**Attachment A.**

# Implementation Plan for the Conservation of Nebraska's Eastern Saline Wetlands

March 26, 2003

By: Ted LaGrange, Nebraska Game and Parks Commission
Terry Genrich, City of Lincoln and County of Lancaster
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Brent Lathrop, The Nature Conservancy

## EXECUTIVE SUMMARY

Nebraska's Eastern Saline Wetlands are the most limited and endangered wetland type and vegetation community in the State and are considered critically imperiled in Nebraska. These wetlands provide habitat for a variety of native plant and animal species that depend on a saline environment, including two endangered species.

Because of their location in and around the city of Lincoln, saline wetlands are ideally located to provide recreational opportunities and flood protection. Past impacts have resulted in the degradation of nearly 90% of the saline wetlands and those remaining face continued threats.

Although several programs are in existence to address saline wetland conservation, they alone have not been able to ensure the long-term protection of this resource. This plan seeks a partnership approach to address the conservation of saline wetlands and the needs of the community. Its implementation will need cooperation among federal, state, and local agencies strengthened by the business knowledge of private enterprise, the energy and imagination of local conservation interests, and participation by private landowners to create pro-active programs, incentives, and strategies.

The Plan **Goal** is "No net loss of saline wetlands and their associated functions with a long-term gain in sustaining wetland functions through the restoration of hydrology, prescribed wetland management, and watershed protection". To meet this goal the Plan includes Comprehensive Strategies that address: 1) Hiring a Coordinator, 2) Outreach and Feedback, 3) Planning and Coordination, 4) Wetland Protection, 5) Priority Conservation Planning, 6) Stream Restoration, 7) Private Lands issues, 8) Taxes on public lands, 9) Research, and 10) Funding. Five Landscape Objectives are listed that address wetland protection and/or restoration for about 4,000 acres.

**SIGNATURE PAGE**

DATED:_____ By:_____
Don Wesely, Mayor,
CITY OF LINCOLN

DATED:_____ By:_____
Bernie Heier, Chair,
LANCASTER COUNTY
COMMISSIONERS

DATED: April 3, 2003 By: Rex Amack
Rex Amack, Director
NEBRASKA GAME AND PARKS
COMMISSION

DATED: March 28, 2003 By: _____
Glenn Johnson, Manager
LOWER PLATTE SOUTH NATURAL
RESOURCE DISTRICT

DATED: May 5, 2003 By: Vince Shay
Vince Shay, State Director,
THE NATURE CONSERVANCY

## INTRODUCTION

Nebraska's Eastern Saline Wetlands are the most limited and endangered wetland type and vegetation community in the State (Kaul 1975) and are considered critically imperiled in Nebraska (Clausen et al. 1989). Once extending over an area estimated to be in excess of 20,000 acres, less than 4,000 acres remain and many of these are highly degraded. They occur in swales and depressions within the floodplains of Salt Creek and its tributaries in Lancaster and southern Saunders counties (figure 1). The source of salinity for these wetlands is not fully understood, but it's postulated that it is from groundwater inflow that passes through a rock formation containing salts deposited by an ancient sea that once covered Nebraska (USDA 1996). Eastern Saline Wetlands are characterized by saline soils and salt-tolerant vegetation.

These wetlands provide habitat for a variety of native plant and animal species that depend on a saline environment. The state endangered Salt Creek tiger beetle (*Cicindela nevadica* var. *lincolniana*) is found only in Eastern Saline Wetlands. In addition, Eastern Saline Wetlands are home to several saline plants that are found nowhere else in Nebraska, including saltwort (*Salicornia rubra*) that was recently added to the state's endangered species list. These wetlands are also particularly important as habitat for shorebirds during migration.

Eastern Saline Wetlands are also of historical significance since their presence spawned a short-lived salt extraction industry in the 1860's that led to the establishment of the city of Lincoln. This heritage is an important component in the need for the conservation of saline wetlands.

