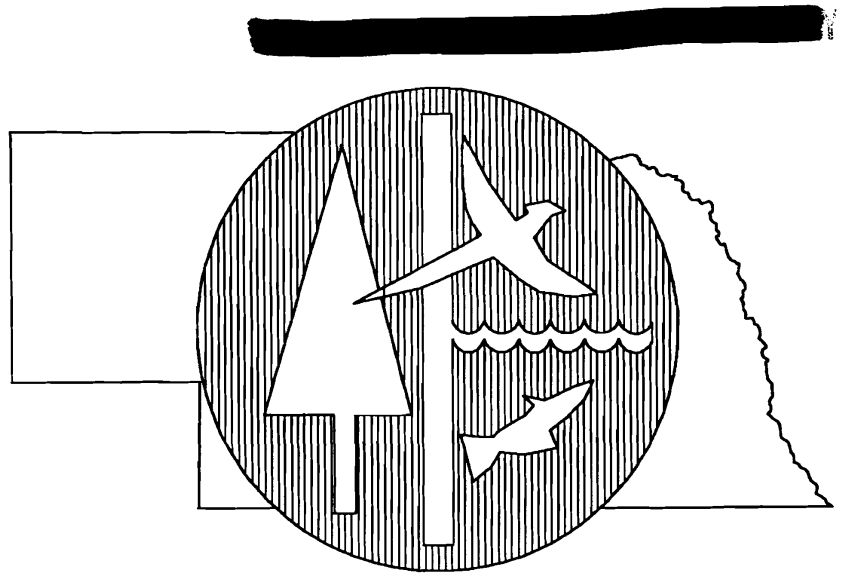

NEBRASKA WETLANDS PRIORITY PLAN

For Inclusion In
The 1991-1995 Nebraska State Comprehensive Outdoor Recreation Plan

by Richard A. Gersib
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In Cooperation With The U.S. Fish And Wildlife Service

July 1991

Nebraska Game and Parks Commission
Rex Amack, Director

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Special thanks go to SCORP planner Kathleen Foote for working out necessary publication details and review and comment schedules to include the wetland component with the SCORP document. Thanks go to Liz Huff, Publications Editor, for working with layout and publication and to Randy Bright for adding the art work. We also want to thank Jan Bouc for her efforts in transposing the wetlands material into desktop publishing format for review and publication, as well as to all reviewers for their very helpful comments, which are incorporated in this final publication.

CONSULTATION

This plan has been prepared after internal and external coordination and review, in conformance with P.L. 99-645, the Emergency Wetlands Resources Act of 1986 (Appendix A). The plan has been coordinated with numerous divisions within the Nebraska Game and Parks Commission (Commission) as well as with other state, federal and private agencies and organizations that have an expertise or interest in wetlands or wetland values. A list of those organizations that had an opportunity to review and comment on the draft of this plan is presented in Appendix B.

The Nebraska Game and Parks Commissioners approved the fianl draft at their May 20, 1991 meeting, for submital to the National Park Service. The National Park Service has stated that the final draft of the 1991 Nebraska Wetlands Priority Plan meets the requirements for incorporation as Nebraska's wetlands component in the 1991-95 State Comprehensive Outdoor Recreation Plan (SCORP) *Assessment and Policy Plan* as required.

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INTRODUCTION

Nebraska's wetland resources are as diverse in form, function and value as any in the United States. Nebraska possesses an array of natural palustrine, riverine and lacustrine wetlands distributed throughout the state. These wetlands vary in nature and appearance due to their geographic location, water source, water permanence and chemical properties. Some wetlands hold water for only two weeks or less during the growing season while others never dry. Many wetlands receive water from groundwater aquifers while others are dependent on precipitation and resulting runoff. And finally, wetlands range from freshwater to hypersaline and acidic to basic in nature. These descriptions are intended to identify known wetland extremes. Nebraska's wetland resources possess these extremes and virtually every possible combination therein.

Because the state's wetlands possess such an array of physical properties, the functional values they provide are diverse and dynamic. Nebraska possesses three major wetland complexes recognized as being of international importance to wildlife. The Rainwater Basin area in southcentral Nebraska provides critical spring staging and migration habitat for waterfowl, shorebirds, wading birds and endangered species. Immediately north of this area is the Big Bend Reach of the Platte River which provides critical migration habitat for the endangered whooping crane, spring staging habitat for 80 percent of all sandhill cranes, breeding habitat for the threatened piping plover and endangered interior least tern, migration habitat for waterbirds and migration and wintering habitat for waterfowl. Finally, the Sandhills wetland area in northcentral Nebraska is recognized as providing important breeding habitat for waterfowl, shorebirds and wading birds. Additional wetlands complexes, ranging from the Missouri River on the east to Western Saline wetlands in the west, and the Niobrara River on the north to Southwest High Plains wetlands in the south, and others in between, all provide values to wildlife.

But the values these wetlands provide are not restricted to wildlife. Wetlands also provide values important to the continued well-being of mankind. Wetlands provide social values which include flood control and desynchronization, improved water quality through sediment trapping and nutrient retention, active recreation in the form of swimming, boating, canoeing, hunting, fishing and trapping and passive recreation through activities such as bird watching, photography and nature study.

Unfortunately, these values have only recently been recognized and are still not yet fully understood. Even today, many still see wetlands as barriers to full utilization or development of the land. This "wetlands equals wastelands" philosophy has resulted in extensive wetland destruction and degradation throughout the state. This philosophy is slowly changing, but the poor economic climate now surrounding agriculture may force many more landowners to destroy or degrade wetlands to meet short-term financial needs rather than the long-term public good.

In 1986 the Emergency Wetlands Resources Act (P.L. 99-645) (Appendix A) was enacted to promote the conservation of our nation's wetlands by intensifying cooperative efforts among private interests and local, state, and federal governments for the conservation, management, and acquisition of wetlands. Section 303 of this Act requires that a wetlands component be included in State Comprehensive Outdoor Recreation Plan (SCORP) documents beginning in 1988. It is to be consistent with the *National Wetlands Priority Plan* (NWPP) developed by the Department of Interior. The first Wetland Addendum was included in the 1988 Nebraska SCORP Assessment and Policy Plan. This outlined Nebraska losses over the years and proposed the course needed to complete the *Nebraska Wetlands Priority Plan.*

The purpose of this document is to develop the *Nebraska Wetlands Priority Plan* as an element of Nebraska's 1991-1995 SCORP, consistent with NWPCP, and in compliance with Section 303 of the Emergency Wetlands Resources Act of 1986 (Public Law 99-645). This plan will identify wetland sites which meet threshold criteria and qualify for acquisition consideration under provisions of NWPCP. It will recognize the important outdoor recreation resource that Nebraska wetlands provide, address wetland protection strategies and provide wetland acquisition goals, objectives and strategies. Then, it will consider which specific actions can be taken to protect, enhance or restore Nebraska wetlands.

WETLANDS IDENTIFICATION CRITERIA

Wetland Profile

For the purpose of the *Nebraska Wetlands Priority Conservation Plan*, a wetland site is considered to be an identifiable property, tract, area, or region containing individual wetlands or a complex of physically- or functionally-related wetlands. Descriptions were developed for each wetland site to provide specific information on location and size.

Wetland Classification

Wetlands were classified according to Cowardin et al. (1979) using the classification hierarchy of system, subsystem, class and water regime. The presence and proportion of each water regime within a wetland complex were determined jointly by the Commission and the U.S. Fish and Wildlife Service (Service) using existing literature, when available, and best professional judgement.

WETLANDS ASSESSMENT CRITERIA

The *National Wetlands Priority Conservation Plan* was used to provide a planning framework, criteria and guidance to determine the locations and types of wetlands that should receive priority consideration for acquisition when Land and Water Conservation Fund (LWCF) appropriations are used. NWPCP wetland assessment criteria were modified and added to, where deemed appropriate, to better meet Nebraska wetland assessment needs. The three threshold criteria used to determine which wetland sites are suitable for acquisition are wetland loss, wetland threats, and wetland functions and values.

Wetland Loss

Wetland loss is the first of three threshold criteria listed in the National Plan for use in evaluating acquisition potential of wetlands when LWCF monies are to be used. The criterion stated in the *National Wetlands Priority Conservation Plan* requires that wetland types be given priority consideration for acquisition if they are rare or have declined within an ecoregion. Additional guidance includes the following: (a) in general, palustrine emergent, forested, and scrub-shrub wetland types usually will warrant priority; (b) an ecoregion sustaining a high or moderate Index of Loss (page 12 of NWPCP) could warrant priority consideration; and (c) statistically valid data or documentable information may be used to support priority status for a specified wetland type within an ecoregion, a state, or portion of a state, due to rarity or wetland losses prior to, during, or after the wetland trend studies (Tiner 1984). This latter factor is applicable if the National Wetland Inventory (NWI) data does not accurately reflect the losses due to insufficient sample size at the state level.

Data from Frayer et al. (1983) were used to standardize the comparison of wetland loss between individual wetland sites. These data resulted in the following wetland trend assumptions:

Decreasing:	Palustrine emergent
	Palustrine forested
	Palustrine scrub-shrub
Stable:	Lacustrine
Increasing:.....	Palustrine open water
	Palustrine unconsolidated shore
	Palustrine non-vegetated

The weighted system to prioritize wetland loss as defined in the *National Wetlands Priority Conservation Plan* was modified to better reflect true wetland loss in Nebraska. In the NWPCP, categories for decreasing wetland types, stable wetland types, increasing wetland types and uplands were weighted to establish a ranking score for prioritization purposes. Wetland loss calculations in this document use the weighted formula for decreasing, stable and increasing wetland types but deleted the upland category. Upland habitat in association with wetland habitat adds to the overall values of a wetland. It is felt that identifying a need for associated upland habitat has little relevance to the general measure of wetland loss within an ecoregion.

The following formula was used to compute a wetland loss ranking score:

Decreasing wetland types _____% of Site x 1 = _____
Stable wetland types _____% of Site x 2 = _____
Increasing wetland types _____% of Site x 3 = _____
Wetland Loss Ranking Score Total _____

Wetland loss ranking scores were then used to screen wetland complexes for acquisition consideration. Wetland complexes must receive a priority ranking of 1, 2 or 3 to remain in consideration for acquisition. Wetland loss priority ranking scores identified in NWPCP were adjusted to reflect the deletion of the upland factor as follows:

PRIORITY 1	Wetland loss ranking score of 100 - 119
PRIORITY 2	Wetland loss ranking score of 120 - 159
PRIORITY 3	Wetland loss ranking score of 160 - 199
PRIORITY 4	Wetland loss ranking score of 200 - 239
PRIORITY 5	Wetland loss ranking score of 240 - 300

Wetland Threats

Wetland threat is the second of three threshold criteria listed in the National Plan for use in evaluating acquisition potential of wetlands when monies from the LWCF are to be used. For wetlands to be given priority consideration for acquisition under criteria in the National Plan, wetlands must be subject to identifiable threat of loss or degradation.

For the purpose of the *Nebraska Wetlands Priority Conservation Plan*, threat is defined as the likelihood that a wetland site, or portion thereof, will be further destroyed or degraded, directly or indirectly, through human actions. A wetland site that has lost less than 50% of its historic functions and values is considered to be threatened if greater than 10 percent of the site's wetland values are likely to be destroyed or adversely affected through direct, indirect, or cumulative impacts over the next ten years. At wetland sites that have lost greater than 50% of their historic functions and values, threat is considered to exist when greater than 5% of the site's values are likely to be destroyed or degraded over the next ten years. This differentiation is warranted to account for the cumulative impacts of past wetland losses.

Wetland threat was assessed by first considering a site's potential for wetland loss or degradation from an array of threats and secondly by assessing the probable degree of protection provided by various ordinances, laws and regulations.

At a minimum, the following items were considered when evaluating the potential for future wetland destruction or degradation at each site:

a. Drainage and/or filling
b. Agricultural conversion or use
c. Livestock grazing
d. Groundwater withdrawal/depletion
e. Loss of instream flows
f. Residential or commercial development
g. Oil, gas, mineral development
h. Power plants
i. Transportation (roads and bridges)
j. Navigation project, marina or pier
k. Water development projects
l. Water pollution
m. Other factors specific to the site

Laws, ordinances or programs that were perceived to have some degree of wetland protection potential have been identified for each wetland site.

Wetland Functions and Values

Wetland functions and values are the third set of threshold criteria listed in the National Plan for use in evaluating acquisition potential of wetlands using monies from the LWCF. The National Plan states two main criteria: (a) wetlands to be given priority consideration for acquisition are those with important and diverse functions and values and/or especially high or special value for specific wetland functions and, (b) all wetland functions and the broadest range of wetland values should be considered in establishing priorities without greater priority consideration given to one public value over another.

National Wetlands Priority Conservation Plan assessment criteria were used to assess overall wetland functions and values. These criteria assessed wetland site values to (a) wildlife and plants, (b) commercial and sport fisheries, (c) water supply/quality, flood erosion protection, (d) outdoor recreation and (e) education and research. Wetland values assessment methodology relied on documented data or information to support value determinations.

The Cagliari criteria (Appendix C) were used to identify wetland complexes of international importance (USFWS 1989). Standards consist of quantitative criteria for identifying wetlands of importance to waterfowl and general criteria for identifying wetlands of importance to plants and animals.

Wetland Assessment Summary

To qualify for acquisition consideration under the provisions of the *National Wetlands Priority Conservation Plan*, a wetland site must: (a) include predominantly (50 percent or greater) wetland types which are rare or declining in the ecoregion; (b) be threatened with loss and/or degradation; and (c) offer important values to society in two of five functions and value categories.

ASSESSMENT OF PRIORITY WETLAND SITES

A simplified priority ranking system was developed to rank wetland sites which meet all criteria necessary to qualify for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan*. The ranking system is based on a series of weighted questions designed to allow comparison of each wetland site's known overall values to that of the other wetland sites. The ranking system is based on a possible seventy point score, with the wetland site having the highest score considered to have the highest priority for acquisition initiatives when LWCF funding is to be used.

The priority assessment ranking system consists of nine sections with four general assessment categories. Each section contains a question with a multiple choice answer requiring the selection of the most appropriate answer. Point values assigned to each appropriate answer are totalled to produce the overall score.

Impact Assessment System

SECTION 1. Based on NWPCP assessment criteria, has the wetland site experienced significant wetland loss in the past?
- a. If the wetland site has lost less than 25% of historic wetlands (Score 0 points).
- b. If the wetland site has lost 25% to 50% of historic wetlands (Score 5 points).
- c. If the wetland site has lost greater than 50% of historic wetlands (Score 10 points).

SECTION 2. Based on NWPCP assessment criteria, is there evidence of significant future threats to this wetland site?
- a. If the wetland site has a low potential for future loss or degradation (Score 0 points).
- b. If the wetland site has a moderate potential for future loss or degradation (Score 5 points).
- c. If the wetland site has a high potential for future loss or degradation (Score 10 points).

Biological Assessment System

SECTION 3. Does the wetland site provide substantial benefits to waterfowl?
- a. If the wetland site provides little or no values to waterfowl (Score 0 points).
- b. If the wetland site is recognized to have local/regional importance to waterfowl (Score 3 points).
- c. If the wetland site is recognized to have national or international importance to waterfowl (Score 5 points).

SECTION 4. Does the wetland site provide substantial benefits to threatened or endangered species?
- a. If the wetland site provides little or no values to threatened or endangered species (Score 0 points).
- b. If the wetland site is recognized as providing some values to threatened or endangered species (Score 3 points).
- c. If the wetland site is recognized as providing critical or essential habitat for threatened or endangered species (Score 5 points).

SECTION 5. Does the wetland site provide substantial benefits to nongame migratory birds?
- a. If the wetland site provides little or no values to nongame migratory birds (Score 0 points).
- b. If the wetland site is recognized to have local/regional importance to nongame birds (Score 3 points).
- c. If the wetland site is recognized to have national or international values to nongame birds (Score 5 points).

SECTION 6. Is the wetland site recognized to have regionally rare or unique plants/community types?
- a. If the wetland site is not recognized as having regionally rare or unique plants/community types (Score 0 points).

b. If the wetland site is recognized as having regionally rare or unique plants/community types (Score 5 points).

General Assessment

SECTION 7. Does the wetland site meet individual threshold criteria for general wetland functions and values as identified in the *Nebraska Wetlands Priority Conservation Plan*?

a. Wildlife — NO (Score 0 points); YES (Score 3 points).
b. Fisheries — NO (Score 0 points); YES (Score 3 points).
c. Water Supply/Quality, Flood and Erosion Protection — NO (Score 0 points); YES (Score 3 points)
d. Outdoor Recreation — NO (Score 0 points); YES (Score 3 points).
e. Special values — NO (Score 0 points); YES (Score 3 points).

Administrating Assessment

SECTION 8. Is the wetland site within a Joint Venture area approved by the North American Waterfowl Management Plan (NAWMP) Committee or one of the 34 Waterfowl Habitat Areas of Major Concern in the United States and Canada as specified in the NAWMP?

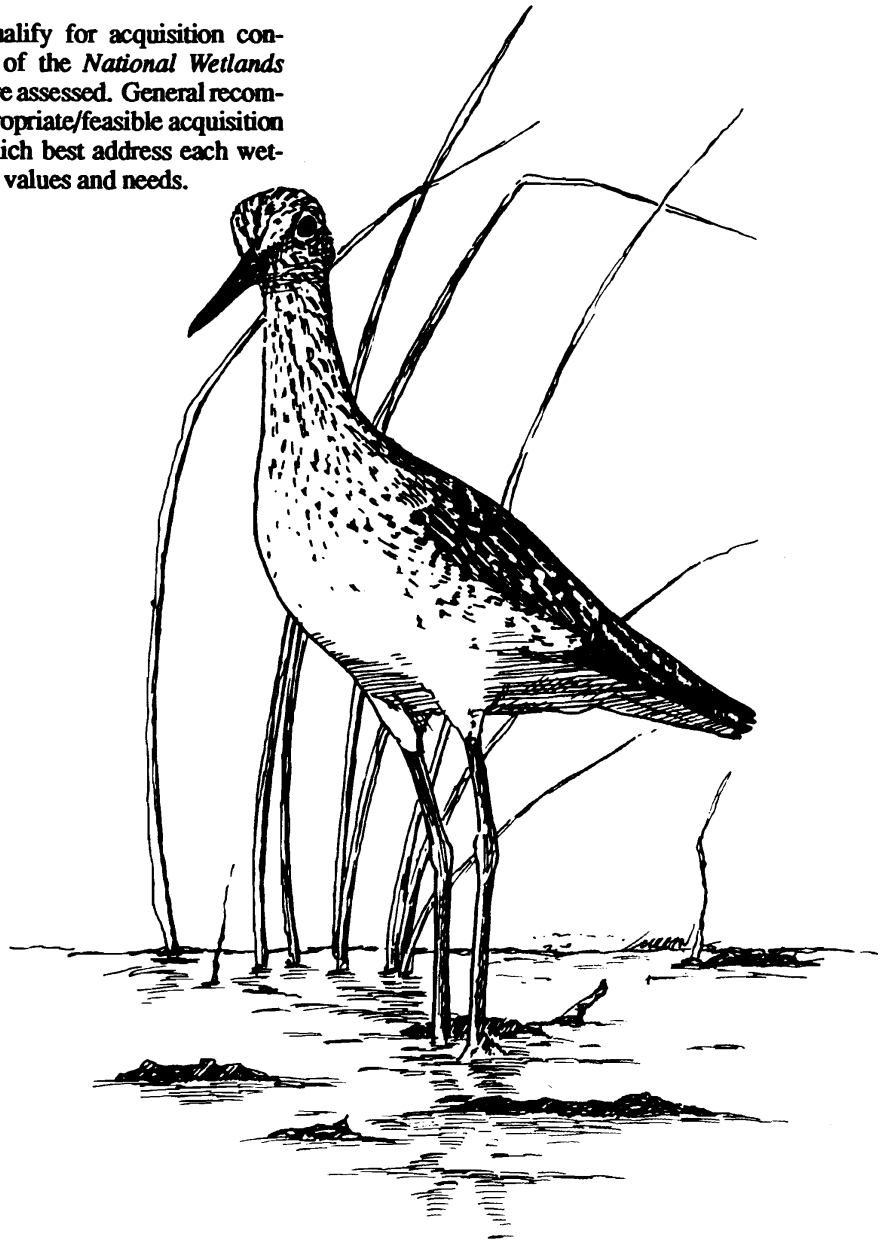
a. If wetland site is located outside the 34 Waterfowl Habitat Areas of Major Concern in the U.S. (Score 0 points).
b. If wetland site is located outside an approved Joint Venture but within one of the 34 Waterfowl Habitat Areas of Major Concern in the U.S. (Score 5 points).
c. If wetland site is located within an approved Joint Venture by the NAWMP Committee (Score 10 points).

SECTION 9. Is the wetland site listed in the U.S. Fish and Wildlife Service Regional Concept Plan or does the site meet the threshold criteria required by the *National Wetlands Priority Conservation Plan*?

a. If wetland site is not listed in the Regional Concept Plan or does not meet the threshold criteria required by the NWPCP (Score 0 points).
b. If wetland site is listed in the Regional Concept Plan or will meet the threshold criteria required by the *National Wetlands Priority Conservation Plan* (Score 5 points).

WETLAND ACQUISITION AND MANAGEMENT GUIDELINES

Wetland sites which qualify for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan* are assessed. General recommendations are made on appropriate/feasible acquisition and management options which best address each wetland site's specific functions, values and needs.



WETLAND SITE 1 — RAINWATER BASIN WETLAND COMPLEX

Wetland Assessment Summary

1. WETLAND PROFILE:
   a. Wetland Site Name: Rainwater Basin Wetland Complex
   b. USGS 1:24,000 Maps: Part or all of 109 quadrangles
   c. Township: 3N to 14N; Section: Many
   d. Longitude: 97°-100°
      Latitude: 40°-41°
   e. Cities: Hastings, Holdrege, York
      Counties: Adams, Butler, Clay, Fillmore, Franklin, Gosper, Hall, Hamilton, Harlan, Kearney, Nuckolls, Phelps, Polk, Saline, Seward, Thayer, and York
      State: Nebraska
   f. Ecoregion: 2531 and 2532
   g. Size of Complex: 4,003 square miles
      Wetland Acres: 34,103 acres
      Date of Wetland Assessment: 9/89 and 12/90

2. WETLAND LOSS PRIORITY: 1

3. IS THE WETLAND SITE THREATENED? YES

4. WETLAND FUNCTIONS AND VALUES:
   a. Wildlife — YES
   b. Fisheries — NO
   c. Water Supply/Quality, Flood/Erosion Protection — YES
   d. Outdoor Recreation — YES
   e. Education and Research — YES

5. CONCLUSION

The Rainwater Basin Wetland Complex meets all threshold criteria and qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan.*

Wetland Assessment Narrative

1. WETLAND SITE DESCRIPTION

WETLAND PROFILE

The Rainwater Basin area encompasses 4,003 square miles within 17 counties in south-central Nebraska. Topographically recognized as the Loess Plains Region, this area is characterized by flat to gently rolling loess plains formed by deep deposits of silt-loam. Wetlands characteristic of the complex consist of wind-formed depressions with a nearly impermeable claypan subsoil. Surface water drainage is poorly developed resulting in numerous closed watersheds draining into depressions. Wetlands range in size from one to one thousand acres (NGPC 1984).

WETLAND CLASSIFICATION

Rainwater Basin wetlands generally can be classified as palustrine emergent temporarily, seasonally, and semipermanently flooded wetlands (Gersib et al. 1990a).

2. WETLAND LOSS

Original soil survey maps from the early 1900s indicate that approximately 4,000 major wetlands totaling nearly 100,000 acres were present at the time of settlement. The Commission (1984) estimated that less than 10 percent (374) of original major wetlands and 22 percent (20,942) of original acres identified on early soil surveys remained in 1982. This trend study did not attempt to estimate the quantity and quality of smaller wetlands that were not identified on early soil surveys. However, it is felt that the proportion of loss documented by the Commission's major wetland trend analysis has occurred throughout all palustrine systems of this area.

Recent *National Wetland Inventory* efforts completed in the Rainwater Basin area indicate that palustrine emergent wetlands are decreasing. Using NWI digital data and recent soil survey maps, a multiagency wetland team in 1990 identified 34,103 acres of Rainwater Basin wetlands remaining (Raines et al. 1990). Virtually all remaining wetlands have been degraded in some fashion. Rainwater Basin wetlands were identified by the US Fish and Wildlife Service as one of nine areas of critical concern for wetland losses (Tiner 1984).

Using modified *National Wetlands Priority Conservation Plan* assessment criteria, the following wetland loss priority ranking was developed using the Cowardin et al. (1979) classification system:

	Wetland Type	Percent of Site	Status
a.	P : : EM : A	45%	Decreasing
b.	P : : EM : C	40%	Decreasing
c.	P : : EM : F	15%	Decreasing

Decreasing wetland types	100% of Site x 1 =	100
Stable wetland types	____% of Site x 2 =	____
Increasing wetland types	____% of Site x 3 =	____
Total Points		100

Priority 1 (100-119 points)
Rainwater Basin Wetland Loss Priority = 1

3. WETLAND THREAT

In the Rainwater Basin area, extensive wetland loss and the degradation of virtually all remaining privately owned wetlands have not reduced the potential for future wetland threats. Categories of threat include agricultural conversion by drainage or filling, livestock grazing, residential or commercial development, transportation, water pollution, and diverse ownership with limited individual commitment to protection. Of these, the greatest threats are related to agriculture. Draining and filling of wetlands associated with the construction of dugouts or concentration pits are common. Farming practices further contribute to wetland degradation through siltation and pollution from fertilizer and pesticide runoff (NGPC 1984, Gersib et al. 1990b).

