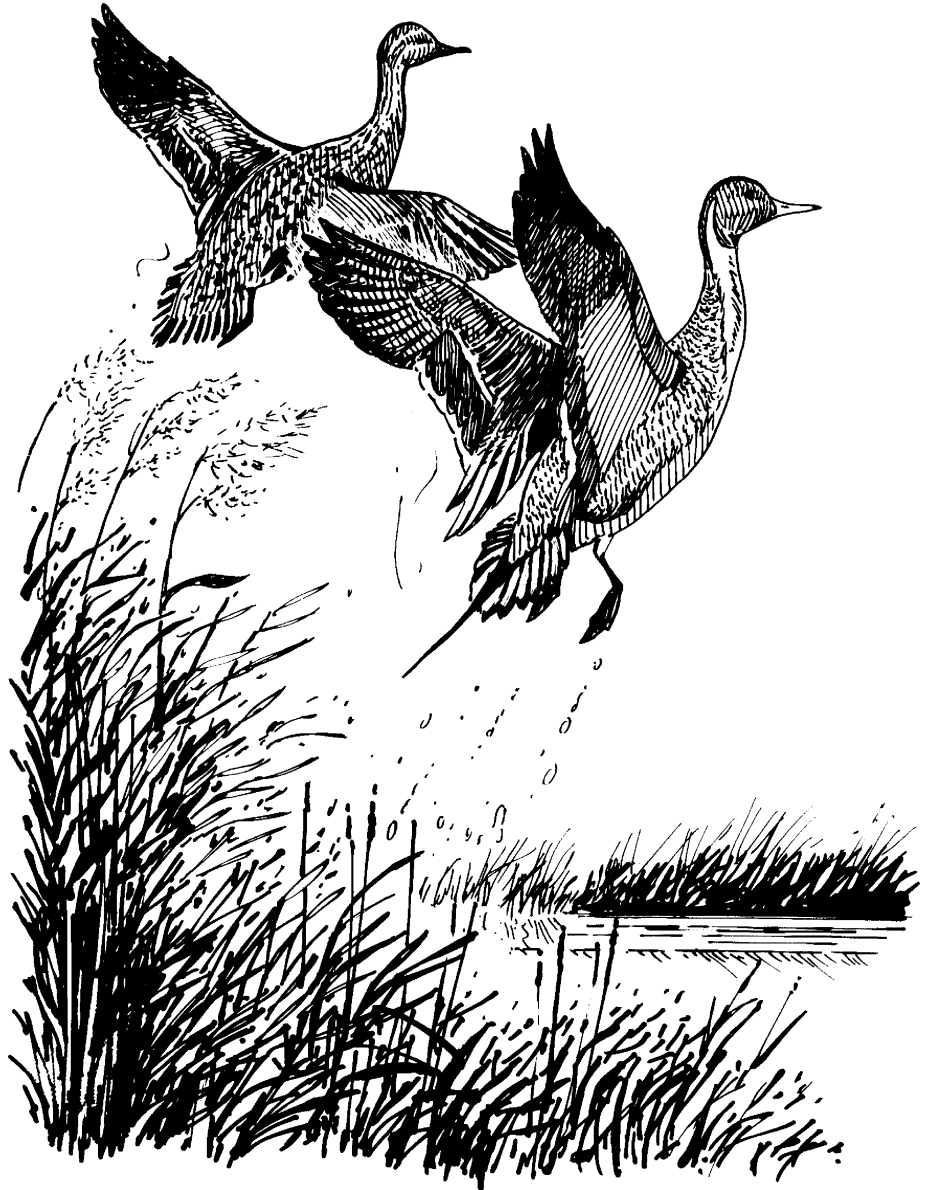


# Lake Alice

*National Wildlife Refuge*



***Environmental Assessment  
for the Proposed Addition  
to Lake Alice NWR***



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# Chapter 1.

## Purpose of and Need for Action

### Introduction and Background

The Lake Alice National Wildlife Refuge (NWR) is located in the Devils Lake Basin in northeastern North Dakota. Over 70 percent of the Refuge is wetlands, dominated by Lake Alice, a deep, semipermanent marsh. The Refuge is particularly important habitat for hundreds of thousands of migrating waterfowl and is home to the world's second largest Franklin's gull colony (scientific names for plant and animal species can be found in Appendix C).

Lake Alice NWR was first established in 1948 as an easement refuge. In 1970, repeated flooding problems prompted landowners in the area to offer to sell their land to the Service. From 1972-1979, the Service purchased about 10,700 acres or 75 percent of the land considered important wildlife habitat for the Refuge. Negotiations continue for acquisition of the remaining land, with one tract purchased as recently as 1999.