### Functions and Values

Nebraska's Eastern Saline Wetlands provide habitat for a variety of wildlife species, and are particularly important as habitat for shorebirds and waterfowl during migration. The exposed saline mudflats provide an abundance of invertebrates as a food source. During the last century, more than 230 species of birds have been reported at the salt basins of Lancaster County (Farrar and Gersib 1991). Ten of these species are on the National Audubon Society's Blue List, and 13 are listed as species of special concern.

The Salt Creek tiger beetle, a very rare and geographically restricted subspecies, is found only on the open salt flats of Eastern Saline Wetlands. This beetle is a candidate for the Federal endangered/threatened species list and has been proposed for emergency listing.

Eastern Saline Wetlands are home to many salt-tolerant plants that are found nowhere else in Nebraska. Three plant species found growing in Eastern Saline Wetlands are considered rare in Nebraska (Clausen et al. 1989) including saltmarsh aster (*Aster subulatus* var. *ligulatus*), saltwort, and Texas dropseed (*Sporobolus texanus*).

Wetlands, both saline and fresh, protect stream quality by filtering and collecting sediment from runoff water, and aid flood control by storing water after rain events and reducing peak flows. Eastern Saline Wetlands are no exception and play a particularly important role given their proximity to Lincoln. Buffer tracts and connecting corridors associated with the wetlands may also help stream quality by trapping agricultural chemical runoff from fields and preventing it from entering the stream flow.

Because of their location in and around the city of Lincoln and their proximity to Omaha, Eastern Saline Wetlands are ideally located to provide recreational opportunities. Bird watching, nature study, and waterfowl and pheasant hunting are the most common outdoor recreation activities pursued in these wetlands. Few wetland areas in Nebraska provide the educational opportunities afforded by the close proximity of these unique wetlands to so many students.

**Loss and Threats**

Inventory and assessment work by Gersib and Steinauer (1990) and Gilbert and Stutheit (1994) noted extensive wetland losses from expansion of the city of Lincoln and agricultural activities. They further noted that all existing saline wetlands identified in their inventory have experienced recognizable degradation. Eastern Saline Wetlands were given a priority 1 ranking in the *Nebraska Wetlands Priority Plan* due to extensive losses in the past (Gersib 1991).

Because the entire Eastern saline wetland complex is located in and near the city of Lincoln, past losses have been severe, and future threats from development activities are imminent. Saline wetland assessment work 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.

Categories of threat to Eastern Saline Wetlands include drainage or filling, stream-bed degradation, agricultural conversion, residential or commercial development, road construction, sedimentation, and water pollution. Of these, commercial or residential development is considered to be the greatest threat. Commercial and residential development usually results in total wetland destruction and the loss of all related functions. In addition, one of the most serious long-term threats is the degradation (deepening) of stream channels that result in erosive lateral headcuts (gullies) that eventually drain wetlands, and could lead to locally declining

water tables.

**Need for a Conservation Partnership**

Although several programs are in existence that can be used to address saline wetland conservation, they alone have not been able to ensure the long-term protection of this resource. As land uses continue to change around the remaining wetlands the functions these wetlands provide can not be sustained. This is not a desirable outcome for this unique resource or the people who live here.

Community support is present for the conservation of saline wetlands. Saline wetlands were a "core resource imperative" in the *Greenprint Challenge* (City of Lincoln and Lancaster County 2001), and a recent public attitude survey showed that 76% of the respondents were in agreement that public funds should be used to protect natural resources (Nutter 2000). Concern about rapid development and a changing way of life were also expressed in stake-holder interviews in the Little Salt Creek watershed (Gonzalez-Clements and Mantonya 2001). However, as was learned from a recent unsuccessful attempt to establish a partnership in the Little Salt Valley, care must be taken to clearly identify objectives and strategies when trying to accommodate the unique needs of a diverse set of stake-holders.