Additional wetland threat will continue in the form of state law (LB 577, Section 9) that requires each person using ground water irrigation to take measures to prevent or control irrigation runoff. Irrigation reuse pits are the most common solution. These pits can result in wetland drainage and the concentration of surface runoff. Existing protective measures, such as the Clean Water Act and the Food and Agriculture Conservation Trade Act of 1990 fall short of the standards needed to protect and restore degraded Rainwater Basin wetlands.

In response to wetland losses and known values to wildlife, the Environmental Protection Agency (EPA) initiated an Advanced Identification of Disposal Areas program (40 CFR Section 230.80) in 1986 for the Rain-

water Basin wetland complex. The EPA, working jointly with the US Fish and Wildlife Service, Army Corps of Engineers, Nebraska Game and Parks Commission, Nebraska Department of Environmental Control, and Soil Conservation Service, established the following five objectives: (a) designate wetlands potentially regulated under Section 404 of the Clean Water Act and those that may be suitable or unsuitable for fill under the review requirements contained in EPA's 404(b)(1) Guidelines; (b) increase the wetland information data base to support future regulatory policy and wetland management initiatives; (c) collect information necessary for making wetland jurisdictional and delineation determinations; (d) increase public awareness of the Section 404 permit process; and (e) increase public awareness of wetland values and functions (Raines et al. 1990).

Purple loosestrife (*Lythrum salicaria*) is an additional threat known to exist in wetlands near Exeter, Nebraska in northeast Fillmore County. No information is available on the extent of purple loosestrife abundance or distribution throughout the Rainwater Basin area. However, the presence of this undesirable species places additional risk on native hydrophytes and the wildlife species that rely on them.

Future wetland threat can be expected from the following sources:

a. Drainage and filling
b. Agricultural conversion or use
c. Livestock grazing
d. Residential or commercial development
e. Transportation (roads and bridges)
f. Water pollution
g. Diverse ownership

The following laws, ordinances or programs provide some degree of wetland protection potential for Rainwater Basin wetlands:

a. Section 404 of the Clean Water Act
b. Endangered Species Act
c. Water Resources Development Act of 1986
d. Food and Agriculture Conservation Trade Act of 1990
e. Bald Eagle and Golden Eagle Protection Act

Past wetland loss and degradation have been extensive. Even with protection mechanisms in place, wetlands continue to be degraded. Rainwater Basin wetland values to migratory birds along with the threat of catastrophic waterfowl losses to avian cholera, due in part to over-crowding, indicate the need for protection and restoration of these wetlands.

Considering the relative effectiveness of the combined factors listed above to protect the public values of Rainwater Basin wetlands, it can be determined that these wetlands will experience loss or degradation in the future.

4. WETLAND FUNCTIONS AND VALUES

A Wildlife and Plants

1. Are federal or state threatened or endangered plants or animals known to use the wetland site on a regular basis?

YES — whooping crane and bald eagle

2. Have any wildlife resources of the wetland site been recognized, identified, or listed by a federal or state agency, conservation organization, institution (education or research) or private group due to specific legislation, designations or management or planning documents (e.g., high wildlife value, declining populations/numbers, edge of range, Audubon Blue List, list(s) or species of special concern or emphasis)?

YES — North American Waterfowl Management Plan, Rainwater Basin Joint Venture, Rainwater Basin of Nebraska Migratory Bird Habitat Acquisition Plan, Regulatory Planning for Nebraska's Rainwater Basin Wetlands (Advanced Identification of Disposal Areas)

3. Has the wetland site been specially designated, or is it part of a region specially designated, by a federal or state agency or private group as important for migratory birds or resident wildlife (e.g., referenced in the North American Waterfowl Management Plan or a State Waterfowl Concept Plan or on a list maintained by The Nature Conservancy?

YES — see references from Question 2

Rainwater Basin wetlands are most noted for their importance to waterfowl, especially during the spring migration (Gersib et al. 1990a). Rainwater Basin wetlands serve millions of ducks and geese annually as critical spring staging habitat that provides the nutrient reserves necessary for migration and reproduction further to the north. The importance of Rainwater Basin wetlands to waterfowl is recognized in The North American Waterfowl Management Plan (U.S. Fish and Wildlife Service and Canadian Wildlife Service 1986); The Concept Plan for Waterfowl Habitat Protection, Rainwater Basin Area of Nebraska (Gersib et al. 1990b), The Rainwater Basin of Nebraska, Migratory Bird Habitat Acquisition Plan (U.S. Fish and Wildlife Service and NGPC 1986) and Regulatory Planning for Nebraska's Rainwater Basin Wetlands (Advanced Identification of Disposal Areas) (Raines et al. 1990). Rainwater Basin wetlands are regularly used by the federally endangered bald eagle and whooping crane. Rainwater Basin wetlands have provided more whooping crane use-days during fall migration than any other known migration habitat in the United States portion of the Central Flyway (C.A. Faanes, unpubl. data).

Rainwater Basin wetlands exceed Cagliari criteria for identifying wetlands of international importance in three categories of consequence to waterfowl. These wetlands regularly support: (a) over 1,000,000 waterfowl at one time, (b) approximately 90% of the mid-continent population of greater white-fronted geese, 50% of the mid-continent population of mallards and 30% of the mid-continent population of northern pintails and (c) provide habitat for millions of waterfowl at a critical stage of their biological cycle, spring staging (Gersib et al. 1990a).

B. Commercial and Sport Fisheries

1. Does commercial fishing occur on the site?

NO

2. Does sport fishing occur on the site?

YES — A warmwater fishery exists and sport fishing does occur, but only in wetlands with excavated pits (Gersib et al. 1990c).

3. Does the wetland site have fishery resource values (e.g. anadromous fishery, spawning, nursery, juvenile or foraging habitat) that is recognized, identified or listed by a federal or state agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents?

NO

In Rainwater Basin wetlands, a sport fishery is restricted to those wetlands with excavated deep water areas. Concentration and reuse pits located in wetlands provide adequate water depths to support a carp/yellow bullhead fishery. While fish will disperse throughout the wetland when water conditions permit, most local sport fishing is done in the pits.

C. Water Supply/Quality, Flood/Erosion Protection

1. *Are the groundwater recharge and/or discharge (water supply) functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., sole source aquifer, municipal water supply)?*

YES — A Functional Assessment of Selected Wetlands within the Rainwater Basin Area of Nebraska (Gersib et al. 1990c), Geology and Groundwater Resources of Clay County, Nebraska (Keech and Dreeszen 1959)

2. *Are the water quality functions (e.g., nutrient assimilation, sediment trapping, toxic substance uptake and transformation) of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., presence of a downstream dredged channel or reservoir which requires periodic dredging, eutrophic waterbodies downstream, low dissolved oxygen problems, fish kills)?*

YES — A Functional Assessment of Selected Wetlands within the Rainwater Basin Area of Nebraska (Gersib et al. 1990c)

3. *Are the flood control, erosion and/or shoreline damage reduction functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., flood control project, wetland site within the 100-year floodplain, identified by a city as important for coastal shoreline protection)?*

YES — A Functional Assessment of Selected Wetlands within the Rainwater Basin Area of Nebraska (Gersib et al. 1990c)

Based on a functional assessment study completed for Rainwater Basin wetlands, it was concluded that these wetlands have a high probability of providing water quality values in the form of flood storage, nutrient retention, sediment trapping and shoreline anchoring (Gersib et al. 1990c). Because of the impermeable clay lens characteristic of Rainwater Basins and water table elevations that lie more than 50 feet below the wetlands, ground water discharge does not normally occur. One exception occurs near Funk, Nebraska, where Platte River irrigation water has resulted in ground water discharges into at least two basins (Gersib et al. 1990c). Ground water recharge is limited to periods of high precipitation when surface water in wetlands extends beyond the clay lens associated with hydric soils (Keech and Dreeszen 1959).

D. Outdoor Recreation

1. *Is there a recognized or documented demand for the recreational opportunities available in the wetland site?*

YES — hunting and fur harvest surveys by the Commission (Sweet and Gabig 1986, Gersib and Stutheit 1986)

2. *Is the wetland site within 50 miles of a Metropolitan Statistical Area or within 50 miles of a tourist area receiving more than 100,000 visitors per year?*

YES — City of Lincoln, Nebraska; Fort Kearny State Historical Park (SHP) and Recreation Area near Kearney, Nebraska; Husker Harvest Days in Grand Island, Nebraska; Harlan County Lake near Republican City, Nebraska

Functional assessment work has shown that nearly all Rainwater Basin wetlands have a high probability of providing both active and passive recreation values. Hunting and fur harvest surveys by the NGPC indicate important consumptive recreation values (Sweet and Gabig 1986; Gersib and Stutheit 1986). The public also has shown considerable interest in nonconsumptive recreation such as bird watching and nature photography. The Rainwater Basin Area is within 50 miles of a Metropolitan Statistical Area (Lincoln, Nebraska) and several tourist areas receiving more than 100,000 visitors per year (e.g., Fort Kearny SHP near Kearney, Husker Harvest Days in Grand Island and Harlan County Lake near Republican City, Nebraska).

E. Education and Research

1. *Does the wetland site have ecological features consistently considered by regional scientists to be rare for wetlands in the region (e.g., fens in the midwest, cypress swamps in northern states, spring communities in various regions)?*

NO

2. *Is the wetland site included in a national or statewide listing of historical or archaeological sites?*

YES — one transcontinental emigrant route occurs within this area — the Oregon National Historic Trail

3. *Is the wetland site being used, or could it be used, for educational or research purposes (e.g., used by a nature center, school, camp, or college, essential to an on-going environmental research or monitoring program)?*

YES — by state and federal agencies, the University of Nebraska campuses at Lincoln and Kearney, and at Hastings College.

4. *Does the wetland site have other public values of concern to the Secretary of the Interior?*

YES — critical habitat for migratory waterfowl and endangered species

Due to the area's importance to migratory birds, research and educational values of Rainwater Basin wetlands are high. Over the past five years, major research studies by the Commission, the US Fish and Wildlife Service, the US Army Corps of Engineers, the University of Nebraska and at least one private consultant provided important data on waterfowl use, the assessment of general functions and values, vegetation dynamics, wetland origins, and the economics of wetland degradation (Raines et al. 1990). The University of Nebraska campuses at Lincoln and Kearney use this wetland area for various field trips while the NGPC and private conservation organizations use tours as a means of informing and educating the general public on wetland values.

5. CONCLUSION

The Rainwater Basin wetland complex qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan* based on the following criteria: (1) greater than 50% of the wetland types are rare or declining, (2) wetlands are threatened by loss and degradation, and (3) wetlands offer important values to society in four of five identifiable functional categories.

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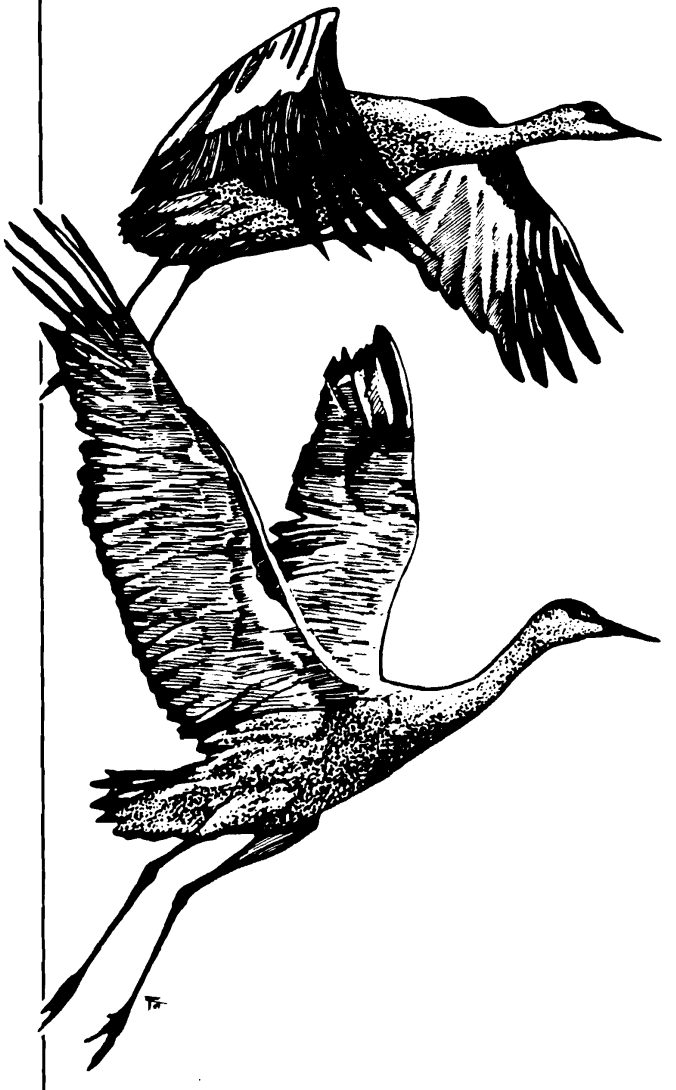

WETLAND SITE 2 — PLATTE RIVER WETLANDS COMPLEX-BIG BEND REACH

Wetland Assessment Summary

1. WETLAND PROFILE:
   a. Wetland Site Name: Platte River Wetland Complex-Big Bend Reach (Lexington, NE to Chapman, NE)
   b. USGS 1:24,000 Maps: Many
   c. Township: 8N to 12N; Section: Many
   d. Longitude: 98°07' to 99°45'
      Latitude: 40°39' to 41°00'
   e. Cities: Grand Island, Kearney, Lexington
      Counties: Buffalo, Dawson, Gosper, Hall, Hamilton, Kearney, Merrick, Phelps
      State: Nebraska
   f. Ecoregion: 2531 and 2532
   g. Size of Complex: 100 square miles
      Wetland Acres: 25,000 acres
      Date of Wetland Assessment: 9/89 and 12/90

2. WETLAND LOSS PRIORITY: 2

3. IS THE WETLAND SITE THREATENED? YES

4. WETLAND FUNCTIONS AND VALUES:
   a. Wildlife — YES
   b. Fisheries — YES
   c. Water Supply/Quality, Flood/Erosion Protection — YES
   d. Outdoor Recreation — YES
   e. Education and Research — YES

5. CONCLUSION

The Platte River Wetland Complex- Big Bend Reach meets all threshold criteria and qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan.*

Wetland Assessment Narrative

1. WETLAND SITE DESCRIPTION

WETLAND PROFILE

The Big Bend Reach of the Platte River extends approximately 90 miles from Lexington, Nebraska to Chapman, Nebraska. Diversion of approximately 70% of the historic annual flows has contributed to substantial vegetative changes along the Platte River. Once a broad open prairie river, the Platte is now a dense band of mature deciduous woodland. Numerous islands which at one time were open sandbars have since been overgrown with woody vegetation due to a reduction in scouring flows. Wetlands suitable for acquisition consist of both riverine and palustrine systems which generally lie within the historic active floodplain and channel of the Platte River.

WETLAND CLASSIFICATION

The most prevalent wetland types along the Platte River fall within the riverine lower perennial, palustrine emergent, palustrine scrub-shrub and palustrine forested systems (Currier 1982). Nearly 70% of all wetlands are estimated to be in the palustrine emergent class.

2. WETLAND LOSS

An increase of palustrine scrub-shrub and forested wetland types has occurred at the expense of riverine and palustrine emergent wetlands as a response to decreased instream flows and sediment storage in upstream reservoirs. The increase in the scrub-shrub and forested wetlands has largely been detrimental to fish and wildlife resources that historically used the river valley (Currier et al. 1985; U.S. Fish and Wildlife Service 1981a).

Since 1860, the Big Bend Reach of the Platte River has experienced up to a 73 percent loss of active channel (Sidle et al. 1989). Upstream of the Big Bend Reach, losses on the Platte have reached 85 percent. Wet meadows in the Big Bend Reach have declined up to 45 percent since 1938 (Sidle et al. 1989). Channel width in many areas has been reduced to 10-20% of its historic size (U.S. Fish and Wildlife Service 1981a).

Using modified *National Wetlands Priority Conservation Plan* assessment criteria, the following wetland loss priority ranking was developed using the Cowardin et al. (1979) classification system:

	Wetland Type				Percent of Site	Status
a.	R	2	US	C	3%	Decreasing
b.	R	2	UB	F	3%	Decreasing
c.	P		EM	A	34%	Decreasing
d.	P		EM	C	35%	Decreasing
e.	P		SS	C	3%	Increasing*
f.	P		FO	A	22%	Increasing*

* Palustrine scrub-shrub and palustrine forested wetlands are considered to be increasing in the Big Bend Reach of the Platte River (Currier et al. 1985, Sidle et al. 1989).

Decreasing wetland types	75% of Site x 1 =	75
Stable wetland types	% of Site x 2 =	
Increasing wetland types	25% of Site x 3 =	75
Total Points		150

Priority 2 (120-159 points)
Platte River Wetland Loss Priority = 2

3. WETLAND THREAT

The Platte River Valley epitomizes the struggle between agricultural interests and the recognition of wildlife, recreation, and other values associated with wetlands. American Rivers Inc., a national river conservation organization, has listed the Platte River as one of the most endangered waterways in the United States. Categories of threat in the Big Bend Reach include new water development projects, drainage and filling, agricultural conversion or use, livestock grazing, ground water withdrawal/depletion, transportation (especially Interstate-80), water pollution, diversion of flood flows needed to scour channels and diverse ownership with limited individual commitment to protection.

Agriculture (drainage and conversion to grain crops) and sand and gravel mining operations pose significant threats to wet meadows adjacent to the Platte River. Further, the loss of instream flows, ground water depletions, and degradation of the riverbed add additional threats to the remaining wet meadows. Residential and commercial developments commonly encroach on wet meadows following drainage or other degradation. Impoundment and diversion of river water and sediment are the main factors that have caused, and continue to cause, shifts from one wide, shallow, open channel to many narrow, defined channels surrounded by upland or wetland with woody vegetation.

Purple loosestrife (*Lythrum salicaria*) has become established in Platte River wetlands west of Kearney, Nebraska. Very little is known about the full extent of its distribution or abundance. However, its presence alone establishes purple loosestrife as an additional threat to native Platte River hydrophytes and the wildlife species that depend on them.

Future wetland threat can be expected from the following sources:

a. Drainage and filling
b. Agricultural conversion or use
c. Livestock grazing
d. Groundwater withdrawal/depletion
e. Loss of instream flows
f. Residential or commercial development
g. Power plants
h. Transportation (roads and bridges)
i. Water development projects
j. Water pollution
k. Diverse ownership

The following laws, ordinances or programs provide some degree of wetland protection potential for Platte River wetlands:

a. Section 404 of the Clean Water Act
b. Endangered Species Act
c. Water Resources Development Act of 1986
d. Food and Agriculture Conservation Trade Act of 1990
e. Bald and Golden Eagle Protection Act

Considering the relative effectiveness of the combined factors listed above to protect the public values of Platte River-Big Bend Reach wetlands, it can be determined that these wetlands will experience loss or degradation in the future. The cumulative losses of wetland habitat in the past make any future wetland loss even more devastating. The threat of additional water diversions and groundwater withdrawals place the hydrologic character of wet meadow wetlands in direct jeopardy. The loss of additional in-stream flows will also directly and indirectly result in further reductions in channel width and vegetation conversion from emergent to forested class wetlands. Future demands for municipal water, residential housing, water pollution and public transportation increase the risk of wetland loss even further.

4. WETLAND FUNCTIONS AND VALUES

A. Wildlife and Plants

1. Are federal or state threatened or endangered plants or animals known to use the wetland site on a regular basis?

YES — whooping crane, bald eagle, piping plover, interior least tern, western prairie fringed orchid, peregrine falcon; this area also served as a historic staging area for the nearly extinct eskimo curlew.

2. Have any wildlife resources of the wetland site been recognized, identified, or listed by a federal or state agency, conservation organization, institution (education or research) or private group due to specific legislation, designations or management or planning documents (e.g., high wildlife value, declining populations/numbers, edge of range, Audubon Blue List, list(s) or species of special concern or emphasis)?

YES — critical habitat for the endangered whooping crane (Federal Register 43:20938-20942); recovery plans for the piping plover, interior least tern, and whooping crane; Platte River Ecology Study.

3. Has the wetland site been specially designated, or is it part of a region specially designated, by a federal or state agency or private group as important for migratory birds or resident wildlife (e.g., referenced in the North American Waterfowl Management Plan or a State Waterfowl Concept Plan or on a list maintained by The Nature Conservancy?

YES — question 2 references apply; American Rivers, Inc. designation regarding the Platte River as one of the most endangered rivers in the U.S.

The Big Bend Reach of the Platte River provides habitat for several federally threatened and endangered species. The endangered whooping crane uses the river during spring and fall migration. A portion of the Big Bend Reach from Lexington, Nebraska, to Denman, Nebraska, has been designated as critical habitat for the whooping crane (FR 43:20938-20942). This critical habitat is considered necessary for the survival and recovery of the whooping crane. About 200 endangered bald eagles winter in the Big Bend area. The endangered interior least tern and threatened piping plover nest on unvegetated sandbars in the river. Peregrine falcons occasionally are seen in open stretches of the river channel or in adjacent wet meadows during migration (Currier et al. 1985). Wet meadows near the river provide habitat for the western prairie fringed orchid, which is listed as a threatened species. In April 1987, an endangered Eskimo curlew was sighted in a wet meadow along the Platte River near Grand Island, Nebraska (Faanes, in press).

During the spring, nearly one-half million Sandhill cranes, or 80 percent of the North American population, converge on the river valley to rest and accumulate fat reserves for later migration and initiation of breeding activities (U.S. Fish and Wildlife Service 1981a). Millions of ducks and geese, including greater white-fronted goose, Canada goose, mallard, and northern pintail, stage along the Platte River and in nearby Rainwater Basin wetlands. A 1990 midwinter waterfowl survey counted 13,535 mallards and 32,058 Canada geese in the stretch of river from Lexington to Central City (NGPC, unpubl. data). Most of the mallards (93 percent) were between Lexington and Kearney and most of the geese (83 percent) were between Lexington and Minden. Over 300 migratory bird species have been observed along the Platte River, including over 75 percent of the species on the 1986 Audubon Blue List (Tate 1986; Safina et al. 1989); 141 species have nested in the area. A report issued by the National Audubon Society focused on the importance of the Big Bend Reach as wildlife habitat, especially for migratory birds, and the complexities of managing this severely threatened system (Safina et al. 1989).

Platte River wetlands exceed Cagliari criteria for identifying wetlands of international importance in four categories of consequence. These wetlands regularly support: (a) in excess of 25,000 wintering waterfowl and 400,000-450,000 spring staging sandhill cranes annually, (b) 80% of the entire North American population of sandhill cranes (U.S. Fish and Wildlife Service 1981a), (c) the endangered whooping crane, bald eagles, interior least tern, peregrine falcon and the threatened piping plover and (d) serve a special value as spring staging habitat for sandhill cranes at a critical stage in their biological cycle.

B. Commercial and Sport Fisheries

1. Does commercial fishing occur on the site?

NO

2. Does sport fishing occur on the site?

YES — A warmwater channel catfish/carp fishery exists at this site. The Big Bend Reach is designated as a Class III (substantial) fishery resource (USFWS 1978).

3. Does the wetland site have fishery resource values (e.g. anadromous fishery, spawning, nursery, juvenile or foraging habitat) that is recognized, identified or listed by a federal or state agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents?

YES — U.S. Fish and Wildlife Service 1978, Nebraska Game and Parks Commission 1972, and NGPC 1973

C. Surface and Ground Water Quality and Quantity and Flood Control

1. Are the groundwater recharge and/or discharge (water supply) functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., sole source aquifer, municipal water supply)?

YES — The Platte River and associated aquifer provide municipal water for 35% of Nebraska's population. Groundwater recharge and irrigation values are identified by Burns (1981).

2. Are the water quality functions (e.g., nutrient assimilation, sediment trapping, toxic substance uptake and transformation) of the wetland site recognized, identified or listed by a federal, state, or local agency, Conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., presence of a downstream dredged channel or reservoir which requires periodic dredging, eutrophic waterbodies downstream, low dissolved oxygen problems, fish kills)?

YES — Fish kills have been documented by the Commission (L. Hutchinson pers. com.), the U.S. Fish and Wildlife Service (T. Fannin pers. com.) and the Nebraska Department of Environmental Control.

3. Are the flood control, erosion and/or shoreline damage reduction functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., flood control project, wetland site within the 100-year floodplain, identified by a city as important for coastal shoreline protection)?

YES — flood control (Safina et al. 1989)

The Platte River and its associated aquifer provide municipal water for 35 percent of the population of Nebraska. During high flows, the Platte River recharges the underlying aquifer, which provides irrigation water for thousands of acres of cropland (Burns 1981). In stretches where the channels are not constricted by structures (e.g., bridges and bank protection) or encroached by vegetation, the Platte River has an enormous capacity to carry floodwaters within its banks (Safina et al. 1989).

D. Outdoor Recreation

1. Is there a recognized or documented demand for the recreational opportunities available in the wetland site?

YES — Bureau of Sociological Research Report *Wings Over The Platte*; extensive use of the river for waterfowl hunting (J. Gabig pers. com.) and fishing (L. Hutchinson pers. com.)

2. Is the wetland site within 50 miles of a Metropolitan Statistical Area or within 50 miles of a tourist area receiving more than 100,000 visitors per year?