Lake Alice National Wildlife Refuge is in the center of the Devils Lake Basin (Figure 1). The 3,800 square mile basin is a collection of coulees, temporary, seasonal, and permanent wetlands that drain to the south and east. These wetlands are recharged every year by melting snow in the spring and by an average of 13-14 inches of rainfall in the summer. Water enters Lake Alice from the north through the Mauvais Coulee, flows to Lake Irvine, and continues south into Devils Lake. The Devils Lake Basin is essentially a closed system and the generally flat nature at the bottom of the watershed results in frequent and significant flooding in the Devils Lake area. As the water in the Devils Lake area rises, the surrounding wetlands and lakes run together, becoming one large lake.

Water levels in the Devils Lake Basin have fluctuated dramatically over the last century. A difference of approximately 45 feet exists between the maximum and minimum water levels from the first records in 1867 to the present. The last drought period was from 1988-1991, but since 1993, it has been a wet period with above normal precipitation and below normal evaporation. During this time, water in the basin has risen over 25 feet and more than 50,000 acres of land have been flooded (USGS 1995, 1999). Figure 1 shows the estimated coverage of water around Devils Lake if levels continue to rise. Currently, the maximum level the water is predicted to reach is 1460 feet, with a possible spring crest of 1462 feet. At this point, water would flow from the Lake through the Tolna Coulee and into the Sheyenne River, preventing any further rise (USGS 1999).

These fluctuations in water levels and frequent floods have made long-term solutions to water management in the Devils Lake Basin and at Lake Alice NWR a top priority. Rising waters on the Refuge have flooded water control structures and key access roads. In particular, the road to the Refuge headquarters is mostly underwater making the buildings inaccessible. The buildings will be flooded if the water continues to rise.

### Proposed Action

The Service proposes to purchase 322.73 acres of upland and wetland habitat known as the Hanson property. The property is located in Towner County, Colin Township, T157N, R65W, Section 31, NW $\frac{1}{4}$ , SE $\frac{1}{4}$  and 3.02 acres in the SW $\frac{1}{4}$  of Section 32. This property is adjacent to Lake Alice NWR; therefore, the Refuge boundary will be adjusted to include this tract (Figure 2).