This plan seeks an alternative way to address the conservation of saline wetlands and the needs of the community. Its implementation will involve local, state, and federal agencies working in concert with private individuals and organizations to develop additional strategies and programs that encourage saline wetland conservation. The effort will be a holistic watershed approach to wetland conservation and have strong parallels to the highly successful Rainwater Basin Joint Venture (Gersib et al. 1992) and Sandhills Task Force (Mack 1993). The time is right for the creative application of existing programs and development of new approaches to address saline wetland conservation. It will require cooperation among federal, state, and local agencies strengthened by the business knowledge of private enterprise, the energy and imagination of local conservation interests, and participation by private landowners to create pro-active programs, incentives, and strategies.

This plan promotes the conservation of saline wetlands throughout Lancaster and southern Saunders counties (figure 1). Although this is the plan's purpose, it is recognized that this conservation may also address, at least in part, other functions such as providing green-ways and open space, recreation and education areas, flood protection, storm water management, sustainable agricultural lands, and habitat for endangered and threatened species.

Implementation of this plan will be the primary responsibility of the full-share partners (City of Lincoln, Lancaster County, Lower Platte South Natural Resources

District, The Nature Conservancy, and the Nebraska Game and Parks Commission). The full-share partners will work closely with other partners to ensure that the plan is successful. The implementation will be administered by a Steering Committee consisting of representatives from the full-share partners and others as deemed appropriate. The time period covered in the plan is 25 years, with updates to be made at 5 year intervals or as needed.

## GOAL

No net loss of saline wetlands and their associated functions with a long-term gain in sustaining wetland functions through the restoration of hydrology, prescribed wetland management, and watershed protection.

## COMPREHENSIVE STRATEGIES

The Comprehensive Strategies are not specific to any one property, but are broader in scope and are necessary for the overall successful conservation of saline wetlands. Some of these strategies will require additional objectives and action items that will be determined by the Steering Committee.

**Comprehensive Strategy 1- Coordinator**

Hire a coordinator to oversee the implementation of the conservation plan. The coordinator, working in conjunction with the Steering Committee and partners, will oversee day-to-day details such as schedules, assignments, and costs. A Cooperative Agreement and Position Description have been drafted.

**Comprehensive Strategy 2- Outreach and Feedback**

Inform the public about the need for the conservation of saline wetlands and obtain feedback from the public about how to improve the implementation of the plan.

**Comprehensive Strategy 3- Planning and Coordination**

Coordinate among agencies and organizations to incorporate the conservation of saline wetlands into their planning and operations when applicable.

**Comprehensive Strategy 4- Wetland Protection**

Maintain the remaining saline wetlands through a no net loss policy. Existing wetlands can be protected with already established laws (Clean Water Act, State of Nebraska Title 117, Farm Security and Rural Investment Act of 2002 [i.e., the farm bill]) and/or through new laws, local ordinances, and voluntary protection and restoration programs. Wetland mitigation projects following the *Mitigation Guidelines for Nebraska's Eastern Saline Wetlands* (Taylor and Krueger 1997) will help to ensure no net loss of saline wetlands.

**Comprehensive Strategy 5- Priority Conservation Plan**

Use Geographic Information System (GIS) data and input from experts to inventory and prioritize sites for the conservation of saline wetlands and their associated conservation zones. This information would form the basis of a priority conservation plan for accomplishing the landscape objectives. Prioritization criteria could include site condition, threat to the wetland, presence of or potential to support endangered/threatened species and species of conservation concern, and restoration potential.

**Comprehensive Strategy 6- Stream Restoration**

Prevent further stream-bed degradation and restore stream grade and bank characteristics where possible.

**Comprehensive Strategy 7- Private Lands**

Support the historical stewardship of Eastern Saline Wetlands by private landowners. It is recognized that many existing saline wetlands are on private lands and have been sustained by private landowners. This plan needs to support those continued sustainable uses. In addition, participation in all projects funded through this plan will be voluntary.

**Comprehensive Strategy 8- Taxes**

Pay property taxes, as allowed under existing laws, on all parcels of land acquired by the partners.

**Comprehensive Strategy 9- Research**

Form a scientific advisory panel to prioritize research needs relating to the conservation of saline wetlands. A potential priority research need will be to better understand the hydro-geology of saline wetlands, especially sources of salinity and flood plain interactions, to better guide protection and restoration efforts.