YES — Fort Kearny SHP; Husker Harvest Days, Grand Island, NE

The Platte River provides a variety of consumptive and nonconsumptive recreation opportunities. From fall 1986 to fall 1987, Nebraskans spent an estimated $51.3 million on nature-associated recreation in the Platte River Valley (Bureau of Sociological Research 1988). Activities from highest to lowest participation rates include picnicking, nature hikes, observing wildlife, swimming, fishing, camping, boating, and hunting. More than three out of every four Nebraskans are willing to pay an additional tax or user-fee to support development of the river for nature-associated recreation. In March 1989, 3,000 visitors from 14 states and 2 foreign countries attended the first annual "Wings Over the Platte" wildlife celebration hosted by the Grand Island, NE, Convention and Visitors Bureau.

E. Education and Research

1. Does the wetland site have ecological features consistently considered by regional scientists to be rare for wetlands in the region (e.g., fens in the midwest, cypress swamps in northern States, spring communities in various regions)?

NO

2. Is the wetland site included in a national or statewide listing of historical or archaeological sites?

YES — two transcontinental emigrant routes occur within this area (i.e. Oregon and Mormon Trails) that are designated as National Historic Trails. Two more are close to NHT designation - Pony Express and Overland.

3. Is the wetland site being used, or could it be used, for educational or research purposes (e.g., used by a nature canter, school, camp, or college, essential to an on-going environmental research or monitoring program)?

YES — Both local schools and colleges use the river for education and research purposes. *Wings over the Platte*, Fort Kearny State Historical Park, and Platte River Whooping Crane Trust have developed programs to educate the public about Platte River wetland issues. An example of ongoing research projects is the wet meadow hydrology study by Wyoming Water Research Center.

4. Does the wetland site have other public values of concern to the Secretary of the Interior?

YES — habitat for numerous migratory birds including waterfowl (Currier et al. 1985, U.S. Fish and Wildlife Service 1981)

The Big Bend Reach of the Platte River provides important, even critical, habitat for a broad array of endangered species and other migratory waterbirds. This importance, coupled with the spatial and hydrologic demands placed on the resource by development interests, means that future research and education will be essential to our understanding of how we are impacting this natural resource.

5. CONCLUSION

The Platte River-Big Bend Reach wetland complex qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan* based on the following criteria: (1) greater than 50% of the wetland types are rare or declining, (2) wetlands are threatened by loss and degradation, and (3) wetlands offer important values to society in five of five identifiable functional categories.

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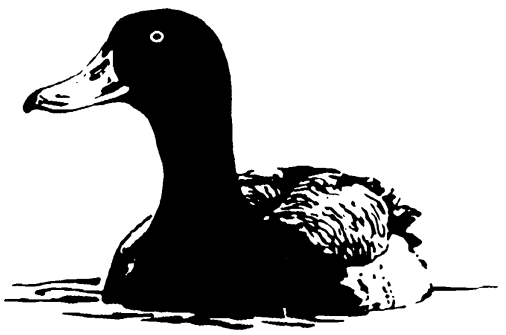

WETLAND SITE 3 — NEBRASKA SANDHILLS WETLAND COMPLEX

Wetland Assessment Summary

1. WETLAND PROFILE:
   a. Wetland Site Name: Nebraska Sandhills Wetland Complex
   b. USGS 1:24,000 Maps: Many
   c. Township: 12N to 35N; Section: Many
   d. Longitude: 97°-103°
      Latitude: 41°-43°
   e. Cities: Ainsworth, Alliance, North Platte, Ogallala, O'Neill, Thedford
      Counties: Arthur, Blaine, Boone, Box Butte, Brown, Cherry, Custer, Garden, Garfield, Grant, Holt, Hooker, Keith, Lincoln, Logan, Loup, McPherson, Morrill, Rock, Sheridan, Thomas, Wheeler
      State: Nebraska
   f. Ecoregion: 2532 and 3113
   g. Size of Complex: 19,300 square miles
      Wetland Acres: 177,000 acres of open water and marsh 1,130,000 acres of subirrigated meadow (Rundquist 1983)
      Date of Wetland Assessment: 9/89 and 12/90

2. WETLAND LOSS PRIORITY: 1

3. IS THE WETLAND SITE THREATENED? YES

4. WETLAND FUNCTIONS AND VALUES:
   a. Wildlife — YES
   b. Fisheries — YES
   c. Water Supply/Quality, Flood/Erosion Protection — YES
   d. Outdoor Recreation — YES
   e. Education and Research/Rare Wetland Types — YES

5. CONCLUSION

The Sandhills Wetland Complex meets all threshold criteria and qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan.*

Wetland Assessment Narrative

1. WETLAND SITE DESCRIPTION

WETLAND PROFILE

The Sandhills region of north-central Nebraska comprises the largest sand dune area in the Western Hemisphere and one of the largest grass-stabilized dune regions in the world (Bleed and Flowerday 1989). This region encompasses 19,300 square miles and overlies several extensive aquifers of the Ogallala Formation which contain a storage capacity of 700 to 800 million acre-feet of water. This vast water resource occurs both in the underground aquifer and above ground in the form of wetland areas (U.S. Fish and Wildlife Service 1986). Wetlands range in size from less than one acre to 2300 acres (McCarraher 1977) with more than 80% of all wetlands estimated to be 10 acres or less in size (Wolfe 1984).

WETLAND CLASSIFICATION

Sandhills wetlands can be generally classified as palustrine emergent, palustrine aquatic bed and lacustrine littoral wetland systems. An estimated 86% of all Sandhill wetland acres fall under the palustrine system and of these 81% are in the palustrine emergent class. Palustrine emergent and aquatic bed wetlands generally consist of temporarily flooded, seasonally flooded and semipermanently flooded water regimes, while lacustrine littoral systems have semipermanently flooded and intermittently exposed water regimes.

2. WETLAND LOSS

Wetland loss in the Sandhills has occurred primarily from draining activities to increase hay production and filling activities to facilitate row crop production. A U.S. Fish and Wildlife Service report noted that beginning as early as 1900, "In some areas [of the Sandhills], great numbers of lakes and marshes were removed by legal drainage projects (U.S. Fish and Wildlife Service 1960).

McMurtrey et al. (1972) and Ducey (1989) provide further sfurther support that drainage has been a major wetland degradation factor throughout the region. With the introduction of the center pivot irrigation system to the Sandhills in the early 1970s, land leveling/shaping resulted in extensive wetland loss in some areas. One U.S. Environmental Protection Agency Section 404 enforcement action in Wheeler County resulted from the drainage of over 1,000 acres and the filling of over 100 acres of wetlands. From 1978 to 1985, center pivot irrigation increased by 383 percent in the Sandhills compared to an overall 1,746 percent increase since 1972. While quantifiable data are not available for this area, the U.S. Fish and Wildlife Service (1986) estimates that by 1972, 46 percent of the original Sandhills wetlands were destroyed.

Using modified *National Wetlands Priority Conservation Plan* assessment criteria, the following wetland loss priority ranking was developed using the Cowardin et al. (1979) classification system:

	Wetland Type	Percent of Site	Status
a.	P : : EM : A	30%	Decreasing
b.	P : : EM : C	35%	Decreasing
c.	P : : EM : F	16%	Decreasing
d.	P : : AB : F	5%	Decreasing
e.	L : 2 : AB : F	9%	Stable
f.	L : 2 : AB : G	5%	Stable

Decreasing wetland types	86% of Site x 1 =	86
Stable wetland types	14% of Site x 2 =	28
Increasing wetland types	___% of Site x 3 =	___
Total Points		114

Priority 1 (100-119 points)
Sandhills Wetland Loss Priority = 1

3. WETLAND THREAT

In the Sandhills region, large freshwater lacustrine wetlands are threatened by drainage for hay production. Small palustrine wetlands (less than 10 acres) are threatened by drainage for hay production and by conversion to irrigated row crops.

While drainage for hay production has occurred since the turn of the century, wetland loss due to row crop production is a relatively new threat. Center-pivot irrigation increased 1,746 percent in the Sandhills between 1972 and 1986 (U.S. Fish and Wildlife Service 1986). Land leveling (filling) and wetland drainage usually accompany irrigation development. Concentrated, large-scale irrigation development also can result in long-term effects on wetland communities by lowering the ground water table.

Ground water pollution, largely from agricultural chemicals and livestock wastes, threatens the historically excellent water quality in the Sandhills. Nitrate levels in ground water exceed safe limits (10 mg/1) in some locations due to fertilizer application (Engberg 1984). Traces of atrazine in ground water have resulted in the inability of native vegetation to pioneer into abandoned center-pivot sites (BIO/West 1986).

A potentially disastrous future threat is the sale of ground water via transbasin diversion. With a ground water reservoir of 700 to 800 million acre-feet of water (Bleed and Flowerday 1989), the Sandhills area is a prime candidate for water sales.

Future wetland threat can be expected from the following sources:

a. Drainage and filling
b. Agricultural conversion or use
c. Livestock grazing
d. Groundwater withdrawal/depletion
e. Transportation (roads and bridges)
f. Water pollution
g. Diverse ownership

The following laws, ordinances or programs provide some degree of wetland protection potential for Sandhills wetlands:

a. Section 404 of the Clean Water Act
b. Endangered Species Act
c. Water Resources Development Act of 1986
d. Food and Agriculture Conservation Trade Act of 1990

Considering the relative effectiveness of the combined factors listed above to protect the public values of Sandhills wetlands, it can be determined that these wetlands will experience loss or degradation in the future. Evidence of recent wetland losses leaves little doubt that this wetland complex has lost over 50% of all historic wetlands. Small palustrine wetlands are most threatened by agricultural conversion, while lacustrine wetlands are most threatened by drainage for hay production. Groundwater pollution from agricultural chemicals and livestock waste is degrading wetlands, while threat exists from the sale of groundwater. Even with current protection mechanisms in place, wetlands will continue to be lost or degraded.

4. WETLAND FUNCTIONS AND VALUES

A. Wildlife and Plants

1. Are federal or state threatened or endangered plants or animals known to use the wetland site on a regular basis?

YES — whooping crane and western prairie fringed orchid

2. Have any wildlife resources of the wetland site been recognized, identified, or listed by a federal or state agency, conservation organization, institution (education or research) or private group due to specific legislation, designations or management or planning documents (e.g., high wildlife value, declining populations/numbers, edge of range, Audubon Blue List, list(s) or species of special concern or emphasis)?

YES — North American Waterfowl Management Plan, U.S. Fish and Wildlife Service Breeding Waterfowl Habitat Preservation Program (1979), Bellrose (1976).

3. Has the wetland site been specially designated, or is it part of a region specially designated, by a federal or state agency or private group as important for migratory birds or resident wildlife (e.g., referenced in the North American Waterfowl Management Plan or a State Waterfowl Concept Plan or on a list maintained by The Nature Conservancy?

YES — North American Waterfowl Management Plan, U.S. Fish and Wildlife Service Breeding Waterfowl Habitat Preservation Program (1979)

Several state and federally listed threatened and endangered species use the Sandhills and associated wetlands. The migration corridor of the endangered whooping crane encompasses most of the Sandhills. Whooping cranes use palustrine, lacustrine, and riverine wetlands during spring and fall migration. The endangered bald eagle moves through the area during migration and also winters along some of the Sandhills rivers.

Sandhills wetlands provide migrational and breeding habitat for large numbers of waterfowl, as well as for numerous shorebirds, herons, egrets, and other nongame birds (U.S. Fish and Wildlife Service 1981b, 1986). The Sandhills are the most important waterfowl production area in Nebraska and are considered by Bellrose (1976) to be the best duck production area south of the Prairie Pothole Region. During the 1989 breeding season, the Commission estimated 136,650 ducks by aerial surveys in the Sandhills (Sweet 1989). Nesting species include mallard, blue-winged teal, northern pintail, gadwall, shoveler, canvasback, scaup, redhead, and ruddy duck.

The North American Waterfowl Management Plan lists the Sandhills as a habitat area of major concern in North America (U.S. Fish and Wildlife Service and Canadian Wildlife Service 1986). Long range plans tentatively call for Nebraska Sandhills Joint Venture planning in 1994, with implementation and funding in 1995.

Sandhills wetlands exceed Cagliari criteria (USFWS 1989) for identifying wetlands of international importance in two categories of consequence. These wetlands: (a) regularly support over 100,000 waterfowl during the breeding season (Sweet 1989) and (b) are of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna (McCarraher 1977).

B. Commercial and Sport Fisheries

1. Does commercial fishing occur on the site?

NO/NEGLIGIBLE — Commercial fishing has occurred in the past on a limited scale (K. Menzel pers. com.)

2. Does sport fishing occur on the site?

YES — Many Sandhills wetlands provide recreational fishing opportunities for northern pike, largemouth bass, bluegill, yellow perch, and crappie.

3. Does the wetland site have fishery resource values (e.g. anadromous fishery, spawning, nursery, juvenile or foraging habitat) that is recognized, identified or listed by a federal or state agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents?

YES — Sport fishing management plans at Valentine National Wildlife Refuge (NWR), state fishery management plans for Big Alkali and Goose Lakes

Although many of the shallow lakes in the Sandhills region of Nebraska do not have adequate water depth and/or water quality (i.e. high alkalinity) to support a sport fishery, freshwater wetlands which have adequate water depth to over-winter fish can maintain an exceptional warmwater fishery. While over 75 fish species occur within the Sandhills, the most common sport fish-

ing species are northern pike, yellow perch, largemouth bass, bluegill, and crappie.

C. Surface and Ground Water Quality and Quantity and Flood Control

1. Are the groundwater recharge and/or discharge (water supply) functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., sole source aquifer, municipal water supply)?

YES — municipal water supplies for many Sandhills towns, groundwater discharge and recharge from wetlands (Bleed and Flowerday 1989)

2. Are the water quality functions (e.g., nutrient assimilation, sediment trapping, toxic substance uptake and transformation) of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., presence of a downstream dredged channel or reservoir which requires periodic dredging, eutrophic waterbodies downstream,low dissolved oxygen problems, fish kills)?

YES — phosphate and nitrate uptake (McCarraher 1977), U.S. Fish and Wildlife Service (1986) and Engberg (1984)

3. Are the flood control, erosion and/or shoreline damage reduction functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., flood control project, wetland site within the 100-year floodplain, identified by a city as important for coastal shoreline protection)?

NO — While these functions have not been documented for Sandhills wetlands, it is felt that shoreline anchoring is an important value of these areas.

Wetlands in the Sandhills function both as ground water discharge and recharge sites, though recharge usually occurs only during heavy precipitation events in the spring (Bleed and Flowerday 1989). Although precipitation is low and evaporation rates are high, the large underground reservoir, known as the Ogallala Aquifer, provides a water table at or near the surface for discharge into a vast array of palustrine, lacustrine, and riverine wetlands, even during drought. Residential, municipal and livestock water supplies within the region are all dependent upon the Ogallala Aquifer as their sole source of water.

D. Outdoor Recreation

1. Is there a recognized or documented demand for the recreational opportunities available in the wetland site?

YES — visitation data for Valentine and Crescent Lake National Wildlife Refuges, the Nebraska National Forest and the State Recreation and Wildlife Management Areas associated with Sandhills wetlands; the existence of fishing, hunting, and birdwatching guides for visitors to these federal and state areas

2. Is the wetland site within 50 miles of a Metropolitan Statistical Area or within 50 miles of a tourist area receiving more than 100,000 visitors per year?

YES — Calamus State Recreation Area (SRA) and Merritt Reservoir SRA

The Sandhills region represents one of Nebraska's most popular tourist areas. Visitation data from Valentine and Crescent Lake NWRs as well as the presence of many state wildlife management and recreation areas within the Sandhills reflects well on the recreation values these wetlands provide. Camping, canoeing, boating, fishing, hunting, trapping, birdwatching, and wildlife photography are common recreational activities within this area. The Calamus and Merritt Reservoir SRAs each served over 100,000 visitors in 1989.

Data from 1983 indicate that 18.6% of the total statewide duck harvest (Sweet 1984), 20% of the statewide muskrat harvest, 15% of the beaver harvest and 12% of the total mink harvest (Gersib 1984) were taken in the Sandhills region.

The U.S. Fish and Wildlife Service manages more than 136,000 acres in the Sandhills at three NWRs (Fort Niobrara, Crescent Lake, and Valentine). The U.S. Forest Service manages the Nebraska National Forest - Bessey Division (90,500 acres) and the Samuel R. McKelvie National Forest (115,700 acres) within the Sandhills, while the Nature Conservancy and the Commission manage 56,000 acres and 21,000 Sandhill acres respectively.

E. Education and Research/Rare Wetland Types

1. Does the wetland site have ecological features consistently considered by regional scientists to be rare for wetlands in the region (e.g., fens in the midwest, cypress swamps in northern states, spring communities in various regions)?

YES — Sandhill fens are considered rare in Nebraska (Clausen et al. 1989)

2. Is the wetland site included in a national or statewide listing of historical or archaeological sites?

NO

3. Is the wetland site being used, or could it be used, for educational or research purposes (e.g., used by a nature center, school, camp, or college, essential to an on-going environmental research or monitoring program)?

YES — Research and education activities are broad and varied and can be expected to continue in a variety of fields including hydrology, wetland ecology, fisheries and wildlife biology (Bleed and Flowerday 1989)

4. Does the wetland site have other public values of concern to the Secretary of the Interior?

YES — Breeding and migration habitat for migratory birds including waterfowl, shorebirds, wading birds and the endangered whooping crane.

Due to this wetland area's high value to migratory waterbirds and breeding waterfowl and the potential for Joint Venture status under the North American Waterfowl Management Plan by 1995, education and research efforts are expected to increase in the future.

The Nebraska Natural Heritage Program has identified the presence of fens within the Sandhills region. Considered rare in occurrence both in the Sandhills and throughout the midwest, Clausen et al. (1989) recommended that these sites receive high research and protection priority in Nebraska.

5. CONCLUSION

The Sandhills wetland complex qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan* based on the following criteria: (1) greater than 50% of the wetland types are rare or declining, (2) wetlands are threatened by loss and degradation, and (3) wetlands offer important values to society in five of five identifiable functional categories.

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WETLAND SITE 4 — EASTERN NEBRASKA SALINE WETLANDS

Wetland Assessment Summary

1. WETLANDS PROFILE:
   a. Wetland Site Name: Eastern Nebraska Saline Wetlands
   b. USGS 1:24,000 Maps: Many
   c. Township: 7N to 13N; Section: Many
   d. Longitude: 96°28'-96°52'
      Latitude: 40°32'-41°04'
   e. Cities: Lincoln
      Counties: Lancaster and Saunders
      State: Nebraska
   f. Ecoregion: 2531
   g. Size of Complex: 250 square miles
      Wetland Acres: 750 acres
      Date of Wetland Assessment: 9/89 and 12/90

2. WETLAND LOSS PRIORITY: 1

3. IS THE WETLAND SITE THREATENED? YES

4. WETLAND FUNCTIONS AND VALUES:
   a. Wildlife — YES
   b. Fisheries — NO
   c. Water Supply/Quality, Flood/Erosion Protection — YES
   d. Outdoor Recreation — YES
   e. Education and Research/Rare Plant Types — YES

5. CONCLUSION

The Eastern Nebraska Saline Wetland Complex meets all threshold criteria and qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan.*

Wetland Assessment Narrative

1. WETLAND SITE DESCRIPTION

WETLAND PROFILE

Eastern saline wetlands occur in swales and depressions of floodplains, terraces, and valley basins within the Salt Creek and Rock Creek Watersheds of eastern Nebraska. The community is restricted to Lancaster and southern Saunders Counties. Eastern saline wetlands are characterized by saline soils and salt tolerant vegetation. Soil salinity varies greatly between wetlands. Highly saline wetlands exhibit six distinct saline plant associations and a central core area that is devoid of vegetation which, when dry, exhibits salt encrusted mudflats. Wetlands having lower salt concentrations are fully vegetated and exhibit less than six saline plant associations.

WETLAND CLASSIFICATION

Eastern Nebraska Saline Wetlands are classified as palustrine systems with emergent and/or unconsolidated shore classes. Approximately 97% of all wetlands fall within the palustrine emergent class and consist of temporarily, seasonally, and semipermanently flooded water regimes. Temporarily and seasonally flooded water regimes are also representative of the unconsolidated shore class of saline wetlands.

2. WETLAND LOSS

Eastern saline wetlands are considered critically imperilled in Nebraska (Clausen et al. 1989) and one of the most limited and endangered vegetation types in the state (Kaul 1975). Although historic wetland acreages have not been fully quantified, past losses are considered to be significant (Gersib and Steinauer 1990).

Inventory and assessment work by Gersib and Steinauer (1990) noted extensive wetland losses from expansion of the City of Lincoln and agricultural activities. They further noted that all extant saline wetlands identified in their inventory have experienced recognizable degradation through drainage, diking, filling, farming and overgrazing.

Using modified *National Wetlands Priority Conservation Plan* assessment criteria, the following wetland loss priority ranking was developed using the Cowardin et al. (1979) classification system:

	Wetland Type			Percent of Site	Status
a.	P :	: EM :	A	45%	Decreasing
b.	P :	: EM :	C	40%	Decreasing
c.	P :	: EM :	F	10%	Decreasing
d.	P :	: US :	A	3%	Increasing
e.	P :	: US :	C	2%	Increasing

Decreasing wetland types	95% of Site x 1 =	95
Stable wetland types	% of Site x 2 =	
Increasing wetland types	5% of Site x 3 =	15
Total Points		110

Priority 1 (100-119 points)
Eastern Nebr. Saline Wetland Loss Priority = 1

3. WETLAND THREAT

Because the entire eastern saline wetland complex is located in and around the city of Lincoln, Nebraska, past losses have been severe, and future threats from developmental activities are imminent. Categories of threat to eastern saline wetlands include drainage or filling, agricultural conversion or use, livestock grazing, residential or commercial development, transportation (roads and bridges), water pollution, mosquito control practices, and diverse ownership with limited individual commitment to protection.

Assessment of saline wetlands by Gersib and Steinauer (1990) indicated that 168 of 188 uncultivated wetland sites were considered to have a high or moderate vulnerability to future wetland degradation or loss. Commercial or residential development and road construction are considered to be the greatest threats to eastern saline wetlands. Construction activities often involve wetland drainage which is not regulated by Section 404 of the Clean Water Act. Commercial and residential development usually result in total wetland destruction and the loss of all related values (i.e. the wetland is drained and covered with fill for buildings, pavement, etc.).

Future wetland threat can be expected from the following sources:

a. Drainage and filling
b. Agricultural conversion or use
c. Livestock grazing
d. Residential or commercial development
e. Transportation (roads and bridges)
f. Water pollution
g. Diverse ownership and mosquito control practices

The following laws, ordinances or programs provide some degree of wetland protection potential for Eastern Nebraska Saline Wetlands:

a. Section 404 of the Clean Water Act
b. Food and Agriculture Conservation Trade Act of 1990
c. Local zoning and ordinances

Considering the relative effectiveness of the combined factors listed above to protect the public values of Eastern Nebraska Saline Wetlands, it can be determined that these wetlands will experience loss or degradation in the future.

4. WETLAND FUNCTIONS AND VALUES

A. Wildlife and Plants

1. Are federal or state threatened or endangered plants or animals known to use the wetland site on a regular basis?

NO

2. Have any wildlife resources of the wetland site been recognized, identified, or listed by a federal or state agency, conservation organization, institution (education or research) or private group due to specific legislation, designations or management or planning documents (e.g., high wildlife value, declining populations/numbers, edge of range, Audubon Blue List, list(s) or species of special concern or emphasis)?

YES — Gersib and Steinauer 1990, Ducey 1985, Wachiska Chapter of the Audubon Society (T. Knott, pers. com.), Audubon Blue List

3. Has the wetland site been specially designated, or is it part of a region specially designated, by a federal or state agency or private group as important for migratory birds or resident wildlife (e.g., referenced in the North American Waterfowl Management Plan or a State Waterfowl Concept Plan or on a list maintained by The Nature Conservancy?

YES — Nebraska Game and Parks Commission (Gersib and Steinauer 1990, Clausen et al. 1989), Wachiska Chapter of the Audubon Society (T. Knott, pers. com.), US Fish and Wildlife Service (Regional Wetlands Concept Plan)

Eastern Nebraska saline wetlands provide habitat for a variety of wildlife species, especially migratory birds (Ducey 1985). A list of bird species associated with one saline wetland (most of which has been destroyed or degraded) since the early 1900s includes 178 species of which 28 have been known to breed in the area (Ducey 1987). Ten of these species are on the National Audubon Society's Blue List, and 13 are listed as species of special concern.

Eastern saline wetlands are particularly important as migrational habitat for shorebirds, especially sandpipers of the genus *Calidris* (C. Faanes, pers. com.). The exposed mudflats, usually most prevalent during the spring, provide abundant invertebrate foods. The Commission has completed an eastern saline wetland inventory and assessment study, which further recognizes the wildlife values of these wetlands, especially for migratory birds (Gersib and Steinauer 1990). The Commission currently owns 701 acres of saline wetlands and associated upland habitats. The Lower Platte South Natural Resources District has acquired perpetual easements on two additional eastern Nebraska saline wetlands.

Eastern Nebraska Saline wetlands exceed Cagliari criteria for identifying wetlands of international importance in one category of consequence. These wetlands are considered of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora.

B. Commercial and Sport Fisheries

1. Does commercial fishing occur on the site?

NO

2. Does sport fishing occur on the site?

NO

3. Does the wetland site have fishery resource values (e.g. anadromous fishery, spawning, nursery, juvenile or foraging habitat) that is recognized, identified or listed by a federal or state agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents?

NO

C. Surface and Ground Water Quality and Quantity and Flood Control

1. Are the groundwater recharge and/or discharge (water supply) functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., sole source aquifer, municipal water supply)?

YES — Shirk 1924, Clausen et al. 1989, Gersib and Steinauer 1990

2. Are the water quality functions (e.g., nutrient assimilation, sediment trapping, toxic substance uptake and transformation) of the wetland site recognized, identified or listed by a federal, state, or local agency, Conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., presence of a downstream dredged channel or reservoir which requires periodic dredging, eutrophic waterbodies downstream,low dissolved oxygen problems, fish kills)?