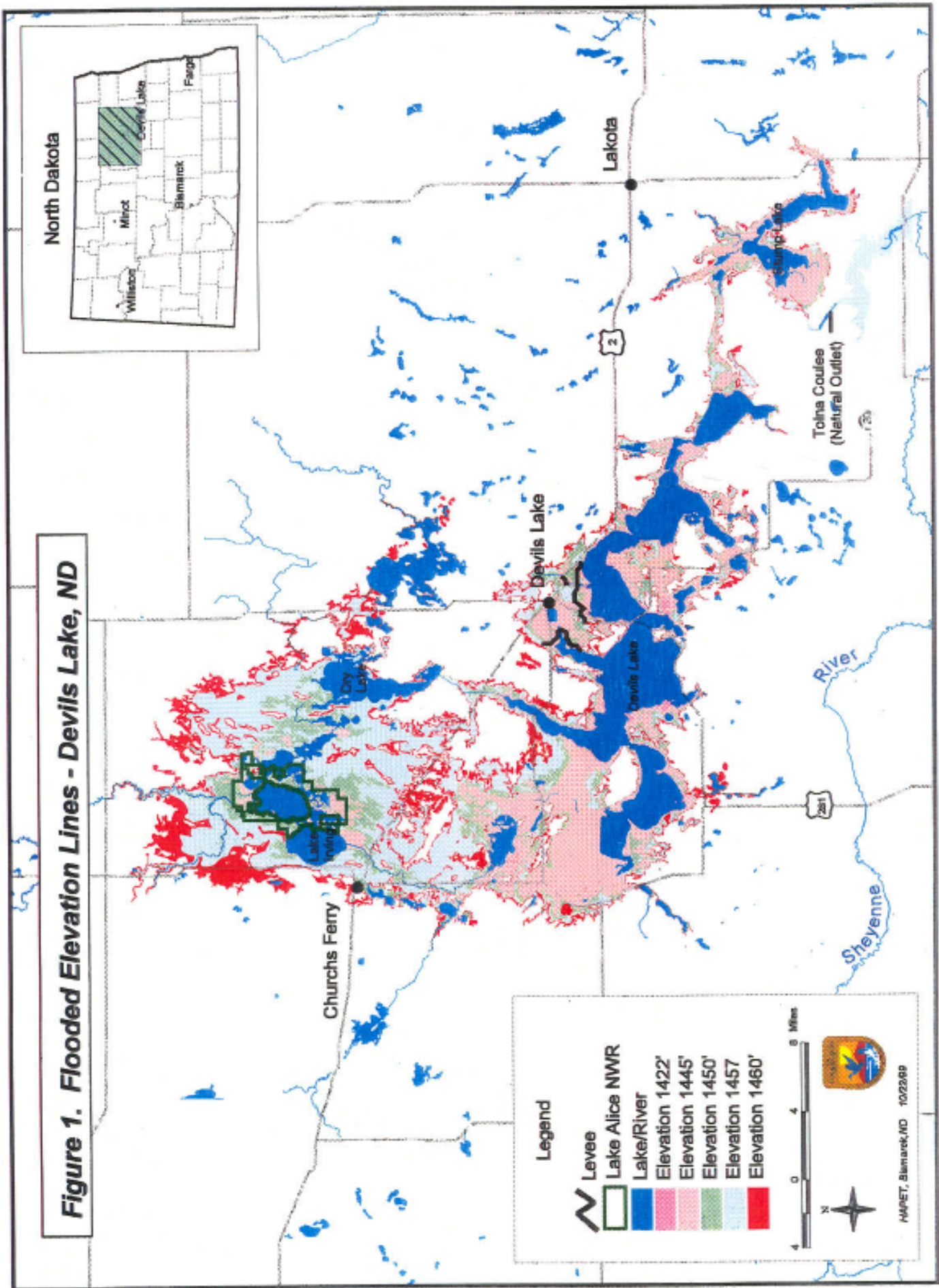


Figure 1. Flooded Elevation Lines - Devils Lake, ND

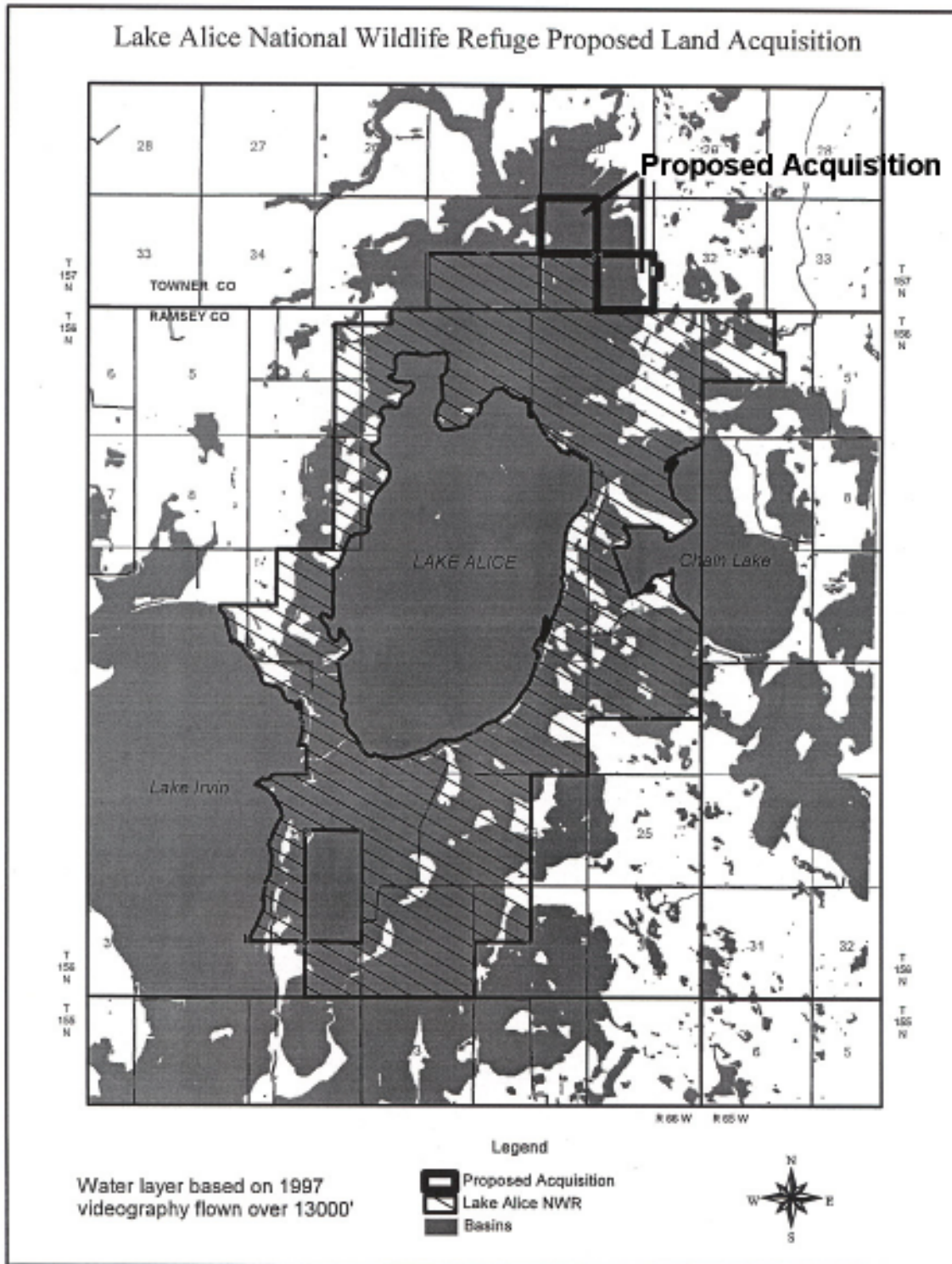


Figure 2. Lake Alice National Wildlife Refuge Proposed Acquisition  
Proposed acquisition of 322.73 acres adjacent to the northern boundary of Lake Alice National Wildlife Refuge.

