

Upper Mississippi River

National Wildlife and Fish Refuge

Comprehensive Conservation Plan

Table of Contents

Executive Summary	v
Chapter 1: Introduction and Planning Background	1
Introduction	1
Planning Background.....	3
Legal and Policy Framework	3
U.S. Fish and Wildlife Service	3
The National Wildlife Refuge System	3
The National Wildlife Refuge System Improvement Act of 1997 and Related Policy	3
Research Natural Area Policy	5
Brief Refuge History and Purposes	5
Relationship to Corps of Engineers and the States, and Other Conservation Initiatives	6
Corps of Engineers	6
The States	8
Other Conservation Initiatives	9
Refuge Vision and Goals	12
Refuge Vision	12
Refuge Goals	12
Planning Issues, Concerns and Opportunities	12
Landscape Issues	12
Environmental Health Issues	14
Wildlife and Habitat Issues	14
Wildlife-Dependent Recreation Issues	17
Other Recreational Use Issues	21
Administration and Operations Issues	23
Chapter 2: Consultation and Coordination With the Public and Others	24
Scoping and Public Involvement	24
Internal Scoping	24
Public Scoping Meetings and Workshops	24
Public Meetings and Workshops to Review Draft EIS/CCP, Alternatives A-D	26
Public Meetings and Open Houses to Review Preferred Alternative E	26
State and Federal Interagency Meetings	26
Congressional Briefings and Meetings	27
Other Meetings	27
Newsletters, News Releases and Executive Summaries	27
General	28
Cultural Resources and Historic Preservation	28

List of Contacts	28
------------------------	----

Chapter 3: Affected Environment 31

Physical Environment	31
Geomorphology – Effects of Water, Wind and Ice	31
Land Use Characteristics of the Upper Mississippi River Basin	32
Locks and Dams and River Reaches	34
Hydrology and Water Quality	34
Soils	37
Climate	38
Contaminants	39
Refuge and Vicinity on the Upper Mississippi River.....	39
Lost Mound Unit	41
Fish, Wildlife and Habitat	41
Navigation Pools and Habitat Change	41
Special Management Areas	45
Wilderness	45
Special Designated Areas	45
Conservation Easements	45
Notable State Management Areas	46
Threatened and Endangered Species	47
Bald Eagle	48
Higgins Eye Pearlymussel	48
Candidate Threatened and Endangered Species	49
Eastern Massasauga Rattlesnake	49
Sheepnose	49
Spectaclecase	50
Wildlife Resource Conservation Priorities	50
Migratory Birds	50
Waterfowl	51
Other Migratory Birds	58
Songbirds	58
Colonial Nesting Birds	62
Secretive Marsh Birds	63
Raptors	63
Fish	64
Sport Fish	64
Other Fish	65
Fish Passage	66
Freshwater Mussels	66
Reptiles and Amphibians	67
Turtles	67
Frogs and Toads	68
Invasive Species	68
Invasive Fish	68
Invasive Plants	69
Invasive Invertebrates	70
Other Aquatic Invertebrates	72
Mammals	73

Vegetation	77
Submerged Aquatic Vegetation	77
Emergent Aquatic Vegetation	77
Floodplain Forest	78
Grasslands	78
Natural and Current Role of Fire	79
Wild Fires and Prescribed Burns	79
Environmental Management Program.....	79
Water Level Management	87
General Public Use	91
Hunting	91
Closed Areas	91
Fishing	93
Wildlife Observation and Photography	94
Interpretation and Environmental Education	95
Recreational Boating, Camping, and Other Beach-Related Uses	95
Public Use Facilities	96
Scenic Byways.....	97
Socioeconomic	97
Population, Income, Employment and Demographics	97
Refuge Economics	99
Commercial Use of Refuge	100
Hunting, Fishing and Other Guide Services	101
Commercial Trapping	101
Fish Float Operators	101
Commercial Fishing	102
Clamming	103
Administration and Facilities	103
Cultural Resources and Historic Preservation	104

Chapter 4: Management Direction 107

Introduction	107
Elements Common to All Objectives	107
Interagency Coordination and Collaboration	107
Agency Access to Restricted Public Use Areas (Waterfowl Hunting Closed Areas, Slow, No Wake Areas, and Electric Motor Areas)	107
National Environmental Policy Act (NEPA) Compliance	108
Threatened and Endangered Species Protection	108
Archeological and Cultural Resource Protection	108
Fire Management	108
General Water-Based Recreation	109
Mosquito Management	109
Fish and Wildlife Disease Control	109
Volunteers and Friends Groups	110
Goals, Objectives and Strategies	110