YES — Nebraska Game and Parks Commission Arbor Lake Wetland Management Plan (Gersib 1990)

3. Are the flood control, erosion and/or shoreline damage reduction functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., flood control project, wetland site within the 100-year floodplain, identified by a city as important for coastal shoreline protection)?

YES — Nebraska Game and Parks Commission Arbor Lake Wetland Management Plan (Gersib 1990), location within Salt Creek floodplain, the presence of alluvial soils (Soil Conservation Service 1980)

The ground water discharge origin of eastern saline wetlands was first recognized by Shirk (1924). Eastern saline wetlands receive water from surface runoff and through seeps at the wetland edge (Clausen et al. 1989, Gersib and Steinauer 1990). Silty clay soils reduce downward water movement resulting in low to moderate ground water recharge functions. The location of wetlands within the Salt Creek and Rock Creek floodplains and their alluvial soils provide strong indications that flood control values are being provided by these wetlands.

D. Outdoor Recreation

1. Is there a recognized or documented demand for the recreational opportunities available in the wetland site?

YES — bird watching-Wachiska Chapter of the Audubon Society (T. Knott, pers. com.), duck hunting-presence of duck blinds and the ownership of saline wetlands by a local hunting club

2. *Is the wetland site within 50 miles of a Metropolitan Statistical Area or within 50 miles of a tourist area receiving more than 100,000 visitors per year?*

YES — Lincoln and Omaha, Nebraska

Because of their location in and around the city of Lincoln, Nebraska, and their proximity to Omaha, Nebraska, eastern saline wetlands are ideally located to provide active and passive recreational opportunities for many Nebraskans and out-of-state tourists. Bird watching, nature study and duck and pheasant hunting are the most common outdoor recreation activities. The Wachiska Audubon Society in Lincoln, Nebraska, has an ongoing interest in bird watching and general nature study in saline wetlands. The Commission is currently developing a restored saline wetland (Arbor Lake) into a public use area with an elevated boardwalk and observation platform, primarily for bird watching and nature study.

E. Other Areas or Concerns

1. *Does the wetland site have ecological features consistently considered by regional scientists to be rare for wetlands in the region (e.g., fens in the midwest, cypress swamps in northern states, spring communities in various regions)?*

YES — Clausen et al. 1989 and Gersib and Steinauer 1990

2. *Is the wetland site included in a national or statewide listing of historical or archaeological sites?*

NO

3. *Is the wetland site being used, or could it be used, for educational or research purposes (e.g., used by a nature center, school, camp, or college, essential to an on-going environmental research or monitoring program)?*

YES — NGPC sponsored education-wetland tours to Lincoln Public Schools classes, research-ongoing vegetation and soil chemistry monitoring study associated with the Arbor Lake Wetland Management Plan

4. *Does the wetland site have other public values of concern to the Secretary of the Interior?*

YES — habitat for migratory waterbirds

Educational opportunities abound because of the proximity of this wetland complex to Lincoln Public Schools, the University of Nebraska, Wesleyan University and Southeast Community College.

Funded in part by a grant from the U.S. Environmental Protection Agency, NGPC is presently developing specialized educational material on Eastern Saline wetlands for distribution within local school systems.

5. CONCLUSION

The Eastern Nebraska Saline Wetland complex qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan* based on the following criteria: (1) greater than 50% of the wetland types are rare or declining, (2) wetlands are threatened by loss and degradation, and (3) wetlands offer important values to society in four of five identifiable functional categories.

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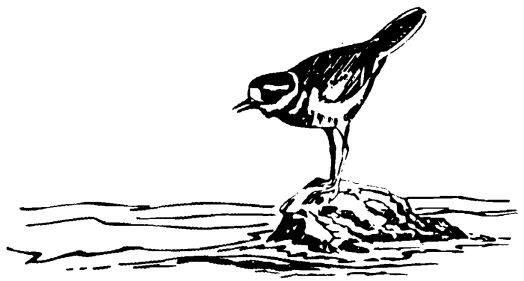

WETLAND SITE 5 — MISSOURI RIVER WETLAND COMPLEX

Wetland Assessment Summary

1. WETLAND PROFILE:
   a. Wetland Site Name: Missouri River
   b. USGS 1:24,000 Maps: Many
   c. Township: 1N to 35N; Section: Many
   d. Longitude: 95°22' to 98°30'
      Latitude: 40°02' to 43°
   e. Cities: South Sioux City, Omaha, Plattsmouth, Nebraska City
      Counties: Boyd, Knox, Cedar, Dixon, Dakota, Thurston, Burt, Washington, Douglas, Sarpy, Cass, Otoe, Nemaha, Richardson
      State: Nebraska
   f. Ecoregion: 2531
   g. Size of Complex: 750 square miles
      Wetland Acres: 25,000 acres
      Date of Wetland Assessment: 9/89 and 12/90

2. WETLAND LOSS PRIORITY: 1

3. IS THE WETLAND SITE THREATENED? YES

4. WETLAND FUNCTIONS AND VALUES:
   a. Wildlife — YES
   b. Fisheries — YES
   c. Water Supply/Quality, Flood/Erosion Protection — YES
   d. Outdoor Recreation — YES
   e. Education and Research/Transportation Corridor — YES

5. CONCLUSION

The Missouri River Wetland Complex meets all threshold criteria and qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan.*

Wetland Assessment Narrative

1. WETLAND SITE DESCRIPTION

WETLAND PROFILE

In Nebraska, the Missouri River is a complex of riverine and palustrine wetlands that forms the state boundary from eastern Boyd County downstream to the southeastern corner of the state in Richardson County. Channelization has caused drastic alterations to the river channel and floodplain along much of the river. Wetlands associated with the pre-control Missouri River were dynamic. Annual flooding and channel meandering created an aquatic-terrestrial transition zone that annually migrated across the floodplain. Today, mainstem and tributary dams collect much of the sediment carried by the upper two-thirds of the Missouri River, and bankline armor has prevented channel meandering. This alteration has transformed once dynamic wetlands into wetlands that have not changed location since the late 1950s.

The two river segments upstream of Ponca, Nebraska are generally referred to as the unchannelized reach. Within the downstream channelized reach, the riverbed is degrading north of Omaha, Nebraska and stable or aggrading south of Omaha.

WETLAND CLASSIFICATION

Wetland types associated with the Missouri River complex include riverine lower perennial unconsolidated bottom and unconsolidated shore, as well as palustrine emergent, scrub-shrub, forested, and aquatic bed wetland systems. Riverine systems range from seasonally flooded to permanent water regimes, while palustrine systems display water regimes ranging from temporarily flooded to semipermanently flooded.

2. WETLAND LOSS

About 100,300 acres of aquatic habitats and 65,300 acres of islands and sandbars have been lost between Sioux City, Iowa and the river's confluence with the Mississippi River (U.S. Fish and Wildlife Service 1980). The historic river has been described as occupying a sandy channel that flowed between easily erodible banks 1,500 feet to 1 mile apart with braided, sinuous channels twisting among sheltered backwaters, sloughs, chutes, oxbows, gravel bars, sandbars, mudflats, snags, alluvial islands, deep pools, marshland, and shallow water areas (U.S. Fish and Wildlife Service 1980). Channelization, along with the flood protection provided by mainstem and tributary reservoirs, has fostered agricultural, urban, and industrial encroachment on 95% of the floodplain (Hesse et al. 1989). The unchannelized reaches of the Missouri River have also experienced substantial wetland losses due to bed degradation and the loss of natural river function through flooding.

Using modified *National Wetlands Priority Conservation Plan* assessment criteria, the following wetland loss priority ranking was developed using the Cowardin et al. (1979) classification system:

	Wetland Type				Percent of Site	Status
a.	R	2	UB	H	80%	Decreasing*
b.	R	2	US	C	5%	Decreasing*
c.	P		EM	A	3%	Decreasing
d.	P		EM	C	4%	Decreasing
e.	P		EM	F	5%	Decreasing
f.	P		FO	A	1%	Decreasing*
g.	P		SS	C	1%	Decreasing*
h.	P		AB	F	1%	Decreasing*

*Status based on existing literature for the Missouri River

Decreasing wetland types	100% of Site x 1 =	100
Stable wetland types	__% of Site x 2 =	__
Increasing wetland types	__% of Site x 3 =	__
Total Points		100

Priority 1 (100-119 points)
Missouri River Wetland Loss Priority = 1

3. WETLAND THREAT

The Missouri River is a wetland complex where most of the destruction and degradation already has occurred. Categories of greatest threat along the Missouri River appear to be steam bed degradation, residential and commercial development, transportation, navigation projects, water pollution, water development projects, agricultural conversion, and drainage and filling.

Purple loosestrife (*Lythrum salicaria*) has become well established in the upper reaches of the Missouri River near Niobrara, Nebraska. The rapid expansion of purple loosestrife into the backwaters areas of Lewis and Clark Lake can be considered a threat to native hydrophytes throughout Nebraska's portion of the river.

Future wetland threat can be expected from the following sources:

a. Drainage and filling
b. Agricultural conversion or use
c. Livestock grazing
d. Residential and commercial development
e. Transportation (roads and bridges)
f. Navigation projects
g. Water pollution
h. Diverse ownership
i. Streambed degradation

The following laws, ordinances or programs provide some degree of wetland protection potential for Missouri River wetlands:

a. Section 404 of the Clean Water Act
b. Section 10 of the River and Harbor Act
c. Endangered Species Act
d. Water Resources Development Act of 1986
e. Food and Agriculture Conservation Trade Act of 1990

Most of the destruction or degradation that could happen within this wetland complex has already occurred. However, considering the relative effectiveness of the combined factors listed above to protect the public values of Missouri River wetlands, it can be determined that these wetlands will experience loss or degradation in the future.

4. WETLAND FUNCTIONS AND VALUES

A. Wildlife and Plants

1. Are federal or state threatened or endangered plants or animals known to use the wetland site on a regular basis?

YES — least tern, piping plover, bald eagle, and pallid sturgeon

2. Have any wildlife resources of the wetland site been recognized, identified, or listed by a federal or state agency, conservation organization, institution (education or research) or private group due to specific legislation, designations or management or planning documents (e.g., high wildlife value, declining populations/numbers, edge of range, Audubon Blue List, list(s) or species of special concern or emphasis)?

YES — U.S. Fish and Wildlife Service 1980, 1988, 1989 and U.S. Army Corps of Engineers 1978

3. Has the wetland site been specially designated, or is it part of a region specially designated, by a federal or state agency or private group as important for migratory birds or resident wildlife (e.g., referenced in the North American Waterfowl Management Plan or a State Waterfowl Concept Plan or on a list maintained by The Nature Conservancy)?

YES — Recovery plans for the least tern and piping plover

Several state and federally listed threatened and endangered species regularly use the Missouri River in Nebraska. The endangered bald eagle uses the river as migrational and wintering habitat. The endangered interior least tern and threatened piping plover nest on unvegetated sandbars in the river, a habitat type which has been severely reduced. The recovery plans for both the piping plover (U.S. Fish and Wildlife Service 1988) and the interior least tern (U.S. Fish and Wildlife Service 1990) include Missouri River nesting habitat as being essential to the recovery of the species. The pallid sturgeon has federal and state listing as an endangered species. The lake sturgeon also occurs in the Missouri River and is listed as threatened in Nebraska. Species in severe decline, but not currently listed include: sicklefin chub, sturgeon chub, flathead chub, blue sucker and paddlefish. Other species common elsewhere but threatened with extirpation from Gavins Point Dam to Fort Randall Dam include flathead catfish, blue catfish and sauger (L. Hesse, pers. com.).

Before channelization changed the character of the Missouri River, the area was very important as migrational habitat for ducks, geese, swans, pelicans, and shorebirds (U.S. Fish and Wildlife Service 1980; U.S. Army Corps of Engineers 1978). The DeSoto Bend NWR in Nebraska and Iowa focuses on providing migration habitat for waterfowl. Large populations of wood ducks once nested in the river corridor along with lesser numbers of blue-winged teal, gadwall, and mallard. Although of diminished quality, the Missouri River still provides migration habitat for waterfowl and shorebirds. Many species of nongame birds (especially passerines) and mammals use the Missouri River and associated habitats (U.S. Fish and Wildlife Service 1980). Loss of wetland habitats has caused decreases of semiaquatic species such as beaver, muskrat, and river otter.

The Missouri River in Boyd and Knox Counties, Nebraska, has been included in the National Park Service's *Nationwide Rivers Inventory*, in part due to outstanding fish and wildlife values (National Park Service 1982).

Missouri River wetlands exceed Cagliari criteria for identifying wetlands of international importance in one category of consequence. These wetlands regularly support over 200,000 waterfowl at one time during fall migration (DeSoto National Waterfowl Refuge and Schilling Wildlife Management Area unpubl. data).

B. Commercial and Sport Fisheries

1. Does commercial fishing occur on the site?

YES — commercial fishing is allowed for catfish and rough fish (primarily carp and buffalo).

2. Does sport fishing occur on the site?

YES — a warm water sport fishery exists along the entire river stretch. The unchannelized portion of the river supports a high quality walleye, sauger, smallmouth bass, northern pike, paddlefish and channel catfish fishery while the channelized portion supports paddlefish, channel and flathead catfish, walleye and sauger, carp and shovelnose sturgeon. Both reaches support other fish including freshwater drum, common carp, buffalo, gar and sucker fishes, and goldeye. The entire length of river is considered a Class I (highest valued) fishery resource by the U.S. Fish and Wildlife Service (1978).

3. Does the wetland site have fishery resource values (e.g. anadromous fishery, spawning, nursery, juvenile or foraging habitat) that is recognized, identified or listed by a federal or state agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents?

YES — U.S. Fish and Wildlife Service 1978, U.S. Army Corps of Engineers 1978 and Nebraska Game and Parks Federal Aid reports (F-75-R)

A significant spawning area for walleye and sauger exists in the Missouri River near the South Dakota-Nebraska state line. Backwaters along the Platte and Missouri Rivers also provide important nursery areas for sport, and forage fishes. Channelization of the Missouri River has adversely affected the Missouri River fishery

in Nebraska (Funk and Robinson 1974; Schainost 1976). Commercial fishing currently exists on the Missouri River for catfish and non-game fishes (primarily carp and buffalo). By Nebraska Game and Parks Commission regulation, commercial fishing for catfish will terminate on January 1, 1992 due to agency concerns for catfish recruitment caused by over harvest and habitat degradation. South Dakota, Iowa, Kansas and Missouri have also passed regulations to this effect. The reduction of sand and gravel bars and slack-water habitats has reduced spawning and nursery areas and has affected food sources for adults.

C. Surface and Ground Water Quality and Quantity and Flood Control

1. *Are the groundwater recharge and/or discharge (water supply) functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., sole source aquifer, municipal water supply)?*

YES — The city of Omaha uses the Missouri River for a portion of their municipal water supply.

2. *Are the water quality functions (e.g., nutrient assimilation, sediment trapping, toxic substance uptake and transformation) of the wetland site recognized, identified or listed by a federal, state, or local agency, Conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., presence of a downstream dredged channel or reservoir which requires periodic dredging, eutrophic waterbodies downstream,low dissolved oxygen problems, fish kills)?*

YES — U.S. Fish and Wildlife Service 1980 and Hesse et al. 1989

3. *Are the flood control, erosion and/or shoreline damage reduction functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., flood control project, wetland site within the 100-year floodplain, identified by a city as important for coastal shoreline protection)?*

YES — U.S. Fish and Wildlife Service 1980 and Hesse et al. 1989

Six mainstem dams have had noticeable influences on water quality, quantity and flood control along the Missouri River. The release of relatively silt-free waters from the lowermost dam in the system is contributing to channel bed degradation taking place from Gavins Point Dam to about Omaha, Nebraska (U.S. Fish and Wildlife Service 1980). The irregular and uneven releases of water from mainstem dams jeopardizes nest success of sandbar nesting interior least terns and piping plovers. Bed degradation is draining adjacent wetlands and isolating backwater areas from the main channel.

The channel of the Missouri River has been constricted to the point that it is relatively self-cleansing and requires little maintenance dredging (U.S. Fish and Wildlife Service 1980). Channelization, loss of wetlands, and extensive development of the floodplain have reduced the natural flood-carrying capacity of the Missouri River system. As a result, flood stages in receiving waters (e.g., the Mississippi River) have increased.

The city of Omaha relies on the Missouri River for a portion of their municipal water supply (J. Gerlt pers. com.)

D. Outdoor Recreation

1. *Is there a recognized or documented demand for the recreational opportunities available in the wetland site?*

YES — Missouri National Recreational River designation from Gavins Point Dam to Ponca State Park (U.S. Fish and Wildlife Service 1980). Power boating, sport fishing, bird watching (often times for waterfowl and wintering bald eagles) and duck/goose hunting are all important recreational activities that the river provides. Visitation records during fall snow goose migration at Desoto Bend National Waterfowl Refuge and hunting blind reservations at Schilling Wildlife Management Area serve to document a portion of the recreational resource of this river.

2. *Is the wetland site within 50 miles of a Metropolitan Statistical Area or within 50 miles of a tourist area receiving more than 100,000 visitors per year?*

YES — Omaha, NE; Sioux City, IA; Indian Cave State Park (SP), Lewis and Clark SRA, Ponca SP and Niobrara SP

The Missouri River from Gavins Point Dam (South Dakota) to Ponca SP (Nebraska) is a component of the National Wild and Scenic Rivers System and has been designated as a Recreational River. Although outdoor recreation from boating and fishing to camping and trapping is important along most of the Missouri River in Nebraska, recreational use likely is much lower than its potential in the channelized reach due to the associated reduction in fish and wildlife habitats (U.S. Fish and Wildlife Service 1980).

Several state parks and recreation areas along the Missouri River receive well over 100,000 state visitors each year. These include Indian Cave SP, Lewis and Clark SRA, Ponca SP, and Niobrara SP.

E. Other Areas or Concerns

1. *Does the wetland site have ecological features consistently considered by regional scientists to be rare for wetlands in the region (e.g., fens in the midwest, cypress swamps in northern states, spring communities in various regions)?*

YES — Only 8% of the Missouri River downstream from Montana remains remotely like it was in primeval conditions (L. Hesse pers. comm).

2. *Is the wetland site included in a national or statewide listing of historical or archaeological sites?*

YES — the Lewis and Clark National Historic Trail (NHT) and the Mormon NHT

3. *Is the wetland site being used, or could it be used, for educational or research purposes (e.g., used by a nature center, school, camp, or college, essential to an on-going environmental research or monitoring program)?*

YES — Gifford Point Nature Center operated by Nebraska Educational Service Unit #3; Nebraska Game and Parks Commission ongoing fisheries research (L. Hesse pers. com.); wetland assessment and planning for mitigation authorized by the Water Resources Development Act of 1986 (Public Law 99-662)

4. *Does the wetland site have other public values of concern to the Secretary of the Interior?*

YES — one of the most diverse assemblages of big river fishes in North America habitat for migrating waterfowl and as a major barge transportation corridor for farm commodities.

5. CONCLUSION

The Missouri River wetland complex qualifies for acquisition consideration under provisions of the *Nation-*

al Wetlands Priority Conservation Plan based on the following criteria: (1) greater than 50% of the wetland types are rare or declining, (2) wetlands are threatened by loss and degradation, and (3) wetlands offer important values to society in five of five identifiable functional categories.

Missouri River Wetlands References

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WETLAND SITE 6 — LOWER NORTH PLATTE RIVER WETLAND COMPLEX

Wetland Assessment Summary

1. WETLAND PROFILE:
   a. Wetland Site Name: North Platte River - Lower Reach
   b. USGS 1:24,000 Maps: Many
   c. Township: 13N to 14N; Section: Many
   d. Longitude: 100°40'30" to 101°07'30"
      Latitude: 41°07' to 41°12'30"
   e. Cities: North Platte, Hershey, Sutherland
      Counties: Lincoln
      State: Nebraska
   f. Ecoregion: 2532
   g. Size of Complex: 40 square miles
      Wetland Acres: 6500 acres
      Date of Wetland Assessment: 9/89 and 12/90

2. WETLAND LOSS PRIORITY: 2

3. IS THE WETLAND SITE THREATENED? YES

4. WETLAND FUNCTIONS AND VALUES:
   a. Wildlife — YES
   b. Fisheries — YES
   c. Water Supply/Quality, Flood/Erosion Protection — YES
   d. Outdoor Recreation — YES
   e. Education and Research — YES

5. CONCLUSION

The Lower North Platte River Wetland Complex meets all threshold criteria and qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan.*

Wetland Assessment Narrative

1. WETLAND SITE DESCRIPTION

WETLAND PROFILE

The lower reach of the North Platte River extends approximately 20 river miles, from Sutherland to North Platte, Nebraska. This wetland complex consists of riverine and palustrine wetlands lying within the historic active floodplain and channel of the North Platte River.

WETLAND CLASSIFICATION

The mo st prevalent wetland types along the North Platte River are riverine lower perennial, palustrine emergent, palustrine scrub-shrub, and palustrine forested (Currier 1982). An increase of palustrine scrub-shrub and forested wetland types has occurred at the expense of riverine and palustrine emergent wetlands as a response to decreased instream flows and sediment storage in upstream reservoirs. Palustrine emergent temporarily and seasonally flooded wetlands make up an estimated 80% of all wetlands in the lower reach of the North Platte River.

2. WETLAND LOSS

Sidle et al. (1989) reported that the active river channel on the North Platte River has declined 85 percent since 1860 between North Platte and Lake McConaughy. Since 1938, the active channel between North Platte and Sutherland and Sutherland and Lake McConaughy has declined by 65 percent and 63 percent, respectively (U.S. Fish and Wildlife Service, unpubl. data). Wet meadow losses along the North Platte River have been 23 to 33 percent since 1938, though much of the cultivatable meadows already were converted and under gravity irrigation prior to 1938 (Sidle et al. 1989).

Using modified *National Wetlands Priority Conservation Plan* assessment criteria, the following wetland loss priority ranking was developed using the Cowardin et al. (1979) classification system:

Wetland Type					Percent of Site	Status
a.	R	2	US	C	1%	Decreasing*
b.	R	2	UB	F	2%	Decreasing*
c.	P		EM	A	40%	Decreasing
d.	P		EM	C	40%	Decreasing
e.	P		SS	C	2%	Increasing*
f.	P		FO	A	15%	Increasing*

*Status based on existing literature for the North Platte River

Decreasing wetland types	83% of Site x 1 =	83
Stable wetland types	% of Site x 2 =	
Increasing wetland types	17% of Site x 3 =	51
Total Points		134

Priority 2 (120-159 points)
Lower North Platte River Wetland Loss Priority = 2

3. WETLAND THREAT

The entire Platte River Valley epitomizes the struggle between development interests and the recognition of wildlife, recreation, and other values associated with wetlands. American Rivers, Inc., a national river conservation organization, has listed the Platte River as one of the most endangered waterways in the United States. Categories of threat to the lower reach of the North Platte River include water development projects, drainage and filling, agricultural conversion or use, livestock grazing, groundwater withdrawal and depletion, transportation, water pollution, and diverse ownership with limited individual commitment to protection.

Threats related to agriculture and sand and gravel mining operations are the biggest risks to wet meadows adjacent to the North Platte River. Loss of instream flows, groundwater depletions, and degradation of the riverbed may be adversely impacting the remaining wet meadows. Residential and commercial developments commonly encroach on wet meadows following drainage, the mining of sand or other degradation factors. Impoundments and diversion of river water and sediment are the main factors that have caused and will continue to cause the shift from a wide, shallow, open channel to a narrow, deep channel surrounded by uplands or scrub-shrub/forested wetlands.

Future wetland threat can be expected from the following sources:

a. Drainage and filling
b. Agricultural conversion or use
c. Livestock grazing
d. Groundwater withdrawal/depletion
e. Loss of instream flows
f. Residential or commercial development
g. Power plants
h. Transportation (roads and bridges)
i. Water development projects
j. Water pollution
k. Diverse ownership

The following laws, ordinances or programs provide some degree of wetland protection potential for North Platte River wetlands:

a. Section 404 of the Clean Water Act
b. Endangered Species Act
c. Water Resources Development Act of 1986
d. Food and Agriculture Conservaiton Trade Act of 1990
e. Section 10 of the Federal Power Act

Considering the relative effectiveness of the combined factors listed above to protect the public values of lower North Platte River wetlands, it can be determined that these wetlands will experience loss or degradation in the future.

4. WETLAND FUNCTIONS AND VALUES

A. Wildlife and Plants

1. Are federal or state threatened or endangered plants or animals known to use the wetland site on a regular basis?

YES — whooping crane and bald eagle

2. Have any wildlife resources of the wetland site been recognized, identified, or listed by a federal or state agency, conservation organization, institution (education or research) or private group due to specific legislation, designations or management or planning documents (e.g., high wildlife value, declining populations/numbers, edge of range, Audubon Blue List, list(s) or species of special concern or emphasis)?

YES — Anderson et al. 1989, Currier et al. 1985, U.S. Fish and Wildlife Service 1981, Audubon Blue List (Tate 1986)

3. Has the wetland site been specially designated, or is it part of a region specially designated, by a federal or state agency or private group as important for migratory birds or resident wildlife (e.g., referenced in the North American Waterfowl Management Plan or a State Waterfowl Concept Plan or on a list maintained by The Nature Conservancy?

YES — Anderson et al. 1989, Nebraska Game and Parks Commission owned and managed North River Wildlife Management Area

The lower North Platte River and its associated wetland complex provide important habitat for a broad range of wildlife species. Bald eagles winter along the river and also occur during migration. This site has the potential to provide spring and fall migration habitat for whooping cranes. Migrating and wintering waterfowl use the river and associated wet meadows. From 1982 to 1987, an average of approximately 950 mallards and 600 Canada geese were present in January (Anderson et al. 1989). A large state wildlife management area is located on the river upstream of North Platte, Nebraska.

