure of residual vegetation (measured by estimating the height at which a pole is completely hidden from view 4 m away).

1. Provide at least 6 pools annually (minimum of 200 ac open water/pool) from mid-April to July, over a 5-year average of open water. Open water is defined as < 20 cm VOR flooded to depths ranging from 50-200 cm, and must include at least 50% submergent vegetation. An edge of emergent vegetation on at least 50% of the perimeter is desirable to provide food and cover for a variety of species.

Benefits:

- breeding: trumpeter swan, black tern, common loon, *pied-billed grebe*
- foraging: northern rough-winged swallow, trumpeter swan, canvasback, redhead, common loon, bald eagle, black tern, lesser scaup

Background information:

- there are currently about 3514 ac (from 1999 vegetation coverage)
- the rice lakes account for about 500-1000 ac
- there is no management capability on about 1000 ac
- about 2514 ac are manageable
    - Pool 2 about 1400 ac
    - Pool 3 about 700 ac
- there are 15-20 pools with open water
- current pools could probably support 10-20 trumpeter swan pairs

2. Increase sedge meadow/lowland graminoids (excluding reed canary grass) by a minimum of 20 acres (convert from reed canary grass) over the next 15 years, with 20-50 cm VOR and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.

3. Maintain existing XX acres of sedge meadow with 20-50 cm VOR and vegetation heights varying from 30-100 cm with water depth ranging from moist to 100 cm.

Benefits:

- breeding:
    - moist: woodcock, sedge wren
    - 5-20 cm water depth: American bittern, northern harrier, blue-winged teal, sandhill crane
    - > 20 cm water depth: black tern
- foraging/migration: dabbling ducks

Existing acres:

- 1800 ac on back end of Pool 2
- maybe another 1800 ac on rest of refuge

4. By the end of the 15-year planning period, provide a minimum of 2500 acres of lowland brush annually. 40-60% of the lowland brush acreage will have a VOR of 20-50 cm, vegetation heights of 30-100 cm and water depths from moist to 100 cm. In addition, 40-60% of the lowland brush acreage will have a VOR of 50-80 cm, brush heights between 70-150 cm, and water depths of moist-20 cm. [explanatory paragraph for this objective should address the remaining acres currently in lowland brush]

   20-50 cm VOR
   Benefits:
   breeding:
   moist: woodcock, sedge wren
   5-20 cm water depth: American bittern, northern harrier, blue-winged teal, sandhill crane
   > 20 cm water depth: black tern
   foraging/migration: dabbling ducks

   50-80 cm VOR
   Benefits:
   nesting: least bittern, mallard, American bittern, northern harrier, blue-winged teal
   foraging: wood duck, American bittern, least bittern

   > 80 cm VOR
   Benefits:
   breeding: American bittern
   brood rearing: wood duck

5. Provide 2500-4000 acres of cattail marsh annually; less than 70% cattail is desirable on any one basin. 20-40% of the cattail acreage will have a VOR of 50-80 cm. [need to address diversity of plants and water:plant interspersion in the accompanying paragraph]

   Benefits:
   breeding: American bittern, least bittern, mallard, …
   foraging: dabbling ducks, American bittern, least bittern

6. Provide a minimum of 200 acres of tamarack swamp.
   [younger tamarack swamps provide refuge for golden-winged warblers when blue-winged warblers move into other habitats used by golden-winged warblers]

   Benefits:

breeding: golden-winged warbler, olive-sided flycatcher

7. Provide 100-300 acres total across at least 3 basins of seasonal wetland habitat dominated (70-90%) by annual plants flooded to depths ranging from wet to < 20 cm during 15 September to freeze-up.

   Benefits:
   foraging: plants, seeds and invertebrates for dabbling ducks, Canada geese, shorebirds, American bittern, least bittern, sandhill cranes*, egrets, herons*,…

   Rationale for 100-300 acres of moist soil
In the past, 100-300 acres has supported birds using area; weather generally pushes birds south before the food resources in that 100-300 acres was depleted. Individual basins should cycle through a 7-yr drought/flood period to duplicate the natural cycle, with some wetlands in different parts of cycle at any time.