**Comprehensive Strategy 10- Funding**

Identify sources and obtain funding to implement the conservation plan.

## LANDSCAPE OBJECTIVES

Since implementation of Comprehensive Strategy 4 would ensure that, at least for now, there will be no net loss of wetlands by direct human-induced drainage, the landscape objectives focus on: 1) maintaining protection for some wetlands in case existing wetland protection laws change, 2) protecting the upland areas around the wetland to ensure that the wetlands will be sustainable, and 3) prescribing management of the wetlands to maintain wetland functions. This will require the

application of different "tools" within different conservation zones in and around the wetland (figure 2). The different conservation zones include: 1) the delineated wetland, 2) a minimum100 foot buffer around the entire wetland to provide wildlife habitat and protect water quality, 3) a minimum of an additional 500 foot buffer to provide wildlife habitat and to protect for compatible uses such as hunting, controlled burns and grazing (this buffer distance may be refined as new information becomes available), 4) connecting corridors between wetlands to allow wildlife interchange, 5) the immediate wetland watershed (excluding the stream watershed), 6) the total wetland watershed (including the stream and associated flood plain), and 7) the scenic "viewshed" around the wetland to provide for open space and to minimize disturbance to wetland wildlife.

Freshwater wetlands are often located on floodplains in close association with saline wetlands. Although the landscape objectives focus on saline wetlands, it's recognized that freshwater wetlands also provide valuable functions and are in need of conservation. Where possible, the conservation of freshwater wetlands will be incorporated into the conservation of saline wetlands.

The landscape objectives are based on categorization data and maps compiled by an interagency team while conducting field site visits in the late 1980s and early 1990s (Gilbert and Stutheit 1994). The categorization data provide general guidance for planning purposes and should be verified through up-to-date on-site data collection and wetland delineation as needed for any project. Following is an abbreviated definition of the categories from the *Resource Categorization of Nebraska's Eastern Saline Wetlands*.

Category 1: Site currently provides saline wetland functions of high value or has the potential to provide high values following restoration or enhancement measures.

Category 2: Given current land use and degree of degradation, site currently provides limited saline wetland functions and low values. Restoration potential is low. These sites are so degraded that they are not considered as restorable in the Landscape Objectives section. If, in the future, a Category 2 wetland is determined to be restorable, then the restoration will be considered as contributing to Landscape Objective 4.

Category 3: Site is functioning as a freshwater wetland having freshwater plant communities on a saline soil. Currently provides freshwater wetland values <u>and</u> no feasible restoration measures exist to re-establish the historic salt source and saline plant associations.

Category 4: Site is functioning as a freshwater wetland having freshwater plant communities on a non-saline hydric soil.

Not Categorized (NC): These sites are mapped as wetlands on the National Wetland Inventory maps but access to the site was denied and the site could not be categorized. If and when these sites are categorized, the total acreage objective for each category will need to be adjusted accordingly.

Category 1 wetlands were further classified by Nebraska Game and Parks wetland program staff as intact or degraded based on field notes and site specific knowledge. Wetlands were considered protected if they were under ownership (either fee title or easement) by the City of Lincoln, Lancaster County, Lower Platte South Natural Resources District, The Nature Conservancy, the Nebraska Game and Parks Commission, the Natural Resources Conservation Service, or the Nebraska Department of Roads (wetland mitigation sites) as of September 2001.

**Objective 1**: Permanently protect 100% (148 ac.) of intact unprotected Category 1 saline wetlands and their associated conservation zones to ensure that the wetlands and their functions are sustained.

Strategy 1: Use easements purchased from willing sellers to permanently protect approximately 50% (74 ac.) of intact Category 1 saline wetlands and an associated 600 foot buffer to ensure that the wetlands are sustained.

Strategy 2: Use fee-title acquisition from willing sellers to permanently protect approximately 50% (74 ac.) of intact Category 1 saline wetlands and an associated 600 foot buffer to ensure that the wetlands are sustained.