During the spring, about 100,000 migrating Sandhill cranes spend six weeks staging on the lower North Platte River and adjacent wet meadows. Sandhill cranes roost in the river at night and forage in wet meadows, grassland, and cropland during the day.

The North Platte River provides habitat for a variety of other migratory and resident wildlife species (Currier et al. 1985; U.S. Fish and Wildlife Service 1981). Seventy-seven percent of the bird species on the National Audubon Society's Blue List are migrants to the Platte and North Platte River Valleys; all but three of these species also nest in the area (Currier et al. 1985). Thirty-two species which occur along the Platte and North Platte Rivers have been listed as species of special concern.

North Platte River wetlands exceed Cagliari criteria for identifying wetlands of international importance in one category of consequence. These wetlands regularly support 50,000-100,000 sandhill cranes or 4 to 8% of the North American population of sandhill cranes during spring migration (U.S. Fish and Wildlife Service 1981).

B. Commercial and Sport Fisheries

1. Does commercial fishing occur on the site?

NO

2. Does sport fishing occur on the site?

YES — channel catfish, northern pike, largemouth bass (M. Madsen pers.com.)

3. Does the wetland site have fishery resource values (e.g. anadromous fishery, spawning, nursery, juvenile or foraging habitat) that is recognized, identified or listed by a federal state agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents?

YES — rated as a Class II (high priority) fishery resource by U.S. Fish and Wildlife Service (1978)

C. Surface and Ground Water Quality and Quantity and Flood Control

1. Are the groundwater recharge and/or discharge (water supply) functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., sole source aquifer, municipal water supply)?

YES — Municipal and irrigation water (Missouri River Basin Commission 1976)

2. Are the water quality functions (e.g., nutrient assimilation, sediment trapping, toxic substance uptake and transformation) of the wetland site recognized, identified or listed by a federal, state, or local agency, Conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., presence of a downstream dredged channel or reservoir which requires periodic dredging, eutrophic waterbodies downstream, low dissolved oxygen problems, fish kills)?

YES — presence of downstream canals and reservoirs which require dredging (D. Carlson pers. com.)

3. The flood control, erosion and/or shoreline damage reduction functions of the wetland site recognized, identified or listed by a federal, state, or local agency, conservation organization, institution or private group due to specific legislation, designations, or management or planning documents (e.g., flood control project, wetland site within the 100-year floodplain, identified by a city as important for coastal shoreline protection)?

YES — flood protection. The Missouri River Basin Commission (1976) noted that the continued loss of riverine and palustrine wetlands increases the chance of flood damage

despite upstream reservoirs.

The lower North Platte River and its associated aquifer provide municipal and irrigation water supplies (Missouri River Basin Commission 1976). During high-flow periods, the river recharges the underlying aquifer. Because the Platte River system, including the lower North Platte River, is highly regulated by a series of reservoirs and canals, the ground water discharge and recharge functions of the rivers and associated wetlands have been significantly altered from natural conditions (Missouri River Basin Commission 1976). Although upstream reservoirs on the North Platte River provide considerable flood protection, the continued loss of riverine and associated palustrine wetlands increases the chance of flood damage. The loss of channel capacity on the lower North Platte has the potential to exacerbate flooding.

D. Outdoor Recreation

1. Is there a recognized or documented demand for the recreational opportunities available in the wetland site?

YES — waterfowl, upland game, big game, and fishing (Anderson et al. 1989) and nonconsumptive recreation (Bureau of Sociological Research 1988)

2. Is the wetland site within 50 miles of a Metropolitan Statistical Area or within 50 miles of a tourist area receiving more than 100,000 visitors per year?

YES — Lake McConaughy SRA, Lake Maloney SRA, the City of North Platte, NE

Waterfowl hunting and fishing occur on the lower North Platte River (Anderson et al. 1989). Upland game and big game hunting also occur in the area. Although the site is not within 50 miles of a Metropolitan Statistic Area, it is close to several tourist areas that receive more than 100,000 visitors each year (e.g., Lake McConaughy SRA, Lake Maloney SRA and the City of North Platte, NE). A recent survey by the University of Nebraska indicated that Nebraskans as a whole have a keen interest in a variety of consumptive and nonconsumptive recreation activities available on the lower North Platte River and support further development to provide these recreational opportunities (Bureau of Sociological Research 1988).

E. Other Areas or Concerns

1. Does the wetland site have ecological features consistently considered by regional scientists to be rare for wetlands in the region (e.g., fens in the midwest, cypress swamps in northern states, spring communities in various regions)?

NO

2. Is the wetland site included in a national or statewide listing of historical or archaeological sites?

YES — one transcontinental emigrant route occurs within this area (i.e. Mormon Trail) that is designated as a National Historic Trail

3. Is the wetland site being used, or could it be used, for educational or research purposes (e.g., used by a nature canter, school, camp, or college, essential to an on-going environmental research or monitoring program)?

YES — U.S. Fish and Wildlife Service is conducting ongoing research on sandhill cranes. Due to the rivers location in relation to the City of North Platte, Nebraska and Interstate 80, there exists great potential for educational opportunities.

4. Does the wetland site have other public values of concern to the Secretary of the Interior?

YES — migratory bird habitat for many species including waterfowl, sandhill cranes and the endangered bald eagle and whooping crane (Currier et al. 1985)

5. CONCLUSION

The lower North Platte River wetland complex qualifies for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan* based on the following criteria: (1) greater than 50% of the wetland types are rare or declining, (2) wetlands are threatened by loss and degradation, and (3) wetlands offer important values to society in five of five identifiable functional categories.

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PRIORITY ASSESSMENT OF WETLAND SITES

Six wetland complexes have adequate documentation to meet requirements for acquisition consideration under provisions of the *National Wetlands Priority Conservation Plan* (Figure 1). Five additional wetland complexes: Niobrara River, Todd Valley, Southwest High Plains, Western Nebraska Saline and the Platte/Nance/Merrick County Sandhills have insufficient documentation for meaningful assessment (Figure 2). All wetland sites which meet NWPCP acquisition criteria are considered to have a HIGH priority for acquisition. The general priority assessment criteria were used to rank wetland complexes in order of their relative importance (Table 1).

The ranking system used to prioritize wetland sites is based on a series of weighted questions designed to compare each wetland site's known overall values to that of the other wetland sites. The weighted questions are presented within the methods section of this report on page W-2. The ranking system is based on a possible seventy point score, with the wetland site having the highest score being considered to have the highest priority for acquisition initiatives when LWCF funding is to be used.

As additional wetland complexes qualify for acquisition consideration under the *National Wetlands Priority Conservation Plan*, these sites will be elevated to the HIGH priority acquisition status and assigned a relative importance ranking.

WETLAND ACQUISITION AND MANAGEMENT PLANNING GUIDELINES

Various biological, political and economic factors must be considered in formal acquisition planning. The purpose of this section is to identify factors which should be considered before acquisition efforts are initiated.

Table 1. Relative Importance Ranking For Priority Wetland Complexes

ASSESSMENT CRITERIA		INDIVIDUAL WETLAND COMPLEX					
Type	Description	Rain-water Basins	Central Platte River	Sand-hills	Eastern Saline	Missouri River	North Platte River
Impacts	Past wetland loss	10	10	5	10	10	10
	Future Threat of loss	10	10	10	10	0	5
Biological	Waterfowl	5	5	5	3	5	5
	Threatened and Endangered Species	5	5	3	0	5	3
	Nongame migratory birds	5	5	5	3	3	3
	Rare/Unique animals, habitats of plants	0	5	5	5	5	0
General	Wildlife	3	3	3	3	3	3
	Fisheries	0	3	3	0	3	3
	Water Quality/Flood Control	3	3	3	3	3	3
	Outdoor Recreation	3	3	3	3	3	3
	Special Values	3	3	3	3	3	3
Administrative	North American Waterfowl Management Plan	10	0	5	0	0	0
	USFWS Regional Wetland Concept Plan	5	5	5	5	5	5
	TOTAL SCORE — Max. Score = 70 points	62	60	58	48	48	46
	Relative Importance Ranking	1	2	3	4	5	6

Within a given wetland complex there may be hundreds or even thousands of individual wetlands that meet the threshold criteria for acquisition. The wetlands identified in Appendices D through I are known to meet the threshold criteria required by the National Plan. **These individual wetlands are intended to be used as examples of suitable wetlands occurring within the wetland complex rather than the definitive list of sites qualifying for acquisition.** Thus, the absence of a specific wetland from the appendices should not be construed to mean that the wetland does not qualify for acquisition consideration. Individual wetland sites will be more thoroughly identified during acquisition planning.

When wetlands are considered for acquisition, uplands must also be acquired to allow the wetland area to function at its highest level. Different wetland complexes will require different upland-wetland ratios based on the values they provide. In some areas 1 to 1 ratios may be all that is needed to protect and maintain wetland functions and values. In other cases 3 or 4 to 1 ratios are needed to ensure wetland values are optimized. Other factors affecting upland-wetland ratios include the location of landowner boundaries and the manageability of a block of land.

The *Nebraska Wetlands Priority Conservation Plan* interprets the National Plan as providing flexibility in this regard by providing general recommendations on the upland-wetland ratios that maximize the functions and values of any wetland complex.

Rainwater Basin Wetland Complex

The Rainwater Basin area has been and will continue to be a very high priority acquisition concern of the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service. As of January 1, 1991, the Service has acquired 17,990 acres in the Rainwater Basin area, containing 9,038 acres of wetland, while the Commission has acquired 5,122 total acres containing 2,833 acres of wetland. About 3,500 acres are currently protected under various state and federal short-term lease programs.

In January of 1991, the U.S. Secretary of the Interior gave the Rainwater Basin wetland complex NAWMP status as the eighth joint venture in the United States. This

status will facilitate significant new acquisition initiatives within this area. Acquisition moneys available through the *National Wetlands Priority Conservation Plan* can serve as one source of funding for this major wetland acquisition initiative.

The following guidelines are provided to give insight into how available acquisition and management dollars can be used to their greatest advantage within the Rainwater Basin area.

PRIMARY WILDLIFE VALUE — spring staging habitat for waterfowl and migration habitat for endangered species..

SECONDARY WILDLIFE VALUES — migration habitat for shorebirds and wading birds, production habitat for waterbirds; habitat for resident wildlife species.

POTENTIAL FOR USE OF WETLAND PROTECTION TOOLS — *fee title acquisition* - high; *perpetual easement* - high; *cooperative work on private land* - high. Based on the extensive wetland losses which have occurred, all protection tools available should be used to protect wetlands. Because these wetlands occur in an intensively farmed area where the risk of loss or degradation from farming is high, fee title acquisition is the most preferred option.

SIZE AND WETLAND TYPE CRITERIA — wetlands of any size and water permanence acceptable. Wetlands of highest value to spring staging waterfowl are generally those that are greater than 50 acres in size and contain an even distribution of temporarily, seasonally and semipermanently flooded water regimes. Wetlands providing the highest values to spring staging waterfowl are also located away from roads or other human disturbance factors and in close proximity (within 10 miles) of two or more similar wetlands.

UPLAND-WETLAND RATIOS - 1 or 2 : 1

MANAGEMENT POTENTIAL — *wetland enhancement* - high; *wetland restoration* - high; *wetland creation* - low. Wetland creation appears to have limited potential for success because of the impracticability of creating a closed watershed and duplicating a clay lens extending over a large area with minimal topographic relief.

LOCATION - Rainwater Basin wetlands exist within a 17 county area of southcentral Nebraska (Fig. 1).

REPRESENTATIVE RAINWATER BASIN WETLANDS — in general terms, all wetlands within this complex can be considered suitable for acquisition. However, in order to protect the highest value wetlands most expeditiously, Appendix D is provided which identifies 92 existing wetlands and 11 wetland restoration sites that are considered to be representative of high priority sites within the complex.

Platte River-Big Bend Reach Wetland Complex

The Big Bend Reach of the Platte River has been the acquisition priority of the Platte River Whooping Crane Habitat Maintenance Trust and of interest to the Nebraska Game and Parks Commission, the U.S. Fish and Wildlife Service and The Nature Conservancy in the past. As of January 1, 1991, the Trust had acquired 6,591 acres in fee title and 1,607 acres in easements along this reach of the river.

The following guidelines are provided to give insight into how available acquisition and management dollars can be used to their greatest advantage within the Big Bend Reach of the Platte River.

PRIMARY WILDLIFE VALUE — spring staging habitat for sandhill cranes and migration habitat for the endangered whooping crane, breeding habitat for threatened and endangered species.

SECONDARY WILDLIFE HABITAT — migration habitat for waterfowl and other waterbirds, wintering habitat for waterfowl and endangered species, habitat for resident wildlife species.

POTENTIAL FOR USE OF WETLAND PROTECTION TOOLS — *fee title acquisition* - high; *perpetual easement* - high; *cooperative work on private lands* - moderate. Cooperative work on private land to clear vegetation from islands may have limited applicability if the landowner presently grazes these areas. Monetary compensation in the form of an easement would appear more acceptable in this specific case.

SIZE AND WETLAND TYPE CRITERIA — large wet meadows and sections of river which have widths from high bank to high bank in excess of 500 feet are preferred. The wet meadows should consist of a variety of temporarily and seasonally flooded wetlands interspersed with naturally vegetated upland swales. Larger tracts with limited human disturbance factors are of highest value but all quality wet meadow habitat will be used for feeding and loafing by sandhill cranes.

UPLAND-WETLAND RATIOS — wet meadows - up to 4 : 1; river channel 1 or 2 : 1

MANAGEMENT POTENTIAL — *wetland enhancement of islands and wet meadows* - high; *wetland restoration of islands* - high; *wetland restoration of wet meadows* - moderate; *wetland creation of islands* - high; *wetland creation of wet meadows* - moderate. Conversion of wet meadows to farm ground is often accompanied by land leveling that reduces the potential for restoration or creation.

LOCATION — Platte River-Big Bend Reach wetlands occur within the Platte River valley from Lexing-ton to Chapman, NE (Figure 1).

REPRESENTATIVE PLATTE RIVER WETLANDS — numerous sites within the Big Bend reach are suitable for acquisition. Examples of suitable sites are provided in Appendix E.

Sandhills Wetland Complex

The Sandhills region has been an important wetland acquisition area for both the Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service. Major Service holdings in the Sandhills include the 71,516 acre Valentine NWR and the 46,000 acre Crescent Lake NWR.

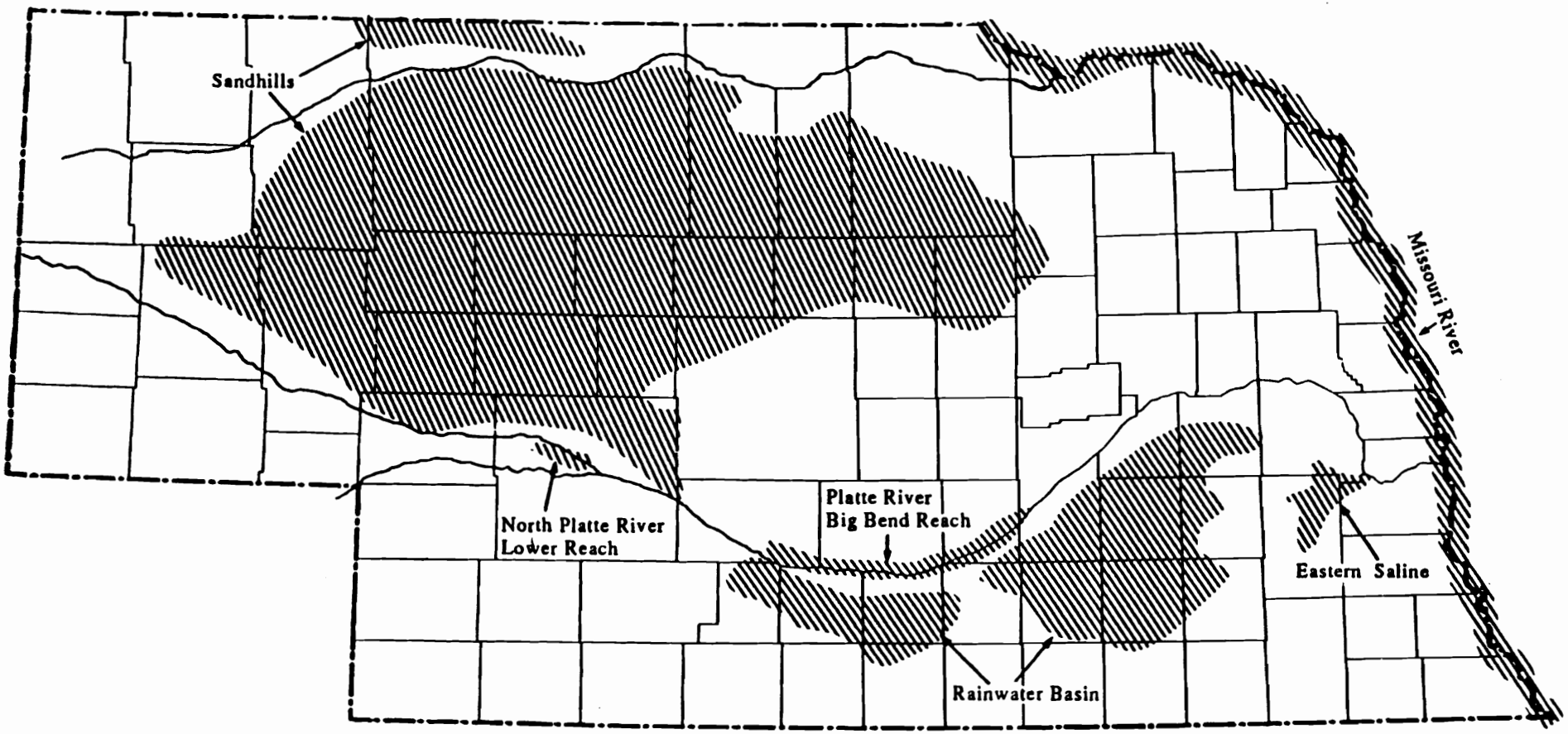


FIGURE 1.
Wetland complexes that qualify for acquisition consideration under provisions of the National Wetlands Priority Conservation Plan

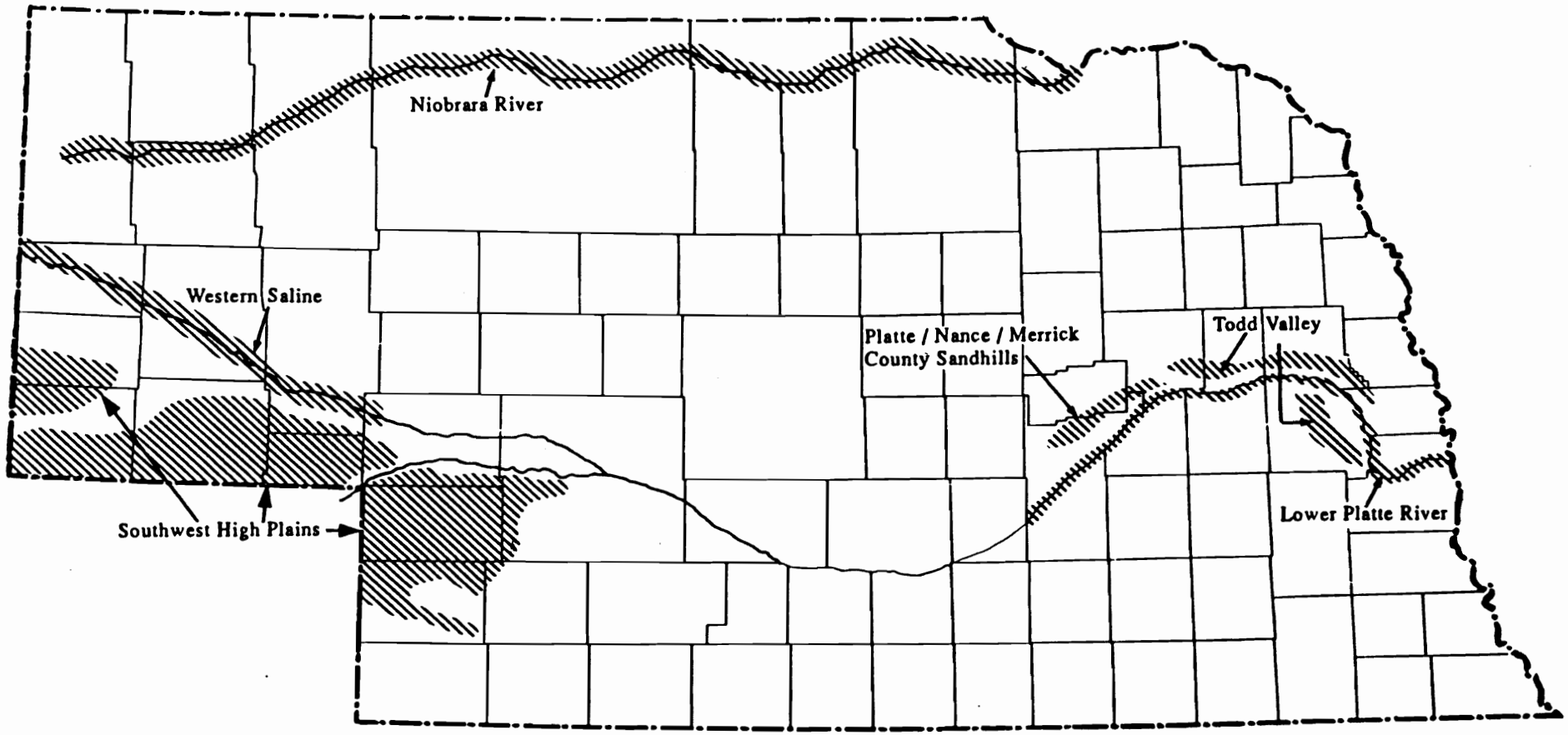


FIGURE 2.
Wetland complexes which warrant acquisition consideration under provisions of the National Wetlands Priority Conservation Plan but lack adequate documentation for assessment

In October of 1990, the North American Waterfowl Management Plan Committee tentatively planned for the Sandhills wetland complex to receive NAWMP joint venture status in 1994, with funding beginning in 1995. This status will facilitate new wetland protection initiatives within this area. Acquisition moneys available through the *National Wetlands Priority Conservation Plan* can serve as one source of funding for this major wetland protection initiative.

The following guidelines are provided to give insight into how available acquisition and management dollars can be used to their greatest advantage within the Sandhills area.

PRIMARY WILDLIFE VALUE — production habitat for waterfowl and other waterbirds.

SECONDARY WILDLIFE VALUES — migration habitat for waterfowl, endangered species and other waterbirds, habitat for resident wildlife species, unique plant communities.

POTENTIAL FOR USE OF WETLAND PROTECTION TOOLS — *cooperative work on private land* - high; *perpetual easement* - high; fee title acquisition - low. *Public apprehension about extensive government fee title acquisition programs in the Sandhills mandate that wetland protection programs be flexible and sensitive to these concerns. Ranch management and wildlife management are compatible in the Sandhills. Compensating landowners through cooperative agreements to protect key nesting/brood rearing areas can preserve and enhance wetland habitat while maintaining private ownership.*

SIZE AND WETLAND TYPE CRITERIA — a dense complex of wetlands of varying sizes and types located in close proximity to brood rearing habitat is preferred. Small numerous temporarily and seasonally flooded wetlands provide food and isolated pair sites while semipermanently flooded wetlands provide secure brood rearing and escape cover. Dense nesting cover should be intermixed with wetlands. Islands located at least 300 feet from the nearest land in lacustrine or palustrine semipermanent wetlands are of especially high value due to their waterfowl production potential.

UPLAND-WETLAND RATIOS — 3 : 1.

MANAGEMENT POTENTIAL — *wetland enhancement* - high; *wetland restoration* - moderate; *wetland creation* - moderate. Many wetlands have been partially drained to facilitate hay production. While simple earthen plugs or control structures are all that is required to restore these sites, hay production is a critical component of a Sandhills ranching operation. For this reason, the likelihood of restoring wetlands using easements or cooperative agreements on private ground is somewhat diminished. Because groundwater is the primary water source for many Sandhills marshes, wetland creation is a realistic management option where economically feasible.

LOCATION — Sandhills wetlands exist within a 22 county area in northcentral Nebraska (Figure 1).

REPRESENTATIVE SANDHILLS WETLANDS — in general, semipermanently flooded wetlands 20 acres or larger in size and surrounded by numerous smaller temporarily, seasonally and semipermanently flooded wetlands are preferred. Large wetlands with islands are also highly desirable. Appendix F identifies sites representative of those described above.

Eastern Nebraska Saline Wetland Complex

Eastern saline wetlands are only now beginning to be recognized as an important wetland complex worthy of protection and management. As of January 1, 1991 the Commission has acquired 938 acres of saline wetlands and associated upland habitat in fee title while the Lower Platte South Natural Resources District has acquired perpetual easements on 106 acres.

The following guidelines are provided to give insight into how available acquisition and management dollars can be used to their greatest advantage within eastern saline wetlands.

PRIMARY WILDLIFE VALUE — biodiversity provided by regionally rare plants and habitats; migration habitat for shorebirds and wading birds.

SECONDARY WILDLIFE VALUES — migration and breeding habitat for waterfowl, habitat for resident wildlife species.

POTENTIAL FOR USE OF WETLAND PROTECTION TOOLS — *fee title acquisition* - moderate; *perpetual easement* - high; *cooperative work on private land* - high. Eastern saline wetlands are found within the flood plains of Salt, Little Salt and Rock Creeks. A large portion of the upper reaches of these flood plains remain as pasture. The irregular shape of these wetlands and the fact that wetlands make up a relatively small portion of the flood plain at times may reduce the likelihood that landowners would fragment pastures for fee title sale.