8. Provide 30-50 acres of seasonal wetland habitat dominated (70-90%) by annual plants flooded to depths ranging from wet to < 20 cm during (spring). [i.e., kept dry in fall and flooded the following spring]

   Benefits:
   foraging:
   drawdown for fall (July-Aug) shorebirds
   flood up for spring migrant dabbling ducks

9. During March to May, provide 30-50 acres of sparsely (< 20% cover) distributed short (< 20 cm) vegetation flooded to depths ranging from moist to 12 cm.

   Benefits:
   foraging: invertebrates for spring migrant shorebirds (yellowlegs, stilt sandpiper, short-billed dowitcher, *pectoral sandpipers*) and spring migrant and pre-breeding dabbling ducks (American black duck, mallard, northern pintail, blue-winged teal)

10. During mid-July to mid-September, provide 50-150 acres of sparsely (< 20% cover) distributed short (< 20 cm) vegetation flooded to depths ranging from moist to 12 cm.

Benefits:

foraging: fall migrant shorebirds (yellowlegs, stilt sandpiper, short-billed dowitcher, *pectoral sandpipers*) and fall migrant dabbling ducks (American black duck, mallard, northern pintail, blue-winged teal)

Rationale:

this habitat will provide invertebrates primarily for shorebirds, fall migrant dabbling ducks will have switched to mostly seeds but will take some invertebrates

There is no objective for lowland hardwood in this alternative.

Alternative 2 – Presettlement

SCALE

Spatial scale: refuge (with some activities on private lands)
Time frame: 1800-1850

COMMUNITIES

Historical community types & areas (acres) will be addressed; distribution of communities on the landscape will be determined by soils, etc. and should be similar to historical

What reference(s) for types & acres?

This alternative will be based primarily on the map by Kenow

- Kenow is more detailed than Marschner (Kenow was done for the refuge and therefore has more detailed categories than Marschner, which covers a much larger area)
- both were based on surveyor's notes
- one problem with the surveyors' notes is that they likely missed smaller upland and wetland communities that were not on section lines
- Marschner & Kenow both represent only a single point in time

A Guide to the Anoka Sandplain will also be used
1968 soils might help refine wetland categories or distribution

FACTORS TO CONSIDER

Topics that should be considered when evaluating pre-settlement/ecological integrity include:

Hydrologic effects:

- county roads
- interior roads
- county ditches
- levees & dikes
- drainage upstream
- chemicals, silt, etc. (from upstream)

Plants:

- wetlands
  - purple loosestrife
  - reed canary grass
  - cattail
- uplands
  - buckthorn
  - Siberian elm
  - black locust
  - leafy spurge
  - spotted knapweed
  - smooth brome
  - Kentucky bluegrass
  - nonlocal switchgrass, big bluestem

Other considerations:

- herbivory
- large predators
- natural fire cycle (size & intensity of burns, fuel loadings)
- adjacent urban areas (air quality, people)

OBJECTIVES:
The Sherburne NWR staff will develop upland and wetland objectives for Alternative 2.

Miscellaneous

A wildlife and habitat based monitoring plan will be needed to determine success/failure of the ultimate intent of management (i.e., wildlife) and the success/failure of direct management (i.e., habitat management).

During the workshop, acres were determined for each objective. However, there wasn't time after all objectives were discussed, to review those acreages to make sure they were consistent with relative priorities for different species or with each other. This doesn't necessarily mean that the acres in the objectives must add up to the total refuge acres. For example, it may not be possible to manage some areas within the next 15 years to

provide a desired habitat in an alternative. Conversely, some areas might support several objectives within the same year (e.g., a wetland basin might provide mudflats for shorebirds in the spring and seed resources from annual plants for migrating dabbling ducks in the fall). When complete, the objectives for Alternatives 2 and 5 should be reviewed for consistency.

Sherburne National Wildlife Refuge Planning Workshop 3

March 12-15, 2002
Ostego, MN

FINAL REPORT

Appendix II.

Documents Related to the Establishment of Sherburne National Wildlife Refuge

Sherburne National Wildlife Refuge Planning Workshop 3

March 12-15, 2002
Ostego, MN

FINAL REPORT

Appendix III.

Opinion Pages