## Purpose of and Need for Proposed Action

The purpose of purchasing the Hanson property is to provide a new site for the Lake Alice NWR headquarters. The property has a potential building site at an elevation above 1462 feet, the predicted maximum for Lake Alice/Devils Lake. The site is also adjacent to the Refuge and has road access that will continue to be available at maximum water levels. The building site was not available for purchase as a separate parcel, thus the acquisition under consideration by the Service is for the entire tract of 322.73 acres.

This action is necessary because the Lake Alice Refuge headquarters are currently inaccessible to Service staff. The road to the buildings is flooded, and it is not feasible to repair this road because material to build up the road (i.e., fill) is in extremely limited supply. Furthermore, if the water rises another three feet, a dike built to protect the headquarter buildings will fail and the buildings will also be flooded (Figure 3).

The headquarters consist of several buildings for storing equipment and servicing vehicles for Lake Alice NWR and the Devils Lake Wetland Management District (WMD). The only other storage and maintenance facility for the eight counties managed out of the Devils Lake WMD office is at the Sullys Hill Game Preserve. This facility is over 40 miles from Lake Alice NWR and is not considered to be of practical use for the northern parts of the Wetland Management District.

The proposed project acquisition site is adjacent to Lake Alice NWR; acquisition of this property will also provide opportunities for wildlife habitat enhancement and wetland restoration.

## Project Study Area

The Hanson property is in the southeast corner of Towner County, North Dakota (T157N, R65W, Section 31, NW $\frac{1}{4}$  SE $\frac{1}{4}$  and 3.02 acres in the SW $\frac{1}{4}$  of Section 32), approximately 20 air miles northwest of the town of Devils Lake and approximately 10 miles southeast of Cando, ND. The tract is adjacent to the northern boundary of Lake Alice NWR and lies in the center of the Devils Lake Basin. The property is cropland with an abandoned farmstead.

## Decisions to be Made

Based on the analysis provided in this Environmental Assessment, the Regional Director of the U.S. Fish and Wildlife Service, Region 6 - Mountain Prairie Region, will make three decisions.

1. Determine whether the Service should purchase the Hanson tract. If yes,
2. Select an alternative for the addition to Lake Alice National Wildlife Refuge, and
3. Determine whether the selected alternative will have a significant impact upon the quality of the human environment. This decision is required by the National Environmental Policy Act (NEPA) of 1969. If the quality of the human environment is not affected, a Finding of No Significant Impact will be signed and will be made available to the public. If the alternative will have a significant impact, then an Environmental Impact Statement will be prepared to further address those impacts.



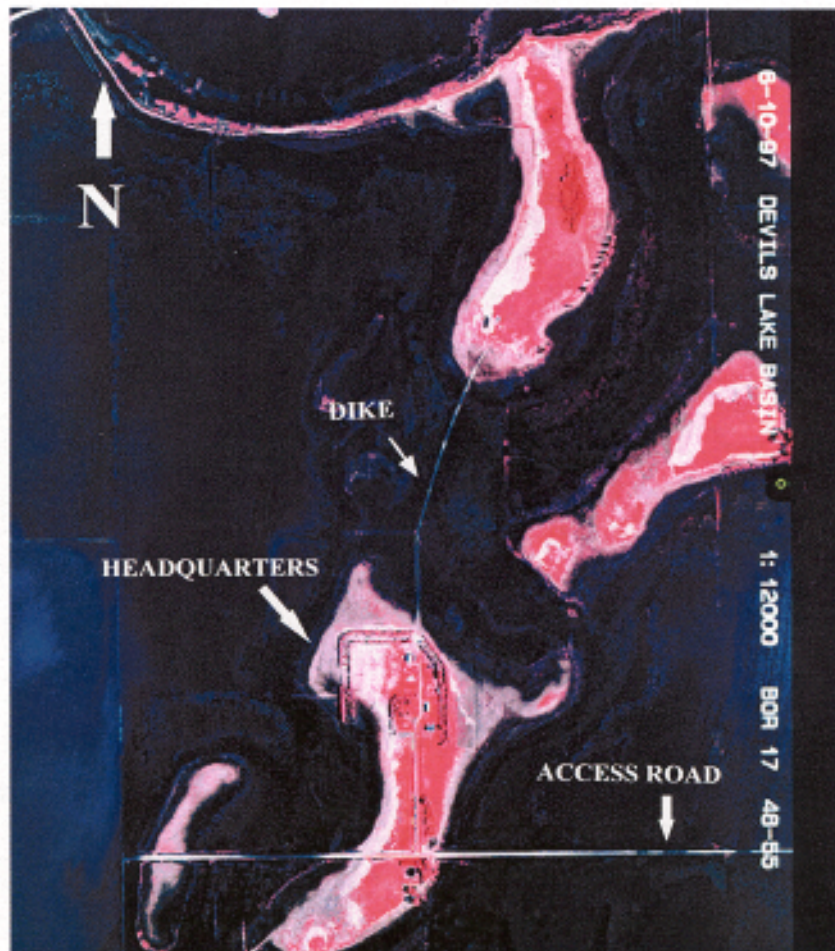


Figure 3. Infrared, aerial view of Lake Alice National Wildlife Refuge Headquarters in 1997. Areas of red/pink are dry land and areas in blue/black are water.