SIZE AND WETLAND TYPE CRITERIA — because of the rarity of this wetland type, all eastern saline wetlands regardless of size or type should be considered worthy of acquisition. Highest quality wetlands support all six recognized halophytic plant associations and derive water from both surface runoff and spring seeps.

UPLAND-WETLAND RATIOS — 1 or 2 : 1

MANAGEMENT POTENTIAL — *wetland enhancement* - high; *wetland restoration* - high; *wetland creation* - low. Due to the complex physical and chemical properties which must exist to maintain a saline wetland, the likelihood that these wetlands can be created is remote.

LOCATION — Eastern Nebraska saline wetlands occur in Lancaster and southern Saunders Counties in southeast Nebraska.

REPRESENTATIVE EASTERN NEBRASKA SALINE WETLANDS — examples of saline wetlands considered to be of highest value are presented in Appendix G.

Missouri River Wetland Complex

The Nebraska Game and Parks Commission and the U.S. Fish and Wildlife Service have recognized the values of Missouri River wetlands through past acquisition efforts. These efforts have been reinforced by recent U.S.

Army Corps of Engineers initiatives to consider mitigating wetland losses caused by channelization. The following guidelines are provided to give insight into how available acquisition and management dollars can be used to their greatest advantage within the Missouri River wetland complex.

PRIMARY WILDLIFE VALUE — breeding and wintering habitat for threatened and endangered species.

SECONDARY WILDLIFE VALUES — migration habitat for waterfowl and other waterbirds; habitat for big river fishes.

POTENTIAL FOR USE OF WETLAND PROTECTION TOOLS — *fee title acquisition* - high; *perpetual easement* - high; *cooperative work on private land* - moderate. Because most of the previous river bottom is now in row crop production, the potential for cooperative work without financial incentives is reduced.

SIZE AND WETLAND TYPE CRITERIA — Two areas should receive attention. These include islands in the unchannelized portion of the river and historic oxbow/chute areas within channelized reaches of river. Size and wetland type will vary by site. Islands must have the capability to support a least tern and piping plover nest colony on the unchannelized portion while oxbow/chute areas should contain multiple wetland types and flow regimes.

UPLAND-WETLAND RATIOS — islands - 1 : 1; backwater oxbows and chutes - 2 or 3 : 1.

MANAGEMENT POTENTIAL — *wetland enhancement of islands and oxbow/chutes* - high; *wetland restoration* - moderate; *wetland creation* - low. Wetland restoration potential is dependent in part on our ability to reestablish historic wetland hydrology. Riverbed characteristics relating to aggradation or degradation will significantly affect a site's potential for restoration. While the creation of islands for threatened and endangered species is possible within the unchannelized reach, little potential appears to exist for wetland creation of oxbow/chute wetlands.

LOCATION — Missouri River wetlands exist along the river's entire length from Boyd County in northeast Nebraska to Richardson County in the southeast corner of the state (Figure 1).

REPRESENTATIVE MISSOURI RIVER WETLANDS — numerous sites have acquisition potential. Examples of some of these sites are presented in Appendix H.

Lower North Platte River Wetland Complex

While this area is recognized as providing important values to wildlife, wetland protection efforts have been limited. The Commission has acquired 1,147 acres of wetland and upland habitat within this area.

The following guidelines are provided to give insight into how available acquisition and management dollars can be used to their greatest advantage within the lower North Platte River.

PRIMARY WILDLIFE VALUE — spring staging habitat for sandhill cranes, wintering habitat for endangered species.

SECONDARY WILDLIFE VALUES — migration habitat for waterfowl and waterbirds; wintering habitat for waterfowl, habitat for resident wildlife species.

POTENTIAL FOR USE OF WETLAND PROTECTION TOOLS — *fee title acquisition* - high; *perpetual easement* - high; *cooperative work on private land* - moderate. Cooperative work on private land to clear vegetation from islands may have limited applicability if the landowner presently grazes these areas. Monetary compensation in the form of an easement would appear more acceptable in this specific case.

SIZE AND WETLAND TYPE CRITERIA — large wet meadows and sections of river which have widths from high bank to high bank in excess of 500 feet are preferred. The wet meadows should consist of a variety of temporarily and seasonally flooded wetlands interspersed with naturally vegetated upland swales. Larger tracts with limited human disturbance factors are of highest value but all wet meadow habitat will be used for feeding and loafing by sandhill cranes.

UPLAND-WETLAND RATIOS — wet meadows - up to 4 : 1; river channel - 1 or 2 : 1.

MANAGEMENT POTENTIAL — *wetland enhancement of wet meadows and islands* - high; *wetland restoration of wet meadows and islands* - moderate; *wetland creation of wet meadows and islands* - moderate. While management potential permits a variety of options to be considered, it is suggested that channel clearing be the highest priority activity. The need to reestablish the broad open channel for roosting sandhill cranes appears to far exceed the immediate need to develop additional wet meadow habitat.

LOCATION — Lower North Platte River wetlands exist within an approximate 20 mile reach from near Sutherland to North Platte, in Lincoln County, NE (Figure 1).

REPRESENTATIVE NORTH PLATTE RIVER WETLANDS — Numerous sites within this river reach are suitable for acquisition. Examples of suitable sites are provided in Appendix I.

REVIEW AND REVISION

The *Nebraska Wetlands Priority Conservation Plan* will be updated as needed. A priority will be to gather basic functional assessment data on the wetland complexes that do not presently have the documentation necessary for criteria assessment under the National Plan. As new data becomes available, additional sites will be assessed and added to the list of priority wetland acquisition sites. Any field assessment work, planning or amendments will be coordinated with the U.S. Fish and Wildlife Service and other appropriate state and federal agencies, and private organizations.

DEFINITIONS

The Nebraska Plan uses wetlands terminology from the U.S. Fish and Wildlife Service Regional Concept Plan to ensure consistency with similar planning documents within the state. Definitions were taken from the wetlands classification system developed by Cowardin et al. (1979), except for the definitions of WETLAND, HYDRIC SOIL and HYDROPHYTIC VEGETATION specified in Section 301 of the Emergency Wetlands Resources Act:

ACQUISITION — As used in the *National Wetlands Priority Conservation Plan*, any purchase of complete or partial interest in a wetland site obtained with total or partial federal funding.

DOCUMENTABLE INFORMATION — Information or data collected and/or published by an individual, group, organization, institution, or agency and used as an objective basis for establishing wetland functions and values, threats, and losses.

EMERGENCY WETLANDS RESOURCES ACT — The Public Law (99-645) enacted in 1986 authorizing a variety of measures, including establishing the *National Wetlands Priority Conservation Plan*, to promote the conservation of wetlands in the United States.

FORESTED WETLANDS — Wetlands having persistent woody vegetation where the dominant species are 20 feet or taller. In the West, they are most common in those sections where moisture is relatively abundant, particularly along rivers and in the mountains.

HERBACEOUS — A plant with no persistent woody stem above ground.

HYDRIC SOIL — Soil that, in its undrained condition, is saturated, flooded, or ponded long enough during a growing season to develop an anaerobic condition that supports the growth and regeneration of hydrophytic vegetation.

HYDROPHYTE — Any plant growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

HYDROPHYTIC VEGETATION — Plants growing in: (a) water, or (b) a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content.

HISTORIC WETLAND LOSSES — The losses of wetlands from a particular site or loss of a specific type of wetlands within a region from the time of European settlement through the present.

NATIONAL WETLANDS INVENTORY PROJECT — A long-term inventory and mapping effort of the Nation's wetlands being conducted by the Service. As of 1989, approximately 60 percent of the wetlands in the coterminous United States had been mapped. Mapping in the coterminous United States is projected to be completed by 1998.

NATIONAL WETLANDS PRIORITY CONSERVATION PLAN (NWPCP) — The plan referenced in Section 301 of the Emergency Wetlands Resources Act, established and periodically updated by the Secretary of the Interior, which specifies the locations and types of wetlands and interests in wetlands that should be given priority consideration with respect to federal and state acquisition.

PALUSTRINE EMERGENT WETLANDS — Nontidal wetlands characterized by erect, rooted, herbaceous hydrophytes. Vegetation is usually perennial and present for most of the growing season. They do not include lakes, but they include the wetlands traditionally called marshes and ponds.

RARE — Wetland types that are uncommon or seldom occur in the ecoregion.

RIPARIAN HABITAT — Narrow belts of palustrine and forested wetlands on, adjacent to, or located within banks of streams and rivers.

SCRUB-SHRUB WETLANDS — Wetlands where the dominant vegetation is woody; generally exhibits several erect, spreading, or prostrate stems; has a bushy appearance; and is less than 20 feet tall. The species include tree shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions.

SERVICE REGIONAL WETLANDS CONCEPT PLANS (Concept Plans) — Wetlands Concept Plans developed by the Regional Offices of the Service to implement the NWPCP for that agency. They have been prepared to address wetlands within each Service Region on a state-by-state basis and include an unranked listing of wetland sites which meet the Wetlands Assessment Threshold Criteria established by the NWPCP. These Concept Plans have been prepared in cooperation with various federal and state agencies, including fish and wildlife departments. They complement the state SCORP wetlands planning documentation and constitute the initial list of wetland sites proposed for acquisition by the Service.

STATE WETLANDS PRIORITY PLAN — The planning document which is required by Section 303 of the Emergency Wetlands Resources Act as an addendum to a State Comprehensive Outdoor Recreation Plan in lieu of revising the SCORP to include a wetlands component.

STATEWIDE COMPREHENSIVE OUTDOOR RECREATION PLAN (SCORP) — The state planning process required by the Land and Water Conservation Fund Act (LWCF) for state participation in the federal matching grant program administered by the National Park Service.

THREAT — The likelihood that a wetland site, or portion thereof, will be destroyed or degraded, directly or indirectly, through human actions. In establishing the threat threshold for the NWPCP in Appendix 1, a wetland site is considered to be threatened if an estimated 10 percent of the site's functions and values is likely to be destroyed or adversely affected through direct, indirect, or cumulative impacts over the next 10 years considering: (a) the array of potential wetland threats, and (b) the probable degree of protection provided by the various relevant laws, ordinances, and regulations.

TYPES OF WETLANDS — Those classifications of wetlands based on physical, botanical, and hydrological characteristics. The classification system described by Cowardin et al. (1979) will serve as the basis for determining types of wetlands within any given region.

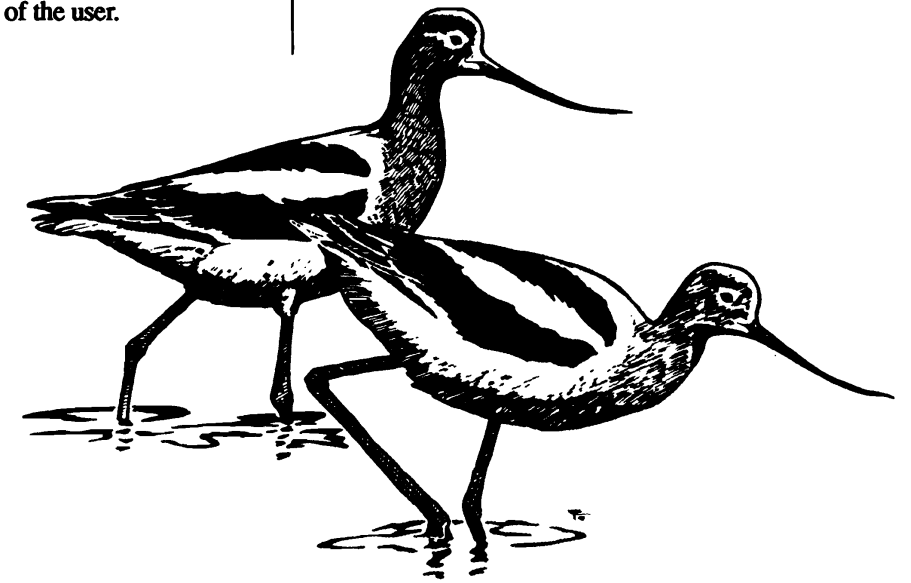
WETLAND — Land that has a predominance of hydric soils that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions.

WETLANDS ASSESSMENT THRESHOLD CRITERIA (Threshold Criteria) — A series of questions or statements provided to help NWPCP users determine if a wetland site qualifies for acquisition consideration based on wetland loss trends by type, threat of loss or degradation of the wetland site, and the importance or significance of the wetland's functions and values.

WETLAND FUNCTIONS AND VALUES — The various products, services, functions, and values which wetlands provide to society, including fish and wildlife habitat, water supply, improvement of water quality, flood control, erosion and shoreline protection, outdoor recreation opportunities, and education and research.

WETLAND LISTS — As used in the NWPCP, lists of wetlands will be included, as appropriate, in both state SCORP documents and Service Regional Wetlands Concept Plans. These lists will indicate wetlands which meet the Threshold Criteria set forth in the NWPCP. They are not necessarily lists of wetlands for purchase, but lists of wetlands qualifying for purchase.

WETLAND SITE — An identifiable property, tract, area, or region containing wetlands or a complex (aggregation) of physically or functionally related wetlands. A wetland site may contain a variety of wetland types, interspersed habitat of other types, and associated upland buffer areas. The boundary of the site should be specific and as geographically restricted as practical, determined by application of sound acquisition principles. In other words, regardless of size, a wetland site should be treated in terms of a unit which generally would fit the acquisition goals, process, and needs of the user.



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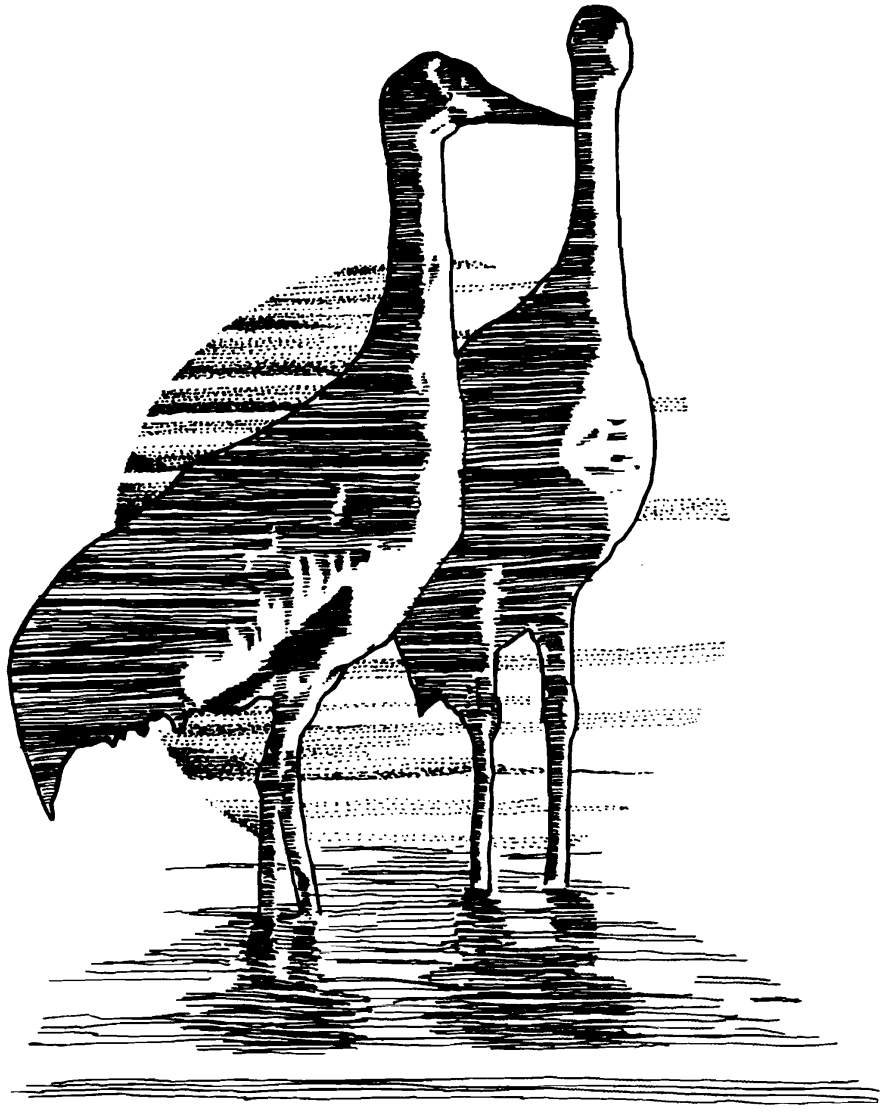

APPENDICES

APPENDIX A. EMERGENCY WETLANDS RESOURCES ACT OF 1986
P.L. 99-645, Signed November 11, 1986

Public Law 99-645
99th Congress

An Act

Nov. 10, 1986
[S. 740]

To promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Emergency Wetlands Resources Act of 1986
16 USC 3901 note

SECTION 1. SHORT TITLE.

This Act may be cited as the "Emergency Wetlands Resources Act of 1986".

16 USC 3901

SEC. 2. FINDINGS AND STATEMENT OF PURPOSE.

(a) FINDINGS.—The Congress finds that—

(1) wetlands play an integral role in maintaining the quality of life through material contributions to our national economy, food supply, water supply and quality, flood control, and fish, wildlife, and plant resources, and thus to the health, safety, recreation, and economic well-being of all our citizens of the Nation;

(2) wetlands provide habitat essential for the breeding, spawning, nesting, migration, wintering and ultimate survival of a major portion of the migratory and resident fish and wildlife of the Nation; including migratory birds, endangered species, commercially and recreationally important finfish, shellfish and other aquatic organisms, and contain many unique species and communities of wild plants;

(3) the migratory bird treaty obligations of the Nation with Canada, Mexico, Japan, the Union of Soviet Socialist Republics, and with various countries in the Western Hemisphere require Federal protection of wetlands that are used by migratory birds for breeding, wintering or migration and needed to achieve and to maintain optimum population levels, distributions, and patterns of migration;

(4) wetlands, and the fish, wildlife, and plants dependent on wetlands, provide significant recreational and commercial benefits, including—

(A) contributions to a commercial marine harvest valued at over $10,000,000,000 annually;

(B) support for a major portion of the Nation's multimillion dollar annual fur and hide harvest; and

(C) fishing, hunting, birdwatching, nature observation and other wetland-related recreational activities that generate billions of dollars annually;

(5) wetlands enhance the water quality and water supply of the Nation by serving as groundwater recharge areas, nutrient traps, and chemical sinks;

(6) wetlands provide a natural means of flood and erosion control by retaining water during periods of high runoff, thereby protecting against loss of life and property;

(7) wetlands constitute only a small percentage of the land area of the United States, are estimated to have been reduced by half in the contiguous States since the founding of our Nation, and continue to disappear by hundreds of thousands of acres each year;

(8) certain activities of the Federal Government have inappropriately altered or assisted in the alteration of wetlands, thereby unnecessarily stimulating and accelerating the loss of these valuable resources and the environmental and economic benefits that they provide; and

(9) the existing Federal, State, and private cooperation in wetlands conservation should be strengthened in order to minimize further losses of these valuable areas and to assure their management in the public interest for this and future generations.

(b) PURPOSE.—It is the purpose of this Act to promote, in concert with other Federal and State statutes and programs, the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions with Canada, Mexico, Japan, the Union of Soviet Socialist Republics, and with various countries in the Western Hemisphere by—

International agreements.
Canada.
Mexico.
Japan.
Union of Soviet Socialist Republics.

(1) intensifying cooperative efforts among private interests and local, State, and Federal governments for the management and conservation of wetlands; and

(2) intensifying efforts to protect the wetlands of the Nation through acquisition in fee, easements or other interests and methods by local, State, and Federal governments and the private sector.

SEC. 3. DEFINITIONS.

16 USC 3902.

For the purpose of this Act:

(1) The term "Committees" means the Committee on Merchant Marine and Fisheries and the Committee on Interior and Insular Affairs of the House of Representatives and the Committee on Environment and Public Works and the Committee on Energy and Natural Resources of the Senate.

(2) The term "designated unit" means a unit of the National Wildlife Refuge System designated by the Secretary under section 201(a)(2).

(3) The term "hydric soil" means soil that, in its undrained condition, is saturated, flooded, or ponded long enough during a growing season to develop an anaerobic condition that supports the growth and regeneration of hydrophytic vegetation.

(4) The term "hydrophytic vegetation" means a plant growing in—

(A) water; or

(B) a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content.

(5) The term "wetland" means land that has a predominance of hydric soils and that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions.

TITLE I—EXTENSION OF WETLANDS LOAN ACT

SEC. 101. EXTENSION OF WETLANDS LOAN ACT.

(a) AVAILABILITY OF APPROPRIATIONS.—The first section of the Act entitled "An Act to promote the conservation of migratory waterfowl by the acquisition of wetlands, and for other essential waterfowl habitat, and for other purposes", approved October 4, 1961 (16 U.S.C. 715k-3), is amended by striking out "September 30, 1986" and inserting in lieu thereof "September 30, 1988".

(b) REPAYMENT PROVISIONS.—Section 3 of such Act (16 U.S.C. 715k-5) is amended by striking out the first three sentences.

National Wildlife Refuge System.

TITLE II—REVENUES FOR REFUGE OPERATIONS AND THE MIGRATORY BIRD CONSERVATION FUND

16 USC 3911.

SEC. 201. SALE OF ADMISSION PERMIT AT CERTAIN REFUGE UNITS.

(a) SALE OF ADMISSION PERMITS.—(1) Notwithstanding the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-4 et seq.), in order to provide additional revenues for the conservation of wetland resources of the Nation and for the operation and maintenance of refuges—

(A) the Secretary of the Interior may, at units of the National Wildlife Refuge System designated by the Secretary under paragraph (2)—

(i) charge fees for admission permits;

(ii) sell Golden Eagle passports and Golden Age passports;

(iii) issue at no charge lifetime admission permits as authorized in section 4(a)(5) of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-4—460l-11);

(B) the amounts collected by the Secretary as a result of the activities described in subparagraph (A) shall be distributed as provided in subsection (c).

(2) The Secretary shall designate a unit of the National Wildlife Refuge System for purposes of this Act if the Secretary determines, with respect to such unit, that—

(A) The level of visitation for recreational purposes is high enough to justify the collection of fees for admission permits for economic reasons.

(B) There is a practical mechanism in existence for implementing and operating a system of collecting fees for admission permits.

(C) Imposition of a fee for admission permits is not likely to result in undue economic hardship for a significant number of visitors to the unit.

(b) EXCEPTIONS.—(1) The Secretary may not require an admission permit under subsection (a)(1) for entry by a person into a designated unit if such person is the holder of—

(A) a valid migratory bird hunting and conservation stamp issued under section 2 of the Act of March 16, 1934 (16 U.S.C. 718b) (commonly known as the Duck Stamp Act);

(B) a valid Golden Eagle Passport issued under section 4(a)(1) of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-6a(a)(1));

(C) a valid Golden Age Passport issued under section 4(a)(4) of such Act; or

(D) a valid lifetime admission permit as authorized in section 4(a)(5) of such Act.

(2) Permits for a single visit to any designated unit shall be made available by the Secretary of the Interior for a reasonable fee, but not to exceed $3 for individuals or $7.50 per vehicle. For purposes of this subsection, the term "single visit" means a more or less continuous stay within a designated unit by a person or group described in subsection (d). Payment of a single visit fee and issuance of a single visit permit shall authorize exits from and re-entries to a single designated unit for a period of from one to fifteen days. Such period shall be defined for each designated unit by the Secretary based upon a determination of the period of time reasonably and ordinarily necessary for such a single visit.

(3) Special admission permits for uses such as group activities may be issued in accordance with procedures and at fees established by the Secretary.

(4) A person may not be required to purchase an admission permit under subsection (a)(1) in order to travel by private noncommercial vehicle over any road or highway—

(A)(i) established as part of the National Federal Aid System (as defined in section 101 of title 23, United States Code); and

(ii) commonly used by the public as a means of travel between two places which are outside the designated unit; or

(B) to any land in which such person has a property interest if such land is within any designated unit.

(5) A person may not be required to purchase an admission permit under subsection (a)(1) for entrance or admission to a unit of the National Wildlife Refuge System created, expanded, or modified by Public Law 96-487.

16 USC 3101 note.

(c) DISTRIBUTION OF AMOUNTS COLLECTED.—Amounts collected from the sale of admission permits under this section and from fees collected at any unit of the National Wildlife Refuge System under subsections (b) and (c) of section 4 of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-6a (b), (c)) shall be distributed as follows:

(A) Thirty per centum shall be available to the Secretary of the Interior until expended. The Secretary shall use such amount—

(i) first, to defray the cost of collection;

(ii) next, for operation and maintenance of the collecting unit; and

(iii) next, for operation and maintenance of all units within the National Wildlife Refuge System, except those units created, expanded, or modified by Public Law 96-487.

(B) Seventy percent shall be deposited into the migratory bird conservation fund established under section 4 of the Act of March 16, 1934 (16 U.S.C. 718d).

(d) PERSONS ACCOMPANYING PERMITTEES.—A person who holds a stamp, passport, or permit described in subsection (b) shall be entitled to general entrance into any designated unit, along with—

(1) any persons accompanying such person in a single, private, noncommercial vehicle; or

(2) where entry to the area is by any means other than single, private, noncommercial vehicle, the person and any accompanying spouse, children, or parents.

(e) RESTRICTIONS.—A permit issued under this section is nontransferable. Such a permit may not authorize any uses for

which fees are charged under the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-4 et seq.).

(f) ESTABLISHMENT OF FEES; POSTING OF NOTICES.—(1) All fees established pursuant to this section shall be fair and equitable. In establishing such fees, the Secretary shall consider the following:

(A) The direct and indirect cost to the Government.