Strategy 3: Use private lands programs and local ordinances to provide for sustainable uses in the immediate wetland watershed.

**Objective 2**: Restore and Protect 80% (1,412 ac.) of unprotected degraded Category 1 saline wetlands and their associated conservation zones to ensure that the wetlands and their functions are sustained.

Strategy 1: Use easements purchased from willing sellers to permanently restore and protect approximately 40% (706 ac.) of degraded Category 1 saline wetlands and an associated 600 foot buffer to ensure that the wetlands are sustained.

Strategy 2: Use fee-title acquisition from willing sellers to permanently restore and protect approximately 40% (706 ac.) of degraded Category 1 saline wetlands and an associated 600 foot buffer to ensure that the wetlands are sustained.

Strategy 3: Use private lands programs and local ordinances to provide for

sustainable uses in the immediate wetland watershed.

**Objective 3**: Restore (to intact Category 1 wetlands) and Protect 50% (167 ac.) of unprotected Category 3 saline wetlands and their associated conservation zones to ensure that the wetlands and their functions are sustained as intact Category 1 wetlands.

Strategy 1: Develop restoration techniques to successfully re-establish salinity sources to restore Category 3 wetlands to Category 1 wetlands.

Strategy 2: Use easements purchased from willing sellers to permanently restore and protect approximately 25% (84 ac.) of intact Category 3 saline wetlands and an associated 600 foot buffer to ensure that the wetlands are sustained.

Strategy 3: Use fee-title acquisition from willing sellers to permanently restore and protect approximately 25% (84 ac.) of intact Category 3 saline wetlands and an associated 600 foot buffer to ensure that the wetlands are sustained.

Strategy 4: Use private lands programs and local ordinances to provide for sustainable uses in the immediate wetland watershed.

**Objective 4**: Restore (to intact Category 1 wetlands) and protect 50 % (2, 360 ac.) of unprotected current non-wetland areas on saline hydric soils so that they become intact and sustained Category 1 saline wetlands.

Strategy 1: Use easements purchased from willing sellers to permanently protect approximately 25% (1,180 ac.) of current non-wetland areas on saline hydric soils and an associated 600 foot buffer to ensure that the wetlands are sustained.

Strategy 2: Use fee-title acquisition from willing sellers to permanently protect approximately 25% (1,180 ac.) of current non-wetland areas on saline hydric soils and an associated 600 foot buffer to ensure that the wetlands are sustained.

Strategy 3: Use private lands programs and ordinances to provide for sustainable uses in the immediate wetland watershed.

**Objective 5**: Manage 100% of restored and protected saline wetlands to maintain their associated functions.

Strategy 1: Develop an agreement and procedures to determine which partner will manage acquired properties. This may be incorporated into the planning for

REPOSA (Regional Park Open Space Authority), a regional entity capable of jointly owning and, where appropriate, jointly managing Greenprint (City of Lincoln and Lancaster Co. 2001) properties.

Strategy 2: Develop prescribed management plans for each area protected.

Strategy 3: Use private lands program to provide management assistance to privately owned wetlands.

Table 1. Summary of wetland acres protected and/or restored by landscape objective.

| **Objective** | **Acres of Wetland Protected and/or Restored** |
|---|---|
| 1- Protected Category 1 | 148 |
| 2- Restored and Protected Category 1 | 1,412 |
| 3- Restored and Protected Category 3 | 167 |
| 4- Restored and Protected saline soils that are currently non-wetland | 2,360 |
| **TOTAL** | **4,087** |