## Issues Identified and Selected for Analysis

An article explaining the proposed project and inviting the public to comment on the Environmental Assessment will be published in the Devils Lake newspaper once a finding by the Regional Director has been determined. In addition, the Governor of North Dakota and the Towner County Commission were notified of the proposed acquisition. The major biological, social, and economic issues associated with this project are identified in the following section and addressed in Chapters 3 and 4.

### Biological Issues

- P **Wildlife habitat:** The proposed acquisition represents an opportunity to restore and enhance habitat for wildlife in accordance with the mission of the National Wildlife Refuge System.
- P **Water management:** Flooding is an ongoing problem on Lake Alice NWR. Solutions for managing and storing water need to be long-term.
- P **Refuge management:** Refuge headquarters, which provide storage and maintenance facilities for a large portion of Devils Lake WMD, need to remain accessible even during times of high water. The location and access to the headquarters needs to be economically feasible to maintain and in a location that does not severely compromise the Service's ability to manage the Refuge and the WMD efficiently.
- P **Water and soil contamination:** Contaminants surveys by the Service found three open wells, storage of unlabeled pesticides and possible sediment contamination from stored farm vehicles on the Hanson property. All of these are potential threats to the environment which will be affected by the Service's decision to purchase the property.

### Social and Economic Issues

- P **Property taxes:** Concerns may exist about the change in Towner County's tax revenue from the proposed acquisition.
- P **Land use and revenue:** Concerns may exist about the changes in land use and the economic impact on the community from converting the land from cropland to wildlife refuge.

### Related Actions and Activities

**Lake Alice NWR** has completed eight water development projects for the management and storage of approximately 4,000 acre-feet of water on the Refuge. Ten other proposed projects would bring the total to over 10,000 acre-feet of water, thus reducing flooding problems on the Refuge and enhancing wildlife habitat.

**Devils Lake Wetland Management District** has an on-going wetland easement program. Perpetual wetland easements are purchased by the Service from willing sellers. The easements restrict landowners from draining, filling, and/or burning wetlands. Protection of wetlands through easements preserves the existing water storage within the Devils Lake Basin.

**U.S. Army Corps of Engineers** has received emergency authorization from the U.S. Congress to build an outlet on the west side of Devils Lake that will drain water into the Sheyenne River. This project is scheduled to begin in fall of 2000.

**North Dakota State Water Commission** has developed a plan to create an outlet that drains water from Devils Lake into the Stump Lakes. This project still requires approval from the U.S. Army Corps of Engineers.

## National Wildlife Refuge System and Authorities

The proposed purchase of 322.73 acres would be administered as part of the National Wildlife Refuge System and operated as part of the Lake Alice National Wildlife Refuge in accordance with the overall mission of the National Wildlife Refuge System. The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitat within the United States for the benefit of present and future generations of Americans. The broad goals of the National Wildlife Refuge System describe the conservation of the nation's wildlife resources for the ultimate benefit of people.

### Guiding Principles of the National Wildlife Refuge System

1. **Habitat.** Fish and wildlife will not prosper without high-quality habitat, and without fish and wildlife, traditional uses of Refuges cannot be sustained. The Refuge System will continue to conserve and enhance the quality and diversity of fish and wildlife habitat within Refuges.
2. **Public Use.** The Refuge System provides important opportunities for compatible wildlife-dependent recreational activities involving hunting, fishing, wildlife observation and photography, and environmental education and interpretation.
3. **Partnership.** America's sportsmen and women were the first partners who insisted on protecting valuable wildlife habitat within national wildlife Refuges. Conservation partnership with other Federal agencies, State agencies, Tribes, organizations, industry and the general public can make significant contributions to the growth and management of the Refuge System.
4. **Public Involvement.** The public should be given full and open opportunity to participate in decisions regarding acquisition and management of our national wildlife refuges.

### Goals of the National Wildlife Refuge System

- a. To preserve, restore, and enhance in their natural ecosystems (when practicable) all species of animals and plants that are endangered or threatened with becoming endangered.
- b. To perpetuate the migratory bird resource.
- c. To preserve a natural diversity and abundance of fauna and flora on Refuge lands.
- d. To provide an understanding and appreciation of fish and wildlife ecology and the human's role in the environment.
- e. To provide Refuge visitors with high quality, safe, wholesome, and enjoyable recreational experiences oriented toward wildlife, to the extent these activities are compatible with the purpose for which the Refuge was established.

The proposed 322.73 acre addition to Lake Alice NWR would be managed as part of the National Wildlife Refuge System in accordance with the National Wildlife Refuge System Administration Act of 1966, Refuge Recreation Act of 1962, Executive Order 12996 (Management and General Public Use of the National Wildlife Refuge System), National Wildlife Refuge System Improvement Act of 1997, and other relevant legislation, executive orders, regulations, and policies.