(B) The benefits to the permit holder.

(C) The public policy or interest served.

(D) The comparable fees charged by non-Federal public agencies.

(E) The economic and administrative feasibility of fee collection and other pertinent factors.

(2) The Secretary shall require that notice that a fee has been established under this section—

(A) be prominently posted at each designated unit and at appropriate locations in each such unit; and

(B) to the extent practicable, be included in publications distributed at such units.

(g) VOLUNTEERS.—The Director of the United States Fish and Wildlife Service may accept services of volunteers to sell admission permits under this section or to sell Golden Eagle and Golden Age Passports or Migratory Bird Hunting and Conservation Stamps. The Director may use funds appropriated or otherwise made available to the Service to cover the cost of any surety bond that may be required of a volunteer performing the services authorized under this subsection.

SEC. 202. PRICE OF MIGRATORY BIRD HUNTING AND CONSERVATION STAMP.

16 USC 718b.

Section 2(b) of the Act of March 16, 1934 (16 U.S.C. 718(b)), is amended in the first sentence—

(1) by striking out "$7.50" and inserting in lieu thereof "$10.00";

(2) by striking out "any hunting year" and inserting in lieu thereof "hunting years 1987 and 1988, $12.50 for hunting years 1989 and 1990, and $15.00 for each hunting year thereafter,"; and

(3) by inserting "available for obligation and" before "attributable".

16 USC 3912.

SEC. 203. TRANSFERS TO MIGRATORY BIRD CONSERVATION FUND.

Notwithstandi[illegible]ther provision of law, an amount equal to the amo[illegible]mport duties collected on arms and ammunition, [illegible] subpart A of part 5 of schedule 7 of the Tariff [illegible] of the United States, shall, beginning with the next fiscal year quarter after the date of enactment of this Act, be paid quarterly into the migratory bird conservation fund established under section 4 of [illegible] Act of March 16, 1934 (16 U.S.C. 718d).

19 USC 1202

[illegible]ATE AND FEDERAL WETLAND ACQUISITION

16 USC 3921. State and local governments.

SEC. 301. NATIONAL WETLANDS PRIORITY CONSERVATION PLAN.

(a) IN GENERAL.—The Secretary shall establish, and periodically review and revise, a national wetlands priority conservation plan which shall specify, on a region-by-region basis or other basis considered appropriate by the Secretary, the types of wetlands and interests in wetlands which should be given priority with respect to Federal and State acquisition.

(b) CONSULTATION.—The Secretary shall establish the plan required by subsection (a) after consultation with—

(1) the Administrator of the Environmental Protection Agency;

(2) the Secretary of Commerce;

(3) the Secretary of Agriculture; and

(4) (the chief executive officer of) each State. State and local governments.

(c) FACTORS TO BE CONSIDERED.—The Secretary, in establishing the plan required by subsection (a), shall consider—

(1) the estimated proportion remaining of the respective types of wetlands which existed at the time of European settlement;

(2) the estimated current rate of loss and the threat of future losses of the respective types of wetlands; and

(3) the contributions of the respective types of wetlands to—

(A) wildlife, including endangered and threatened species, migratory birds, and resident species;

(B) commercial and sport fisheries; Fish and fishing Water.

(C) surface and ground water quality and quantity, and flood control; Flood control.

(D) outdoor recreation; and

(E) other areas or concerns the Secretary considers appropriate.

SEC. 302. REMOVAL OF RESTRICTION ON ACQUISITION.

Section 7(a)(1) of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-9(a)(1)) is amended by striking out "national wildlife refuge areas under section 7(a)(5) of the Fish and Wildlife Act of 1956 (16 U.S.C. 742f(5)) except migratory waterfowl areas which are authorized to be acquired by the Migratory Bird Conservation Act of 1929, as amended (16 U.S.C. 715-715s)" and inserting in lieu thereof "national wildlife refuge areas under section 7(a)(4) of the Fish and Wildlife Act of 1956 (16 U.S.C. 742f(a)(4)) and wetlands acquired under section 304 of the Emergency Wetlands Resources Act of 1986".

SEC. 303. INCLUSION OF WETLANDS IN COMPREHENSIVE STATEWIDE OUTDOOR RECREATION PLANS.

Section 6 of the Land and Water Conservation Fund Act of 1965 (16 U.S.C. 460l-8) is amended—

(1) in subsection (d), by adding at the end thereof the following new paragraph:

"For fiscal year 1988 and thereafter each comprehensive statewide outdoor recreation plan shall specifically address wetlands within that State as an important outdoor recreation resource as a prerequisite to approval, except that a revised comprehensive statewide outdoor recreation plan shall not be required by the Secretary, if a State submits, and the Secretary, acting through the Director of the National Park Service, approves, as a part of and as an addendum to the existing comprehensive statewide outdoor recreation plan, a wetlands priority plan developed in consultation with the State agency with responsibility for fish and wildlife resources and consistent with the national wetlands priority conservation plan developed under section 301 of the Emergency Wetlands Resources Act or, if such national plan has not been completed, consistent with the provisions of that section";

(2) in subsection (e)(1), by inserting, in the first sentence thereof, after "For the acquisition of land, waters, or interests in land or waters" the following: ", or wetland areas and interests therein as identified in the wetlands provisions of the comprehensive plan"; and

(3) in subsection (f)(3), by adding at the end thereof the following: ": *Provided*, That wetland areas and interests therein as identified in the wetlands provisions of the comprehensive plan and proposed to be acquired as suitable replacement property within that same State that is otherwise acceptable to the Secretary, acting through the Director of the National Park Service, shall be considered to be of reasonably equivalent usefulness with the property proposed for conversion.".

SEC. 304. FEDERAL ACQUISITION.

16 USC 3922.

The Secretary is authorized to purchase wetlands or interests in wetlands, which are not acquired under the authority of the Migratory Bird Conservation Act of 1929 (16 U.S.C. 715-715s), consistent with the wetlands priority conservation plan established under section 301.

16 USC 3923.

Farms and farming.

SEC. 305. RESTRICTION ON USE OF EMINENT DOMAIN IN ACQUISITIONS.

The powers of condemnation or eminent domain shall not be used in the acquisition of wetlands under any provision of this Act where such wetlands have been constructed for the purpose of farming or ranching, or result from conservation activities associated with farming or ranching.

TITLE IV—WETLANDS INVENTORY AND TREND ANALYSIS

SEC. 401. NATIONAL WETLANDS INVENTORY PROJECT.

16 USC 3931.

(a) IN GENERAL.—The Secretary, acting through the Director of the United States Fish and Wildlife Service, shall continue the National Wetlands Inventory Project and shall—

(1) produce, by September 30, 1988, National Wetlands Inventory maps for the areas that have been identified by the Service as top priorities for mapping, including—

(A) the entire coastal zone of the United States;

(B) floodplains of major rivers; and

(C) the Prairie Pothole region;

(2) produce, by September 30, 1998, National Wetlands Inventory maps for those portions of the contiguous United States for which final maps have not been produced earlier;

Alaska.

(3) produce, as soon as practicable, National Wetlands Inventory maps for Alaska and other noncontiguous portions of the United States; and

Reports.

(4) produce, by September 30, 1990, and at ten-year intervals thereafter, reports to update and improve the information contained in the report dated September 1982 and entitled "Status and Trends of Wetlands and Deepwater Habitat in the Coterminous United States, 1950's to 1970's".

State and local governments.

(b) NOTICE.—The Secretary shall notify the appropriate State and local units of government at such time as he proposes to begin map preparation under subsection (a) in an area. Such notice shall include, but is not limited to, the identification of the area to be mapped, the proposed schedule for completion, and the identification of a source for further information.

SEC. 402. REPORTS TO CONGRESS.

16 USC 3932

(a) IN GENERAL.—The Secretary, in consultation and cooperation with the Secretary of Agriculture, shall prepare and submit to the committees—

(1) by March 30, 1987, a report regarding the status, condition, and trends of wetlands in the lower Mississippi alluvial plain and the prairie pothole regions of the United States; and

(2) by September 30, 1987, a report regarding trends of wetlands in all other areas of the United States.

(b) CONTENTS OF REPORTS.—The reports required under subsection (a) shall contain—

(1) an analysis of the factors responsible for wetlands destruction, degradation, protection and enhancement;

(2) a compilation and analysis of Federal statutory and regulatory mechanisms, including expenditures, financial assistance, and tax provisions which— Taxes.

(A) induce wetlands destruction or degradation; or

(B) protect or enhance wetlands;

(3) a compilation and analysis of Federal expenditures resulting from wetlands destruction, degradation, protection or enhancement;

(4) an analysis of public and private patterns of ownership of wetlands;

(5) an analysis of the environmental and economic impact of eliminating or restricting future Federal expenditures and financial assistance, whether direct or indirect, which have the effect of encouraging the destruction, degradation, protection or enhancement of wetlands, including—

(A) public works expenditures;

(B) assistance programs such as price support programs, commodity loans and purchase programs and disaster assistance programs; Loans.

(C) soil conservation programs; and

(D) certain income tax provisions; Taxes.

(6) an analysis of the environmental and economic impact of failure to restrict future Federal expenditures, financial assistance, and tax provisions which have the effect of encouraging the destruction, degradation, protection or enhancement of wetlands, including— Taxes.

(A) assistance for normal silviculture activity (such as plowing, seeding, planting, cultivating, minor drainage, or harvesting for the production of fiber or forest products); Agriculture and agricultural commodities. Forests and forest products.

(B) Federal expenditures required incident to studies, evaluations, design, construction, operation, maintenance, or rehabilitation of Federal water resource development activities, including channel improvements;

(C) the commodity loans and purchases program and cotton, feed grain, wheat, and rice production stabilization programs administered by the Department of Agriculture; and Loans. Agriculture and agricultural commodities.

(D) Federal expenditures for the construction of publicly owned or publicly operated highways, roads, structures, or facilities that are essential links in a larger network or system; and Highways.

(7) recommendations for the conservation of wetlands resources based on an evaluation and comparison of all manage- State and local governments.

ment alternatives, and combinations of management alternatives, such as State and local actions, Federal actions, and initiatives by private organizations and individuals.

TITLE V—MISCELLANEOUS PROVISIONS

16 USC 668dd note.

SEC. 501. MIGRATORY BIRD TREATY ACT.

Section 6(b) of the Act of July 3, 1918 (16 U.S.C. 707(b)) is amended by deleting "shall" the first place it appears therein and by inserting in lieu thereof "shall knowingly".

SEC. 502. BAYOU SAUVAGE URBAN NATIONAL WILDLIFE REFUGE.

(a) PURPOSES OF REFUGE.—The purposes of the Bayou Sauvage Urban National Wildlife Refuge are—

(1) to enhance the populations of migratory, shore, and wading birds within the refuge;

(2) to encourage natural diversity of fish and wildlife species within the refuge;

(3) to protect the endangered and threatened species and otherwise to provide for the conservation and management of fish and wildlife within the refuge;

(4) to fulfill the international treaty obligations of the United States respecting fish and wildlife;

(5) to protect the archeological resources of the refuge;

(6) to provide opportunities for scientific research and environmental education, with emphasis being given to the ecological and other values of wetlands; and

(7) to provide opportunities for fish and wildlife oriented public uses and recreation in an urban setting.

(b) ACQUISITION AND ESTABLISHMENT OF REFUGE.—

Louisiana.

(1) ACQUISITION.—Within four years after the effective date of this section the Secretary of the Interior (hereinafter in this Act referred to as the "Secretary") shall acquire the approximately nineteen thousand acres of lands and waters, and interests therein, located in Orleans Parish, Louisiana, that are depicted on the map entitled "Bayou Sauvage Urban National Wildlife Refuge", dated September 15, 1986, and on file at the United States Fish and Wildlife Service, Department of the Interior. The lands and waters, and interests therein, acquired under this paragraph comprise the Bayou Sauvage Urban National Wildlife Refuge. The acquisition shall be made through donation, purchase with donated or appropriated funds, or exchange, or through any combination of the foregoing.

Federal Register, publication.

(2) ESTABLISHMENT.—At such time as sufficient lands and waters, and interests therein, have been acquired under paragraph (1) to constitute an initial area that can be administered to carry out the purposes set forth in subsection (a), the Secretary shall establish the Bayou Sauvage Urban National Wildlife Refuge by publication of notice to that effect in the Federal Register.

(3) BOUNDARY ADJUSTMENTS.—The Secretary may make such adjustments with respect to the boundary of the Bayou Sauvage Urban National Wildlife Refuge as may be necessary to facilitate the acquisition of lands and waters, and interests therein, for the refuge and to facilitate the administration of the refuge.

(c) ADMINISTRATION OF REFUGE.—The Secretary shall administer all lands and waters, and interests therein, acquired under subsection (b) in accordance with the provisions of the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee) to carry out the purposes set forth in subsection (a). The Secretary may utilize such additional statutory authority as may be available to him for the conservation and development of wildlife and natural resources, the development of outdoor recreation opportunities, and interpretive environmental education as he considers appropriate to carry out such purposes. Within two years after the effective date of this section, the Secretary shall complete a master plan for the development of the Bayou Sauvage Urban National Wildlife Refuge.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Department of the Interior—

(1) from funds not otherwise appropriated from the Land and Water Conservation Fund, such sums as may be necessary for the acquisition of lands and waters, and interests therein, for the Bayou Sauvage Urban National Wildlife Refuge; and

(2) $5,000,000 for the development of the refuge.

The moneys appropriated under subparagraphs (1) and (2) shall remain available until expended.

(e) EFFECTIVE DATE.—This section takes effect on the later of the date of enactment of this Act or October 1, 1986.

Approved November 10, 1986.

LEGISLATIVE HISTORY—S. 740 (H.R. 1203):

HOUSE REPORTS: No. 99-86, Pt. 1 accompanying H.R. 1203 (Comm. on Merchant Marine and Fisheries).
SENATE REPORTS: No. 99-445 (Comm. on Environment and Public Works).
CONGRESSIONAL RECORD, Vol. 132 (1986):
Oct. 3, considered and passed Senate.
Oct. 14, considered and passed House.

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APPENDIX B. Agencies and Organizations Reviewing The Nebraska Wetlands Priority Plan

Federal

- U.S. Army Corps of Engineers
- U.S. Department of Agriculture
  - Agricultural Stabilization & Conservation Service
  - Soil Conservation Service
- U.S. Department of the Interior
  - Fish & Wildlife Service
  - National Disease Health Laboratory
  - National Park Service
- U.S. Department of Transportation
- U.S. Environmental Protection Agency

State

- Governor's Policy Research Office
- Nebr. Department of Agriculture
- Nebr. Department of Environmental Control
- Nebr. Department of Roads
- Nebr. Department of Water Resources
- Nebr. Natural Resources Commission
- So. Dakota Cooperative Wildlife Research Unit
- University of Nebraska, Lincoln
  - Conservation & Survey Division
  - Cooperative Extension Service
  - Forestry, Fisheries & Wildlife
  - Water Center

Natural Resources Districts

- Little Blue NRD
- Lower Big Blue NRD
- Lower Platte North NRD
- Lower Republican NRD
- Tri-Basin NRD
- Upper Big Blue NRD

Private Organizations

- American Fisheries Society, Nebr. Chapter
- Farmers Union of Nebraska
- National Audubon Society
- National Wildlife Federation
- Nebraska Association of Natural Resources Districts
- Nebraska Audubon Council
- Nebraska Cattlemen
- Nebraska Council of Sportsmen's Clubs
- Nebraska Farm Bureau Federation
- Nebraska Forage and Grassland Council
- Nebraska Game and Parks Foundation
- Nebraska Ornithologists Union
- Nebraska Public Power District
- Nebraska Stock Growers Association
- Nebraska Wildlife Federation
- North American Crane Working Group
- Platte River Whooping Crane Habitat Maint. Trust
- Sierra Club
- Society for Range Management
- Soil and Water Conservation Society
- The Nature Conservancy
- The Wildlife Society, Nebr. Chapter
- Wildlife Management Institute

Elected Officials

- Senator J. James Exon
- Senator Bob Kerrey
- Congressman Douglas Bereuter
- Congressman Peter Hoagland
- Congressman William Barrett
- Governor Ben Nelson
- State Senator George Coordsen
- State Senator W. Owen Elmer
- State Senator Rod Johnson
- State Senator Doug Kristensen
- State Senator Scott Moore
- State Senator Loran Schmit
- State Senator Jacklyn Smith

APPENDIX C. Criteria For Identifying Wetlands Of International Importance And Guidelines On Their Use

As Revised at the Third Meeting of the Conference of the Contracting Parties

27 May to 5 June 1987

Regina, Saskatchewan, Canada

A wetland is suitable for inclusion in the List if it meets any one of the criteria set out below:

1. Criteria for assessing the value of representative or unique wetlands.

   A wetland should be considered internationally important if it is a particularly good example of a specific type of wetland characteristic of its region.

2. General criteria for using plants or animals to identify wetlands of importance.

   A wetland should be considered internationally important if:

   (a) it supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant or animal, or an appreciable number of individuals of any one or more of these species; or

   (b) it is of special value for maintaining the genetic and ecological diversity of a region because of the quality and peculiarities of its flora and fauna; or

   (c) it is of special value as the habitat of plants or animals at a critical stage of their biological cycles; or

   (d) it is of special value for its endemic plant or animal species or communities.

3. Specific criteria for using waterfowl to identify wetlands of importance.

   A wetland should be considered internationally important if:

   (a) it regularly supports 20,000 waterfowl; or

   (b) it regularly supports substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity or diversity; or

   (c) where data on populations are available, it regularly supports 1% of the individuals in a population of one species or subspecies of waterfowl.

Guidelines

A wetland could be considered for selection under Criterion 1 if:

(a) It is an example of a Type rare or unusual in the appropriate biogeographical region; or

(b) it is a particularly good representative example of a wetland characteristic of the appropriate region; or

(c) it is a particularly good representative of a common Type where the site also qualifies for consideration under criteria 2a, 2b, or 2c; or

(d) it is representative of a Type by virtue of being part of a complex of high quality wetland habitats. A wetland of national value could be considered of international importance if it has a substantial hydrological, biological or ecological role in the functioning of an international river basin or coastal system; or

(e) in developing countries, it is a wetland which, because of its outstanding hydrological, biological or ecological role, is of substantial socioeconomic and cultural value within the framework of sustainable use and habitat conservation.

Source: USFWS, 1989. National Wetlands Priority Conservation Plan

APPENDIX D. RAINWATER BASIN WETLANDS ELIGIBLE FOR LWCF ACQUISITION

May 1991

The U.S. Fish and Wildlife Service Regional Wetland Concept Plan estimates that 30,000 acres of Rainwater Basin wetlands meet eligibility criteria for LWCF acquisition. **Wetland sites listed below are intended to serve as examples of Rainwater Basin wetlands that meet the criteria for wetland protection.** Unlisted wetlands that have wetland functions and values similar to those listed below also qualify for wetland protection. The following wetland sites are presented in county alphabetical order for organization purposes only and are not intended to represent a rank or order of priority.

Fragmentation due to multiple owners dictates that the highest priority be placed on wetlands that can be acquired in their entirety or roundouts of partially owned wetlands that would achieve total ownership for management purposes. One exception would occur when the threat of wetland destruction or degradation is eminent. If entire wetlands are not available and wetland tracts are not under immediate threat, then the protection of partial wetland tracts by willing landowners is considered a high priority. This list should be considered a dynamic working file that will be updated periodically as information becomes available.

The identification number assigned to each wetland represents the number assigned by the Nebraska Game and Parks Commission during wetland surveys in the early 1960s. The legal description provided for each wetland is intended to serve only as a site location reference rather than the definitive area to be protected. The hydric soil area is presented to give the reader a perspective of the historic size of the basin. Due to land use modifications, the actual size of the wetland usually approaches one half the area of hydric soils. All Rainwater Basin wetlands are considered to be freshwater sites.

Adams County

Adams 2
Legal - NW¼, W½ NE¼, NW¼ SE¼, NE¼ SW¼ Sec. 6, T-6-N, R-11-W and SE¼ SW¼ Sec. 31, T-7-N, R-11-W
Hydric soils - 85 acres

Adams 3
Legal - SW¼ and S½ S½ NW¼ Sec. 2, T-7-N, R-12-W
Hydric soils - 122 acres

Adams 7
Legal - S½ Sec. 15, SE¼ Sec. 16, NE¼ Sec. 21, N½ NW¼ Sec. 22, T-8-N, R-10-W
Hydric soils - 356 acres

Adams 9
Legal - S½, S½ NE¼, SE¼ NW¼ Sec. 33, NW¼ SW¼ and SW¼ NW¼ Sec. 34, T-7-N, R-9-W and N½ N½ NW¼ Sec. 4, T-6-N, R-9-W
Hydric soils - 305 acres

Butler County

Butler 15
Legal - NE¼ Sec. 1, T-14-N, R-2-E, W½ NW¼ Sec. 6, T-14-N, R-3-E
Hydric soils - 95 acres

Clay County

Clay 1
Legal - E½ Sec. 16, W½ Sec. 15, T-8-N, R-7-W
Hydric soils - 190 acres

Clay 5
Legal - SE¼ Sec. 19, SW¼ Sec. 20, NW¼ NW Sec. 29, NE¼ and E½ NW¼ Sec. 30, T-8-N, R-6-W
Hydric soils - 260 acres

Clay 20
Legal - SE¼ and SE¼ NE¼ Sec. 20, S½ NW¼, N½ SW¼ Sec. 21, T-6-N, R-6-W
Hydric soils - 40 acres

Clay 22 - Blue Wing WMA roundout
Legal - S½ NW¼ and SW¼ Sec. 29, N½ S½ Sec. 30, N½ NE¼ and NW¼ Sec. 31, T-5-N, R-6-W
Hydric soils - 292 acres total

Clay 23
Legal - S½ SE¼ Sec. 20, N½ NE¼ Sec. 29, T-5-N, R-6-W
Hydric soils - 76 acres

Clay 24
Legal - S½ NW¼, SW¼ NE¼, NW¼ SE¼, and N½ SW¼ Sec. 30, T-6-N, R-6-W
Hydric soils - 59 acres

Clay 32
Legal - N½ Sec. 23, T-6-N, R-6-W
Hydric soils - 79 acres

Clay 33
Legal - SW¼ NW¼ and NW¼ SW¼ Sec. 25, SE¼ NE¼ and NE¼ SE¼ Sec. 26, T-6-N, R-6-W
Hydric soils - 38 acres

Clay 34
Legal - NE¼ Sec. 35, SW¼ NW¼ Sec. 36, T-6-N, R-6-W
Hydric soils - 45 acres

Clay 35 - Greenhead WMA roundout
Legal - SW¼ NE¼ and NW¼ SE¼ Sec. 36, T-6-N, R-6-W; SW¼ NW¼ and NW¼ SW¼ Sec. 31, T-6-N, R-5-W
Hydric soils - 90 acres total

Clay 38
Legal - SE¼ SW¼ Sec. 20, NE¼ NW¼ Sec. 29, T-6-N, R-6-W
Hydric soils - 25 acres

Clay 39
Legal - N½ SE¼ Sec. 21, T-6-N, R-6-W
Hydric soils - 10 acres

Clay 50
Legal - W½ SE¼ and E½ SW¼ Sec. 1, T-5-N, R-6-W
Hydric soils - 54 acres

Clay 70
Legal - NE¼ SW¼, N½ SE¼, S½ S½ NE¼ Sec. 22, T-7-N, R-5-W
Hydric soils - 87 acres

Clay 74
Legal - E½ NW¼, NE¼ SW¼, NW¼ SE¼ and NE¼ Sec. 14, T-6-N, R-5-W
Hydric soils - 137 acres

Clay 75
Legal - S½ N½, NW¼ SE¼ and SW¼ Sec. 25, T-6-N, R-5-W
Hydric soils - 140 acres

Clay 77
Legal - SE¼ Sec. 25, NW¼ NE¼ Sec. 36, T-6-N, R-5-W and W½ SW¼ Sec. 30, T-6-N, R-4-W
Hydric soils - 76 acres

Clay 78
Legal - SE¼ Sec. 24, N½ NE¼ Sec. 25, T-6-N, R-5-W
Hydric soils - 138 acres

Clay 79
Legal - S½ SE¼ Sec. 13, N½ NE¼ and NE¼ NW¼ Sec. 24, T-6-N, R-5-W
Hydric soils - 62 acres

Clay 80
Legal - SW¼ Sec. 13, SE¼ SE¼ Sec. 14, NW¼ NW¼ Sec. 24, T-6-N, R-5-W
Hydric soils - 88 acres

Clay 95 - Green Wing WMA roundout
Legal - S½ SE¼, E½ SW¼, SE¼ NE¼ Sec. 36, T-6-N, R-5-W and S½ NW¼, NW¼ SW¼ Sec. 31, T-6-N, R-4-W
Hydric soils - 122 acres total

Clay 97
Legal - W½ NE¼, NW¼ SE¼, N½ SW¼, NW¼ Sec. 32, SE¼ NE¼ and NE¼ SE¼ Sec. 31, T-6-N, R-5-W
Hydric soils - 152 acres

Clay 109
Legal - N½ SW¼ and NW¼ Sec. 5, N½ SE¼ and SE¼ NE¼ Sec. 6, T-5-N, R-5-W
Hydric soils - 158 acres

Clay 111
Legal - Sec. 34, T-6-N, R-7-W
Hydric soils - 237 acres

Clay 117
Legal - SE¼ Sec. 24, T-6-N, R-7-W and W½ SW¼ Sec. 19, T-6-N, R-6-W
Hydric soils - 56 acres

Clay 120- Bulrush WMA roundout
Legal - S½ NE¼ and NW¼ Sec. 23, NW¼ NW¼ Sec. 24, S½ SE¼ Sec. 14, T-5-N, R-7-W
Hydric soils - 154 acres total