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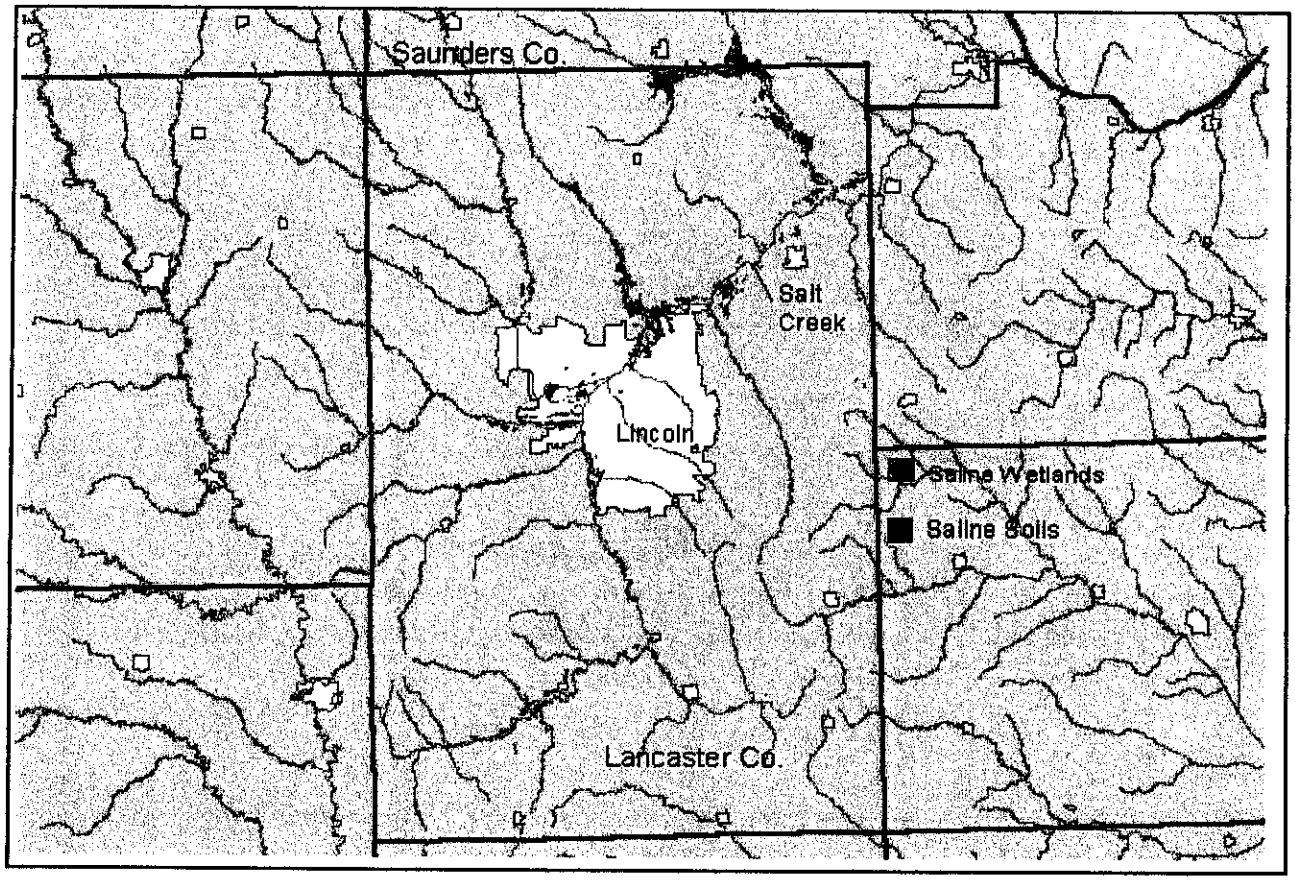


Figure 1. Location of saline wetlands and soils in Lancaster and Southern Saunders counties.