### Purpose of Lake Alice National Wildlife Refuge

Lake Alice NWR was established under the authority of the Migratory Bird Conservation Act. Under the Migratory Bird Conservation Act, the Refuge is managed for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.

## Goal of Lake Alice National Wildlife Refuge

The goal of Lake Alice NWR is to create, enhance and intensively manage a complex of developed wetland habitats and associated grasslands that support a unique diversity and abundance of migratory birds and other wildlife in the Devils Lake Basin, while providing compatible wildlife-dependent public use and promoting an appreciation for wetland values.

Conservation of wildlife habitat with the addition of 322.73 acres to Lake Alice NWR would also continue to be consistent with the following policies and management plans:

1. Prairie Pothole Joint Venture (PPJV 1987, 1994 updated)
2. North American Waterfowl Management Plan (USFWS 1994)
3. Gray Wolf Recovery Plan (USFWS 1987)
4. Piping Plover Recovery Plan (Great Lakes and Northern Great Plains) (USFWS 1988)
5. Bald Eagle Recovery Plan (Northern states) (USFWS 1983)
6. Whooping Crane Recovery Plan (USFWS 1994 revised)
7. Migratory Bird Treaty Act (1918)

## The Habitat Protection and Land Acquisition Process

Once the project is approved, and funding is available, the tract will be purchased from Mr. Hanson. It is the established policy of the Service to acquire land or interest in land from willing sellers.

The authority for the acquisition of the 322.73-acre addition to Lake Alice NWR is the Emergency Wetlands Resources Act of 1986. Acquisition funding is made available through emergency funding of the Land and Water Conservation Fund of 1965. The Federal monies used to acquire private lands through the Land and Water Conservation Fund are derived primarily from oil and gas leases on the outer continental shelf, motorboat fuel tax revenues, and sale of surplus Federal property. Additional funds could be made available through Congressional appropriations, North American Waterfowl Conservation Act Funds, donations from non-profit organizations or other sources to acquire lands, waters, or interest therein for fish and wildlife conservation purposes.

The basic considerations in acquiring land are the biological significance of the land, existing and anticipated threats to wildlife resources, and landowner's willingness to sell or otherwise make property available to the project. The purchase of land proceeds according to availability of funds.

## Refuge Revenue Sharing Act

Under provisions of the Refuge Revenue Sharing Act (Public Law 95-469), the Service annually reimburses counties to offset revenue lost as a result of acquisition of private property. This Law states that the Secretary of the Interior (Secretary) shall pay to each county in which any area acquired in fee title is situated, the greater of the following amounts:

1. An amount equal to the product of 75 cents multiplied by the total acreage of that portion of the fee area which is located within such county.
2. An amount equal to  $\frac{3}{4}$  of 1 percent of the fair market value, as determined by the Secretary, for that portion of the fee area which is located within such county.
3. An amount equal to 25 percent of the net receipts collected by the Secretary in connection with the operation and management of such fee area during such fiscal year. However, if a fee area is located in two or more counties, the amount for each county shall be apportioned in relationship to the acreage in that county.

The Refuge Revenue Sharing Act also requires that Service lands be reappraised every five years to ensure that payments to local governments remain equitable. Payments under this Act would be made only on lands that the Service acquires in fee title.

# Chapter 2. Alternatives, including the Preferred Action

Chapter 2 describes two alternatives: a no action alternative and the preferred alternative to acquire 322.73 acres known as the Hanson Property as an addition to Lake Alice National Wildlife Refuge.

## Alternative A. No Action

Under a no action alternative, the Hanson Property would not be purchased by the U.S. Fish and Wildlife Service. Other means of accessing and protecting the Lake Alice NWR headquarters would have to be explored. Possibilities include raising the road into the current headquarters site, moving the buildings to another site on the Refuge or purchasing another tract of land. All of these options are less desirable because of difficulty acquiring fill to build up roads, low building site elevations and/or impractical distances from the Refuge.

## Alternative B. Acquisition of Hanson Property as an addition to Lake Alice National Wildlife Refuge (Preferred Alternative)

Under Alternative B, the Service would purchase the Hanson Property of 322.73 acres adjacent to the north boundary of Lake Alice National Wildlife Refuge (Figure 4). The proposed acquisition would provide a building site for the Lake Alice NWR headquarters at an elevation of 1465 feet, three feet above the maximum predicted water levels. On the remaining land, wetland and upland habitat restoration would occur.