Clay 151
Legal - W½ NW¼ Sec. 26, NE¼ Sec. 27, T-7-N, R-6-W
Hydric soils - 100 acres

Clay 156
Legal - S½ and S½ N½ Sec. 35, SW¼ NW¼ and NW¼ SW¼ Sec.36, T-8-N, R-6-W and N½ N½ Sec. 2, T-7-N, R-6-W
Hydric soils - 355 acres

Clay 157
Legal - SW¼ SE¼ and SW¼ Sec. 26, SE¼ Sec. 27, T-8-N, R-6-W
Hydric soils - 161 acres

Fillmore County

Fillmore 3
Legal - N½ and N½ SW¼ Sec. 34, T-5-N, R-4-W
Hydric soils - 102 acres

Fillmore 4
Legal - Sec. 5, T-5-N, R-4-W
Hydric soils - 176 acres

Fillmore 5
Legal - S½ Sec. 31, SW¼ SW¼ Sec. 32, T-6-N, R-4-W and N½ Sec. 6, NW¼ NW¼ Sec. 5, T-5-N, R-4-W
Hydric soils - 384 acres

Fillmore 7
Legal - S½ N½, NW¼ SE¼, SW¼ Sec. 13, T-5-N, R-4-W
Hydric soils - 164 acres

Fillmore 11
Legal - S½ Sec. 22, NW¼ Sec. 27, T-6-N, R-4-W
Hydric soils - 109 acres

Fillmore 16
Legal - SE¼ Sec. 21, NE¼ Sec. 28, T-6-N, R-4-W
Hydric soils - 73 acres

Fillmore 21- Sandpiper WMA roundout
Legal - E½ SW¼ Sec. 12, T-6-N, R-4-W
Hydric soils - 96 acres total

Fillmore 24
Legal - S½ NW¼, W½ SE¼, SW¼ Sec. 18, N½ NW¼ Sec. 19, T-6-N, R-3-W and E½ SE¼ Sec. 13, NE¼ NE¼ Sec. 24, T-6-N, R-4-W
Hydric soils - 214 acres

Fillmore 49
Legal - N½ SW¼, NW¼ SE¼, SW¼ NE¼, NW¼ Sec. 8, T-6-N, R-2-W
Hydric soils - 57 acres

Fillmore 56
Legal - S½ S½ Sec. 24, N½ Sec. 25, T-8-N, R-4-W
Hydric soils - 160 acres

Fillmore 66- Bluebill WMA roundout
Legal - SE¼ SW¼ Sec. 19, T-8-N, R-3-W
Hydric soils - 62 acres total

Fillmore 82
Legal - Sec. 1, S½ NE¼ and SE¼ Sec. 2, NW¼ Sec. 11, T-7-N, R-4-W
Hydric soils - 206 acres

Fillmore 85
Legal - W½ NW¼ Sec. 4, NE¼ Sec. 5, T-7-N, R-4-W
Hydric soils - 69 acres

Fillmore 86
Legal - SE¼ Sec. 5, T-7-N, R-4-W
Hydric soils - 73 acres

Fillmore 91
Legal - SE¼ and E½ SW¼ Sec. 21, W½ SW¼ Sec. 22, N½ N½ NE¼ Sec. 28, T-5-N, R-3-W
Hydric soils - 186 acres

Fillmore 93
Legal - E½ SW¼, W½ SE¼ Sec. 11, T-8-N, R-3-W
Hydric soils - 27 acres

Gosper County

Gosper 18
Legal - W½ SE¼ and E½ SW¼ Sec. 15, T-8-N, R-22-W
Hydric soils - 24 acres

Gosper 19
Legal - E½ NW¼ and SW¼ NE¼ Sec. 15, T-8-N, R-22-W
Hydric soils - 22 acres

Hamilton County

Hamilton 1 - Pintail WMA roundout
Legal - S½ S½ N½ and SE¼ Sec. 36, SE¼ SE¼ Sec. 35, T-10-N, R-6-W and NW¼ NE¼, N½ SW¼ Sec. 1, S½ NE¼, NE¼ SE¼ Sec. 2, T-9-N, R-6-W
Hydric soils - 416 acres total

Hamilton 6
Legal - S½ Sec. 10 and N½ N½ Sec. 15, T-10-N, R-8-W
Hydric soils - 196 acres

Hamilton 16- Gadwall WMA roundout
Legal - S½ NE¼ NE¼, S½ NW¼ NE¼, SW¼ NE¼, N½ SE¼ Sec. 7, E½ NW¼ and NW¼ SW¼ Sec. 8, T-11-N, R-6-W
Hydric soils - 166 acres total

Kearney County

Kearney 3
Legal - E½ NW¼, NE¼ SW¼, NW¼ SE¼, NE¼ Sec. 16, W½ NW¼ Sec. 15, T-6-N, R-16-W
Hydric soils - 176 acres

Kearney 4
Legal - S½ SW¼ Sec. 5, SE¼ SE¼ Sec. 6, NE¼ NE¼ Sec. 7, N½ NW¼ Sec 8, T-6-N, R-16-W
Hydric soils - 74 acres

Kearney 30
Legal - NW¼ and W½ NE¼ Sec. 13, T-5-N, R-16-W
Hydric soils - 98 acres

Nuckolls County

Nuckolls 1
Legal - SE¼ NW¼, S½ NE¼, E½ SW¼, SE¼ Sec. 6, T-4-N, R-6-W
Hydric soils - 78 acres

Nuckolls 2- Smartweed Marsh WMA roundout
Legal - SE¼ SE¼ Sec. 5, W½ NE¼ Sec. 8, W½ NW¼ Sec. 9, T-4-N, R-6-W
Hydric soils - 82 acres total

Phelps County

Phelps 15
Legal - Sec. 3, SE¼ Sec. 4, NE¼ Sec. 9, Sec. 10, T-6-N, R-19-W
Hydric soils - 581 acres

Phelps 22
Legal - SE¼ NE¼, NE¼ SE¼ Sec. 19, N½ SW¼, S½ NW¼ Sec. 20, T-7-N, R-20-W
Hydric soils - 46 acres

Phelps 44
Legal - SW¼ NE¼, W½ SE¼, E½ SW¼ Sec. 33, T-7-N, R-17-W
Hydric soils - 50 acres

Seward County

Seward 2
Legal - N½ Sec. 32, SE¼ SW¼ and S½ SE¼ Sec. 29, NW¼ Sec. 33, T-11-N, R-2-E
Hydric soils - 358 acres

Seward 3
Legal - S½ S½ Sec. 22, N½ Sec. 27, T-11-N, R-1-E
Hydric soils - 264 acres

Seward 4
Legal - NW¼ Sec. 5, NE¼ Sec. 6, T-10-N, R-2-E
Hydric soils - 135 acres

Seward 5\11
Legal - Sec. 7, T-10-N, R-2-E
Hydric soils - 312 acres

Seward 6
Legal - SW¼ NW¼ Sec. 17, S½ NE¼ and N½ SE¼ Sec. 18, T-10-N, R-2-E
Hydric soils - 72 acres

Seward 57 - North Lake Basin WMA roundout
Legal - SE¼ Sec. 17, E½ SE¼ Sec. 18, E½ Sec. 19, NE¼ SW¼ and NE¼ Sec. 20, T-11-N, R-1-E
Hydric soils - 812 acres total

Thayer County

Thayer 1 - Prairie Marsh WMA roundout
Legal - S½ NW¼, SW¼ NE¼, W½ SE¼, SW¼ Sec. 1, S½ NE¼, SE¼ NW¼, NE¼ SW¼ Sec. 2, N½ NE¼ Sec. 11, N½ NW¼ Sec. 12, T-4-N, R-3-W
Hydric soils - 445 acres total

York County

York 1 - Kirkpatrick South WMA roundout
Legal - S½ N½ and NE¼ SE¼ Sec. 25, SE¼ NE¼ and W½ SE¼ Sec. 26, N½ NE¼ Sec. 35, N½ NW¼ Sec. 36, T-10-N, R-4-W
Hydric soils - 504 acres total

York 2 - Kirkpatrick North WMA roundout
Legal - N½ SE¼ and SE¼ SE¼ Sec. 16, NE¼ Sec. 20, NE¼ SE¼ Sec. 21, T-10-N, R-3-W
Hydric soils - 359 acres total

York 23
Legal - SW¼ Sec. 23, T-9-N, R-2-W
Hydric soils - 39 acres

York 25
Legal - NE¼ and E½ NW¼, Sec. 25, T-9-N, R-2-W
Hydric soils - 66 acres

York 27
Legal - SW¼ Sec. 26, T-9-N, R-2-W
Hydric soils - 36 acres

York 29
Legal - S½ NW¼ and N½ SW¼ Sec. 35, T-9-N, R-2-W
Hydric soils - 59 acres

York 50 - Spikerush WMA roundout
Legal - W½ NE¼, SE¼ NW¼, NE¼ SW¼, N½ S½ SE¼ Sec. 24, T-11-N, R-2-W and W½ NE¼, NW¼ SE¼, N½ SW¼ Sec. 19, T-11-N, R-1-W
Hydric soils - 465 acres total

York 58
Legal - S½ Sec. 12 and Sec. 13, T-11-N, R-1-W, S½ Sec. 7 and N½, SW¼, NW¼ SE¼, Sec. 18, T-11-N, R-1-E
Hydric soils - 819 acres

York 61
Legal - NW¼ and NW¼ SW¼ Sec. 1, W½ NE¼ and NE¼ SE¼ Sec. 2, T-12-N, R-3-W
Hydric soils - 83 acres

York 62
Legal - SE¼ Sec. 10, SW¼ Sec. 11, N½ NE¼ Sec. 15, T-12-N, R-3-W
Hydric soils - 182 acres

York 64
Legal - SW¼ SW¼ Sec. 17, S½ S½ S½ Sec. 18, NE¼ NW¼ and N½ NE¼ Sec. 19, T-12-N, R-3-W
Hydric soils - 86 acres

York 65 - Renquist Basin WMA roundout
Legal - S½ SE¼ Sec. 6, E½ NW¼ Sec. 7, T-12-N, R-3-W
Hydric soils - 142 acres total

York 66
Legal - S½ SE¼ Sec. 7, N½, NE¼ SW¼, NW¼ SE¼ Sec. 18, T-12-N, R-3-W
Hydric soils - 208 acres

York 67
Legal - S½ S½ SE¼ Sec. 13, N½ NE¼ Sec. 24, T-12-N, R-4-W
Hydric soils - 45 acres

York 68
Legal - NW¼ SW¼ and NW¼ Sec. 27, S½ NE¼, NE¼ SE¼, N½ SW¼, NW¼ Sec. 28, N½ SE¼ and NE¼ Sec. 29, T-12-N, R-4-W
Hydric soils - 349 acres

York 69
Legal - SE¼ NE¼ and NE¼ SE¼ Sec. 9, W½ NW¼ and NW¼ SW¼ Sec. 10, T-12-N, R-3-W
Hydric soils - 59 acres

York 73
Legal - SW¼ and S½ S½ NW¼ Sec. 2, SE¼ NE¼, E½ SE¼ Sec. 3, T-10-N, R-1-W
Hydric soils - 160 acres

York 74
Legal - S½ NE¼ and SE¼ Sec. 10, SW¼ NW¼ Sec. 11, T-10-N, R-1-W
Hydric soils - 131 acres

York 75
Legal - NE¼ Sec. 15, T-10-N, R-1-W
Hydric soils - 41 acres

York 79
Legal - Sec. 11, T-10-N, R-1-W
Hydric soils - 129 acres

York 116
Legal - S½ Sec. 27, SE¼ SE¼ Sec. 28, NE¼ NE¼ Sec. 33, N½ NW¼ Sec. 34, T-12-N, R-4-W
Hydric soils - 189 acres

RAINWATER BASIN PRIORITY RESTORATION LIST

Hundreds of destroyed or degraded wetlands exist in the Rainwater Basin area that have wetland restoration potential. The following sites are representative of those having the highest potential for wetland restoration with a minimum of developmental cost and with maximum contribution to an existing wetland complex. Wetland restoration feasibility will be determined using the wet-

land restoration hydrology model developed by the US Army Corps of Engineers. Efforts must focus on acquiring the entire hydric soil area of the basin to facilitate wetland restoration.

The hydric soil area is presented to give the reader a perspective of the historic size of the basin. Due to land use modifications, it is anticipated that the total wetland area when restored will be less then the total hydric soil area. The hydrology model is designed to calculate the restored wetlands size and water permanence.

Fillmore County

Miller's Pond
Legal - Sec. 23,24 T-5-N, R-4-W
Hydric soils - 350 acres
Degradation method - underground tile drain

unnamed
Legal - NE¼ Sec. 25 T-5-N, R-4-W
Hydric soils - 96 acres
Degradation method - underground tile drain

unnamed
Legal - NW¼ Sec. 25 T-5-N, R-4-W
Hydric soils - 39 acres
Degradation method - underground tile drain

unnamed
Legal - Sec. 2 T-6-N, R-2-W
Hydric soils - 108 acres
Degradation method - surface drain

unnamed
Legal - S½ Sec. 7 T-6-N, R-2-W
Hydric soils - 92 acres
Degradation method - surface drain

unnamed
Legal - SE¼ Sec. 33 T-7-N, R-2-W
Hydric soils - 76 acres
Degradation method - surface drain

unnamed
Legal - S½ Sec. 22 T-8-N, R-3-W
Hydric soils - 125 acres
Degradation method - surface drain

Hamilton County

unnamed
Legal - Sec. 7 T-9-N, R-5-W
Hydric soils - 328 acres
Degradation method - underground tile drain

unnamed
Legal - Sec. 31 and NW¼ Sec. 32 T-10-N, R-5-W
Hydric soils - 190 acres
Degradation method - underground tile drain

unnamed
Legal - Sec. 8,9,17 T-10-N, R-7-W
Hydric soils - 309 acres
Degradation method - underground tile drain

unnamed
Legal - S½ SW¼ Sec. 28, NE¼ Sec. 32, NW¼ Sec. 33, T-10-N, R-6-W
Hydric soils - 115 acres
Degradation method - underground tile drain

APPENDIX E. PLATTE RIVER-BIG BEND REACH WETLANDS ELIGIBLE FOR LWCF ACQUISITION

May 1991

The U.S. Fish and Wildlife Service Regional Wetland Concept Plan estimates that 25,000 acres of Platte River-Big Bend reach wetlands meet eligibility criteria for LWCF acquisition/protection. **Wetland sites listed below are intended to serve as examples of Platte River wetlands that meet this criteria.** Unlisted wetlands that have wetland functions and values similar to those listed below also qualify for wetland protection. The following wetland sites are presented in county alphabetical order for organization purposes only and are not intended to represent a rank or order of priority. This list should be considered a dynamic working file that will be updated periodically as information becomes available. The legal description provided for each wetland is intended to serve only as a site location reference rather than the definitive area to be protected. Platte River-Big Bend reach wetlands are freshwater sites made up of flowing river channel and wet meadow areas.

All Counties

Type - river channel
Legal - All main river channel within the Big Bend reach is suitable for acquisition. Open channel widths of 500 feet or greater would constitute good existing habitat for Sandhill cranes while all other open channel widths would have restoration potential.

Buffalo County

unnamed
Type - wet meadow
Legal - Sec. 3,4, N½ Sec. 9, NW¼ Sec. 10, T-8-N, R-13-W

Dawson County

Jeffreys Island
Type - wet meadow restoration site
Legal - S½ Sec. 3, S½ Sec. 4, S½ Sec. 5, S½ Sec. 6, N½ Sec. 8, N½ Sec. 9, N½ Sec. 10, T-8-N, R-20-W

Hall County

unnamed
Type - wet meadow
Legal - S½ Sec. 17, T-9-N, R-11-W

unnamed
Type - wet meadow
Legal - S½ Sec. 19, T-9-N, R-11-W and SE¼ Sec. 24, T-9-N, R-12-W

APPENDIX F. SANDHILL WETLANDS ELIGIBLE FOR LWCF ACQUISITION

May 1991

The U.S. Fish and Wildlife Service Regional Wetland Concept Plan estimates that 94,500 acres of Sandhill wetlands meet eligibility criteria for LWCF acquisition/protection. **Wetland sites listed below are intended to serve as examples of Sandhill wetlands that meet this criteria.** Unlisted wetlands that have wetland functions and values similar to those listed below also qualify for wetland protection. The following wetland sites are presented in county alphabetical order for organization purposes only and are not intended to represent a rank or order of priority. This list should be considered a dynamic working file that will be updated periodically as information becomes available. The legal description provided for each wetland is intended to serve only as a site location reference rather than the definitive area to be protected. Sandhill wetlands can be freshwater, alkaline or fen sites.

Brown County

Moon Lake
Type - freshwater
Legal - SE¼ Sec. 20, S½ Sec. 21, N½ Sec. 27 and N½ Sec. 28, T-28-N, R-24-W

Clapper Marsh
Type - freshwater
Legal - S½ Sec. 2, N½ Sec. 11, W½ Sec. 12, T-27-N, R-24-W

Rat Lake
Type - freshwater
Legal - Sec. 28, T-27-N, R-24-W

Chain Lakes
Type - freshwater
Legal - SE¼ Sec. 1, NE¼NE¼ Sec. 12 T-26-N, R-24-W and SW¼SW¼ Sec. 5, S½S½ Sec. 6, N½N½ Sec. 7, NW¼ Sec. 8, T-26-N, R-23-W

Cherry County

Twin Clam Lake
Type - freshwater
Legal - E½ Sec. 33, Sec. 34, T-29-N, R-37-W

Goose Lake
Type - freshwater
Legal - Sec. 36, T-29-N, R-37-W

Wolf Lake
Type - freshwater
Legal - SW¼ Sec. 32, T-29-N, R-35-W

unnamed
Type - freshwater
Legal - SE¼ Sec. 34, SW¼ Sec. 35, T-29-N, R-36-W

unnamed
Type - freshwater
Legal - SW¼ Sec. 19, NW¼ Sec. 30, T-28-N, R-37-W and SE¼ Sec. 24, NE¼ Sec. 25, T-28-N, R-38 W

unnamed restoration site
Type - freshwater
Legal - SW¼ Sec. 21, NW¼ Sec.28, NE¼ Sec.29, T-29-N, R-38-W

unnamed restoration site
Type - freshwater
Legal - S½ Sec. 9, SW¼ Sec. 10, NW¼ Sec.15, N½ Sec. 16, T-28-N, R-37-W

unnamed restoration site
Type - freshwater
Legal - N½ Sec. 9, T-28-N, R-36-W

unnamed restoration site
Type - freshwater
Legal - Sec. 16, T-28-N, R-36-W

Minnechaduza Creek fen
Type - fen
Legal - Sec. 21, T-35-N, R-32-W

Big Creek fen
Type - fen
Legal - Sec. 2, T-27-N, R-32-W

Boardman Creek fen
Type - fen
Legal - Sec. 32, T-30-N, W-31-W

Garden County

Stockholm Lake and Roland Lake
Type - alkaline
Legal - E½ Sec. 9, Sec. 10 and 11, T-23-N, R-44-W

Grant County

Doc Lake
Type - freshwater
Legal - Sec. 19, NW¼ Sec. 30, T-24-N, R-36-W and Se¼ Sec. 24, NE¼ Sec. 25, T-24-N, R-37-W

Holt County

Maurice Lake
Type - freshwater
Legal - Sec. 20, T-26-N, R-15-W

Doolittle Lake
Type - freshwater
Legal - N½ Sec. 30, T-27-N, R-16-W

Dora Lake
Type - freshwater
Legal - SW¼ Sec. 16, SE¼ Sec. 17, NE¼ Sec. 20, NW¼ Sec. 21, T-28-N, R-16-W

Rock County

Stockdale Lake
Type - freshwater
Legal - S½ Sec. 16, S½ Sec. 17, T-27-N, R-18-W

Twin Lakes
Type - freshwater
Legal - S½ Sec. 12, Sec. 13, T-27-N, R-19-W

Sheridan County

Turkey Track Lake
Type - alkaline
Legal - Sec. 16 and 21, T-25-N, R-45-W

Snow Lake
Type - alkaline
Legal - Sec. 21 and 22, T-25-N, R-44-W

Peter Long Lake
Type - alkaline
Legal - Sec. 20 and 21, N½ Sec. 29, T-26-N, R-44-W

Dennis Lake
Type - alkaline restoration site
Legal - S½ Sec.24, N½ Sec. 25, T-25-N, R-44-W

Walters Lake
Type - alkaline
Legal - Sec. 5, T-25-N, R-42-W

APPENDIX G. EASTERN SALINE WETLANDS ELIGIBLE FOR LWCF ACQUISITION

May 1991

The U.S. Fish and Wildlife Service Regional Wetland Concept Plan estimates that 750 acres of eastern Nebraska saline wetlands meet eligibility criteria for LWCF acquisition/protection. **Wetland sites listed below are intended to serve as examples of saline wetlands that meet this criteria.** Unlisted wetlands that have wetland functions and values similar to those listed below also qualify for wetland protection. The following wetland sites are presented in county alphabetical order for organization purposes only and are not intended to represent a rank or order of priority.

This list should be considered a dynamic working file that will be updated periodically as information becomes available. The legal description provided for each wetland is intended to serve only as a site location reference rather than the definitive area to be protected.

Lancaster County

unnamed restoration site
Legal - NW¼ and N½SW¼ Sec. 31, T-11-N, R-7-E

unnamed restoration site
Legal - SE¼ Sec. 30, NE¼ and E½NW¼ Sec. 31, N½ Sec. 32, T-11-N, R-7-E

unnamed restoration site
Legal - N½NE¼ Sec. 25, T-11-N, R-6-E

unnamed restoration site
Legal - SW¼NW¼ Sec. 2, T-11-N, R-6-E

unnamed wetlands
Legal - Sec. 34, T-12-N, R-6-E

unnamed restoration site
Legal - NW¼ Sec. 21, S½S½ Sec. 16, T-10-N, R-6-E

unnamed wetland
Legal - N½NE¼ Sec. 28, T-10-N, R-6-E

unnamed restoration site
Legal - NW¼ Sec. 8, T-12-N, R-8-E

unnamed restoration site
Legal - W½ Sec. 11, T-12-N, R-9-E

Saunders County

unnamed wetlands
Legal - E½ Sec. 35 and Nw¼ Sec. 36, T-13-N, R-7-E

APPENDIX H. MISSOURI RIVER WETLANDS ELIGIBLE FOR LWCF ACQUISITION

May 1991

The U.S. Fish and Wildlife Service Regional Wetland Concept Plan estimates that 25,000 acres of Missouri River wetlands within Nebraska meet eligibility criteria for LWCF acquisition/protection. **Wetland sites listed below are intended to serve as examples of Missouri River wetlands that meet this criteria.** Unlisted wetlands that have wetland functions and values similar to those listed below also qualify for wetland protection. The following wetland sites are presented in county alphabetical order for organization purposes only and are not intended to represent a rank or order of priority. This list should be considered a dynamic working file that will be updated periodically as information becomes available. The river mile reference provided for each wetland is intended to serve only as a general site location reference. Missouri River wetlands are freshwater sites made up of river chutes and oxbows.

Burt County

Decatur oxbow lake
River mile - 688

Lake Quinnebaugh oxbow lake
River mile - 685

Indian Lake Estates oxbow lake
River mile - 663

Cass County

Calumet-Bartlett Bend chute
River mile - 580

Van Horns Bend chute
River mile - 575

Goose Island chute restoration
River mile - 581

Tobacco Island chute restoration
River mile - 588

Dakota County

Omadi Bend oxbow lake
River mile - 721

Otoe County

Hamburg Bend chute restoration
River mile - 554

Civil Bend chute restoration
River mile - 572

Nemaha County

Lincoln Bend chute restoration
River mile - 521

Morgan Bend chute restoration
River mile - 525

Thurston County

Glovers Point Bend oxbow lake
River mile - 712

APPENDIX I. NORTH PLATTE RIVER-LOWER REACH WETLANDS ELIGIBLE FOR LWCF ACQUISITION

May 1991

The U.S. Fish and Wildlife Service Regional Wetland Concept Plan estimates that 6,500 acres of North Platte River-lower reach wetlands meet eligibility criteria for LWCF acquisition/protection. **Wetland sites listed below are intended to serve as examples of North Platte River wetlands that meet this criteria.** Unlisted wetlands that have wetland functions and values similar to those listed below also qualify for wetland protection. The following wetland sites are presented randomly and are not intended to represent a rank or order of priority. All sites are in Lincoln County. This list should be considered a dynamic working file that will be updated periodically as information becomes available. The legal description provided for each wetland is intended to serve only as a site location reference rather than the definitive area to be protected. North Platte River-lower reach wetlands are freshwater sites made up of flowing river channel and wet meadow/emergent areas. All listed sites are unnamed.

Type - river channel
Legal - All main river channel within this reach is suitable for acquisition. Restoration efforts to reestablish sandhill crane roosting habitat will require sites where open channel widths of 500 feet or greater can be recreated.

Type - wet meadow
Legal - SE¼ Sec. 9, SW¼ Sec. 10, SW¼ Sec. 14, N½ Sec. 15, T-14-N, R-31-W

Type - wet meadow
Legal - NE¼ Sec. 10, W½ Sec. 11, SW¼ Sec. 13, E½ Sec. 14, T-14-N, R-31-W

Type - wet meadow
Legal - S½ Sec. 18, Sec. 19, T-14-N, R-30-W

Type - wet meadow/wet meadow restoration
Legal - Sec. 4 and 5, T-14-N, R-31-W

Type - wet meadow/emergent wetland
Legal - S½ Sec. 16, N½ Sec. 21, Sec. 22, W½ Sec. 23, T-14-N, R-30-W