Chapter 5: Plan Implementation 159

Introduction	159
A Word about Priorities	159

Actions – Existing Funding and Staffing	160
Actions – New Funding and Staff	162
Funding Summary	162
Summary of Step-Down Plans Needed	162
Summary of Step-down Plans Needed	165
Near-term Implementation (3 years)	166
Monitoring and Evaluation	166
Plan Review and Revision	166
Partnerships	167
Appendix A: Record of Decision	169
Appendix B: Glossary	177
Appendix C: Project Features Tables	183
Appendix D: Applicable Laws and Executive Orders	197
Appendix E: Maps Showing CCP Actions	203
Appendix F: Literature Cited	217
Appendix G: National Wildlife Refuge System Policy Changes	225

Upper Mississippi River

National Wildlife and Fish Refuge

Comprehensive Conservation Plan

List of Tables

Table 1:	Climate Data, Upper Mississippi River Refuge, River Mile 764 to 503.	39
Table 2:	Special Designated Areas Within the Upper Mississippi River Refuge	45
Table 3:	Conservation Easements Maintained by Upper Mississippi River Refuge	46
Table 4:	Notable State Management Areas	47
Table 5:	Estimated Waterfowl Food Plant Energy Production in Closed Areas on Pools 4-14 Under Four Alternatives, Upper Mississippi River Refuge	57
Table 6:	Partners in Flight, Physiographic Region 16 Priority Bird Species Found on Upper Mississippi River Refuge Including Seasonal Occurrence and Habitat Associations.	61
Table 7:	Occurrence of Frogs and Toads on Upper Mississippi River Refuge, 1994 to 2004	68
Table 8:	Invasive Plants and Their Control on the Upper Mississippi River Refuge	70
Table 9:	Summary of Environmental Management Program Habitat Rehabilitation and Enhancement Projects On or Adjacent to the Upper Mississippi River Refuge (Adapted from USACE, 2004b)	82
Table 10:	Upper Mississippi River System Environmental Management Program Habitat Rehabilitation and Enhancement Project Techniques. (USACE, 2004b)	85
Table 11:	Upper Mississippi River Pools on Refuge Most Suited for a Drawdown (Adapted from USACE, 2004c), Upper Mississippi River Refuge	89
Table 12:	Estimated Annual Hunting Visits to the Upper Mississippi River Refuge (Fiscal Years 1999-2003 Refuge Management Information System Reports)	91
Table 13:	Comparison of Hunting Seasons 2003 - 2004 on Upper Mississippi River Refuge For Minnesota, Wisconsin, Iowa, Illinois	92
Table 14:	Estimated Annual Fishing Visits to the Upper Mississippi River National Wildlife and Fish Refuge (Fiscal year 1999-2004 Refuge Management Information System reports.)	93
Table 15:	Summary of Upper Mississippi River Fishing Tournaments by State	94
Table 16:	Estimated Annual Wildlife Observation and Photography Visits to the Upper Mississippi River Refuge (Fiscal year 2002-2004 Refuge Management Information System Reports)	95
Table 17:	Upper Mississippi River Refuge Visitor Contact Stations	97
Table 18:	Employment Characteristics by Major Economic Sectors and Refuge District	99
Table 19:	Total Economic Impacts of Recreational Use: Upper Mississippi River Refuge, 2003	100

Table 20: Comparison of Trapping Seasons, Upper Mississippi River Refuge	101
Table 21: Estimated Gross Revenue from Furbearers Harvested by 245 Trappers During the 2003-2004 Trapping Season, Upper Mississippi River Refuge	102
Table 22: Summary of Commercial Fishing, Upper Mississippi River Refuge	102
Table 23: Objective Comparison – Existing and CCP	139
Table 24: Summary of Project Features	146
Table 25: Refuge Priority Locations and Actions That Contribute to Implementation of Environmental Pool Plans, 2006-2021, Upper Mississippi River NWFR	147