Lands acquired by the U.S. Fish and Wildlife Service are administered in accordance with the National Wildlife Refuge System Administration Act, Refuge Recreation Act, Executive Order 12996 (Management and General Public Use of the National Wildlife Refuge System), National Wildlife Refuge System Improvement Act and other relevant legislation, executive orders, regulations and policies. Management activities would include monitoring the status and recovery of endangered, threatened and sensitive species; controlling nonnative species; restoring native habitats; developing and providing wildlife-dependent recreational, interpretive and educational opportunities; and coordinating with State and Federal agencies. Payments to the county under the terms of the Refuge Revenue Sharing act are applied to all lands acquired in fee title (see Chapter 1, the Habitat Protection and Land Acquisition Process). Public use would be authorized only when it is compatible with the mission of the National Wildlife Refuge System and Refuge purposes.

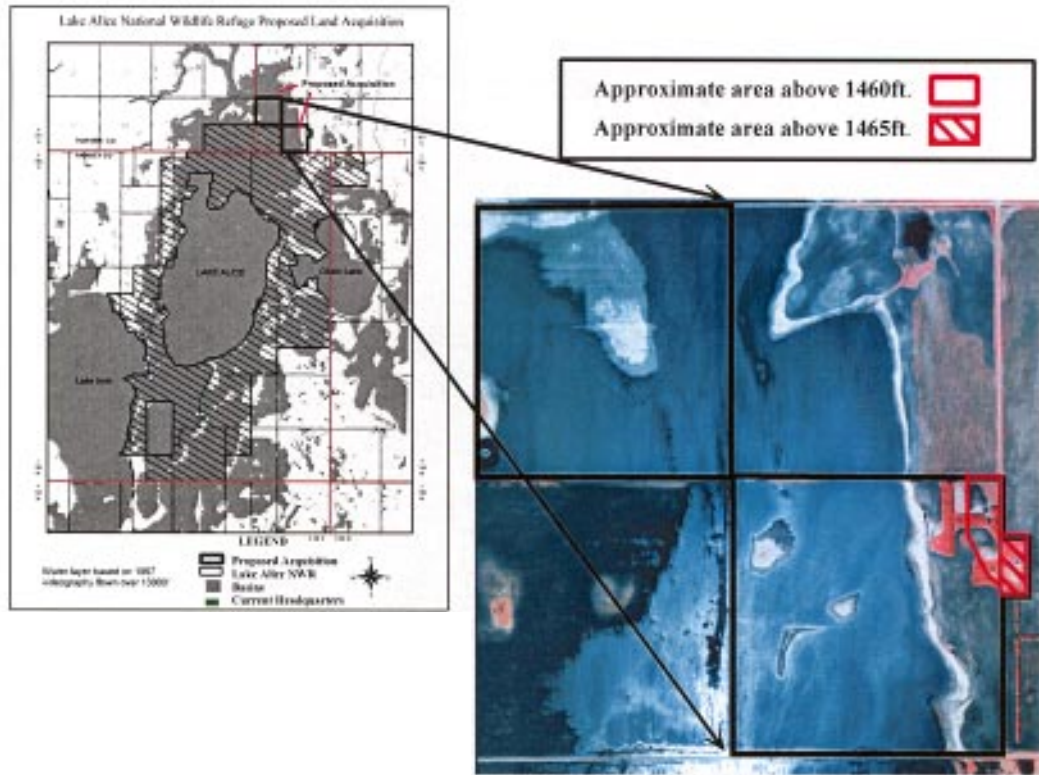


Figure 4. Alternative B, Proposed Acquisition of 322.73 acres. Aerial infrared photo from 1997 shows water coverage in blue/black and dry land in red/green. The headquarters buildings would be moved to the area above 1460 ft. in elevation, with most structures placed in the area above 1465 ft. The maximum predicted water level is 1460 ft. with a possible spring crest of 1462 ft. (USGS 1999).

# Chapter 3.

## Affected Environment

This chapter describes the existing biological, social, economic and cultural resources that would most likely be affected by this acquisition.

### Biological Environment

The climate in the project area is typical of a continental weather pattern with hot summers and cold winters. Average maximum temperature varies from 80°F in the summer to 10°F in the winter. Most of the precipitation in the area falls as rain from April to September. The average annual precipitation is approximately 17 inches; however, the actual precipitation has varied from as little as 13 to 22 inches per year (Omodt *et al.* 1968, Easterling *et al.* 1995).