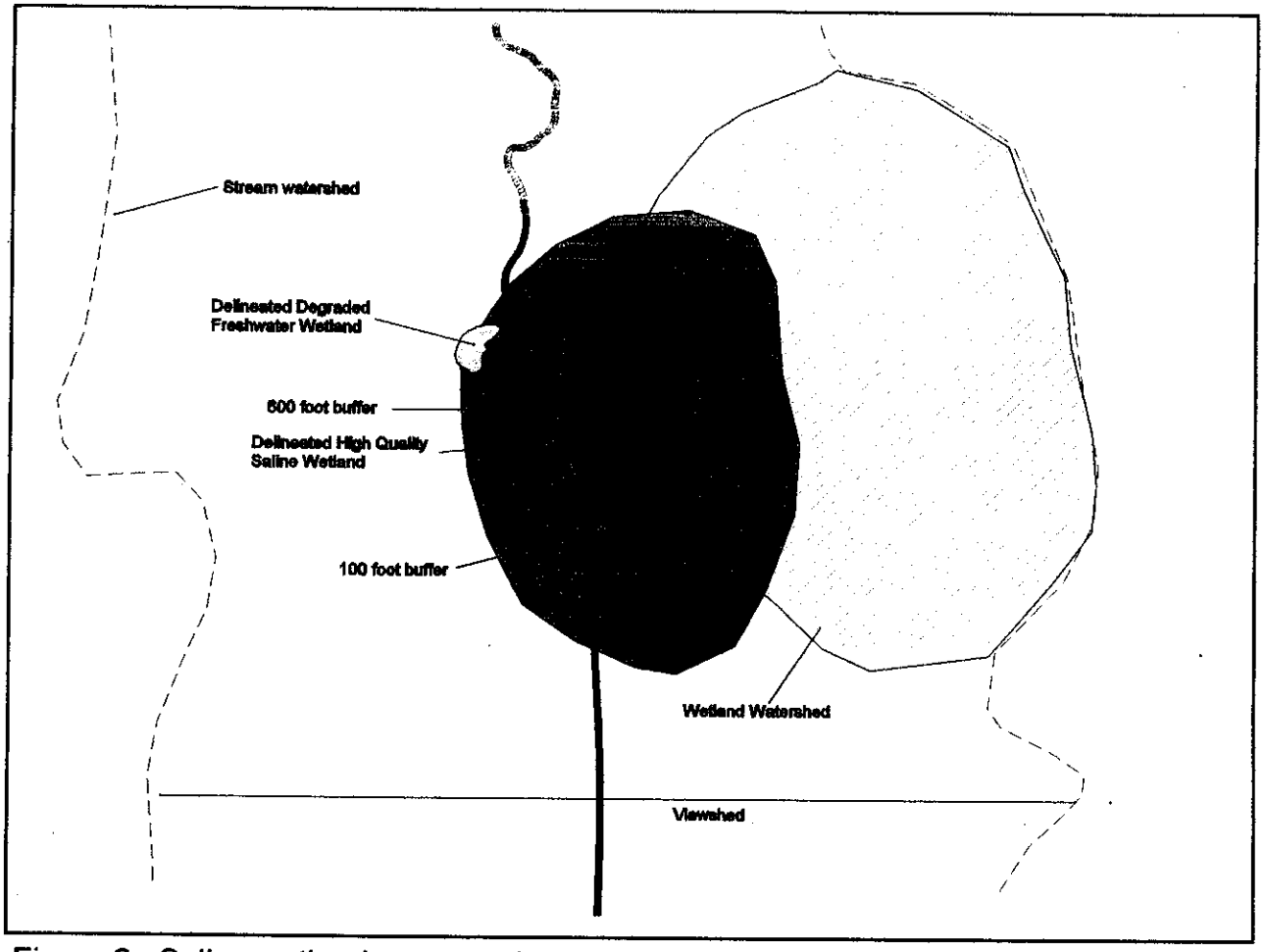


Figure 2. Saline wetland conservation zones, a hypothetical example.

**Interlocal agreement for Saline Wetland Coordinator Position**
**Attachment B. Payment Schedule**
**March 25, 2003**

| Date | City | Commission | NRD | TNC[1] |
|---|---|---|---|---|
| May 15, 2003 | | | $25,000 | |
| August 2003 | $5,000 | $20,000 | | |
| February 2004 | $5,000 | $20,000 | $25,000 | |
| August 2004 | $12,500 | | | $12,500 |
| February 2005 | $12,500 | | $25,000 | $12,500 |
| August 2005 | | | | $25,000 |
| February 2006 | | | | $25,000 |

[1] The Nature Conservancy will be making payments under a separate agreement.