Upper Mississippi River

National Wildlife and Fish Refuge

Comprehensive Conservation Plan

List of Figures

Figure 1: Location of Upper Mississippi River NWFR	2
Figure 2: Public Involvement Timeline	25
Figure 3: Watersheds of the Rivers and Streams that Impact Upper Mississippi River Refuge	33
Figure 4: Upper Mississippi River Navigation System with Locks and Dams numbered; Navigation Pools Occur Above Each Lock (Source: Lubinski, 1999)	35
Figure 5: Typical Floodplain and Bluff Habitats of the Upper Mississippi River	36
Figure 6: Landcover Maps of Pool 8, 1890s and 1989; Upper Mississippi River Refuge	42
Figure 7: Island Loss in the Lower Half of the Upper Mississippi River Pools, Upper Mississippi River Refuge	44
Figure 8: Annual Bald Eagle Production on Upper Mississippi River Refuge, 1986-2005	48
Figure 9: Peak Number of Mallards and Canvasback Ducks on Upper Mississippi River Refuge, Selected Years 1956 to 2005	52
Figure 10: Percent of the Eastern Population of Canvasbacks that Occurred on Upper Mississippi River Refuge During the Coordinated Canvasback Survey, 1974-2005	53
Figure 11: Peak Number of Canada Geese and Tundra Swans on Upper Mississippi River Refuge, Selected Years 1956-2005	53
Figure 12: Average Dabbling Duck Use-days by Pool, 1997-2004, Upper Mississippi River Refuge	54
Figure 13: Average Diving Duck Use-days by Pool, 1997-2004, Upper Mississippi River Refuge	54
Figure 14: Average Tundra Swan and Canada Goose Use-days by Pool, 1997-2002, Upper Mississippi River Refuge	55
Figure 15: Average Number of Duck-use-days per Acre of Closed Area, 2000-2003, Upper Mississippi River Refuge	59
Figure 16: Average Number of Waterfowl (Ducks, Geese, and Swans) Use-days per Acre of Closed Area, 2000-2003, Upper Mississippi River Refuge	59
Figure 17: Puddle Duck Portion of the Average Number of Duck Use-days per Acre of Closed Area, 2000-2003, Upper Mississippi River Refuge	60
Figure 18: Average Number of Bird Species Observed and Number of Counts Conducted, 1994-99, Upper Mississippi River Refuge	61
Figure 19: Number of Colonies and Number of Nests of Great Blue Herons on the Upper Mississippi River Refuge, Selected Years 1960-2005.	62

Figure 20: Average Number of Zebra Mussels per Meter Square Collected During Fall Sampling Periods in Selected Areas of Pools 7, 8, 9, and 13, 1997-2005, Upper Mississippi River Refuge	71
Figure 21: Average Number of Mayflies per Meter Square Collected During Fall Sampling Periods From Selected Areas on Pools 7, 8, 9 and 13, 1995-2003, Upper Mississippi River Refuge	72
Figure 22: Average Number of Fingernail Clams per Meter Square Collected During Fall Sampling Periods From Selected Areas on Pools 7, 8, 9 and 13, 1995-2005 Upper Mississippi River Refuge	72
Figure 23: Number of Beaver Harvested, 1990-91 Through the 2004-2005 Seasons, Upper Mississippi River Refuge	73
Figure 24: Number of River Otter Harvested Between 1997-1998 and 2004-2005, Upper Mississippi River Refuge	74
Figure 25: Number of Muskrats Harvested, 1990-91 Through 2004-2005 Season, Upper Mississippi River Refuge	75
Figure 26: Number of Active Trappers, 1990-91 Through the 2004-2005 Season, Upper Mississippi River Refuge	75
Figure 27: Number of Raccoon Harvested, 1990-91 Through the 2004-2005 Season, Upper Mississippi River Refuge	76
Figure 28: Number of Mink Harvested, 1990-91 Through the 2004-2005 Season, Upper Mississippi River Refuge	76
Figure 29: Upper Mississippi River System Environmental Management Program Habitat Rehabilitation and Enhancement Projects	81
Figure 30: Phase II Habitat Rehabilitation and Enhancement Project, Stoddard Islands, Upper Mississippi River Refuge, Aerial Photo Sequence (Wisconsin Department of Natural Resources)	86
Figure 31: Constructed Islands with Sacrificial Berms, Rock Groins, and Native Vegetation, Upper Mississippi River Refuge	86
Figure 32: Seed Islands Constructed and “Growing” on Upper Mississippi River Refuge	87
Figure 33: Wildlife Loafing Structures Placed on Constructed Islands Upper Mississippi River Refuge	88
Figure 34: Pool 8 Drawdown Sequence (Upper Mississippi River Refuge, La Crosse District)	90
Figure 35: National Scenic Byways Bordering the Upper Mississippi River Refuge	98
Figure 36: Refuge Staffing	168