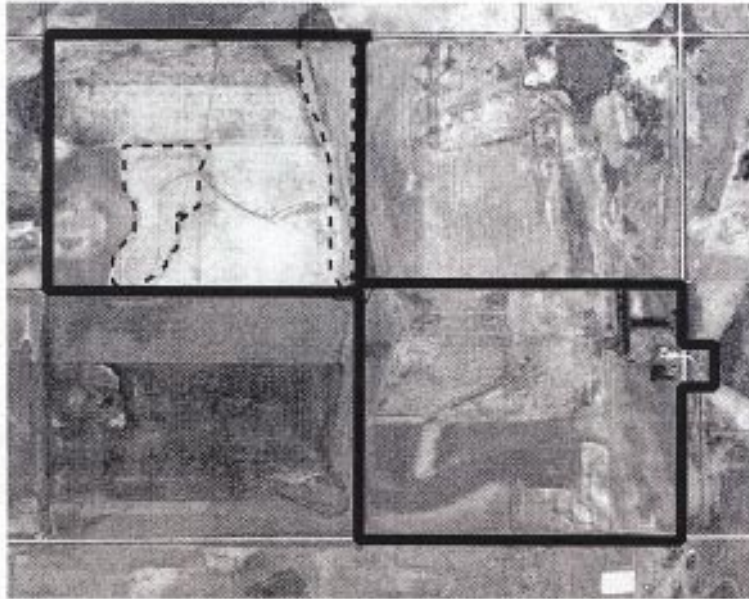
Soils on the Hanson property are loams/clay loams and loamy sands/sandy loams, formed from glacial till, a random mixture of sand, silt clay, pebbles and stones, deposited 10-12,000 years ago by glaciers moving over the land. Most of the land (229 acres) is classified as capable of producing crops with only moderate limitations on plant choice or the need for moderate conservation measures. These limitations include wet soils and erosion problems. The remaining 93 acres have severe limitations on crop choice and require special conservation practices to produce crops. These limitations include wet soils and soils with a shallow zone for plant roots or stony soils (Towner Co. Soil Conservation Service *unpubl data*, Natural Resources Conservation Service 1999).

Although the property has been entirely developed for agricultural use, the biological environment of the Hanson tract can change significantly between wet and dry years. In dry years, when water levels in the Basin are below 1445 feet, approximately 307 of the 322.73 acres on the tract were used as cropland (Figure 5A). The tilled acres, in some years, have included two wetland basins in the NW¼ of the property (USFWS 1989).

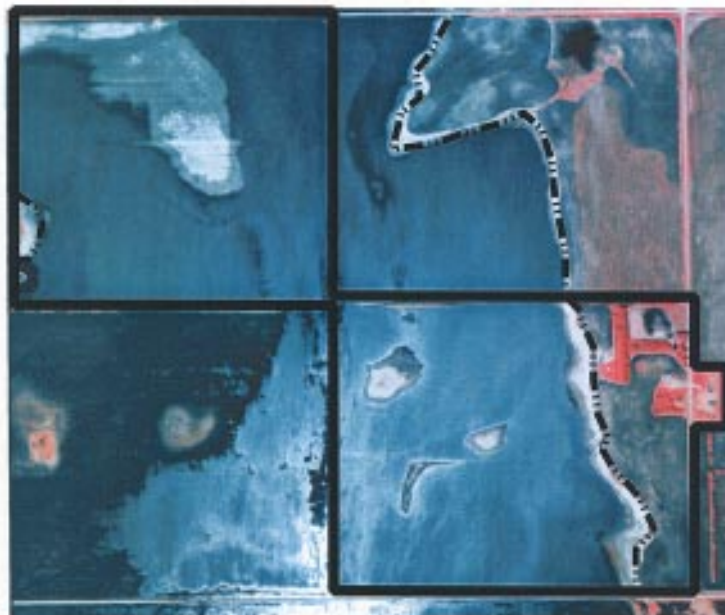
Once the water rises above 1445 feet, as during recent wet conditions, the property begins to flood. Currently, about 280 acres of the cropland are inundated. The remaining acreage above water includes some cropland, the abandoned farmstead and grain storage bins (Figure 5B). The farmstead has been abandoned for many years and ground cover is a mixture of tame grasses, including Kentucky bluegrass and smooth brome. The shelterbelt on the 3.02 acres in Section 32 is made up of Siberian peashrub. Trees in the SE¼ of Section 31 include cottonwood and elm.

Under current conditions a wide variety of wildlife may be expected to use the property. Waterfowl, Franklin's gulls, terns, shorebirds and grebes found on the adjacent Refuge may all use the wetlands during breeding and migration. The uplands are potential habitat for white-tailed deer and game birds such as pheasant and sharp-tailed grouse. The trees also provide nesting and roosting habitat for songbirds and raptors (Kahan 1999, *pers comm*). Cottonwoods can also provide denning sites for wildlife (Herman *et al.* 1996).

The property lies adjacent to the north side of Lake Alice National Wildlife Refuge. The Refuge is situated on Lake Alice, a deep marsh (Type IV wetland) on the Mauvais Coulee. Lake Alice NWR has 7,858 acres of wetland, 419 acres of cropland, and 3,497 acres of grassland providing many habitats for migrating and resident trust species and nongame species.



*Figure 5a. Aerial photograph of Hanson Property during 1967, a dry year. The solid line shows the proposed acquisition boundary. The dashed lines represent the approximate boundaries of two wetland basins on the property (USFWS 1989).*



*Figure 5b. Aerial photograph of Hanson Property during 1997, a wet year. The dashed black line shows the boundary between water that has inundated the property and dry land.*



Lake Alice NWR is particularly important for migrating and breeding waterfowl. Up to 100,000 geese use the Refuge during spring migration. Fall migration can see as many as 120,000 ducks, primarily mallards. Nesting waterfowl include mallards, blue-winged teal, gadwall, Canada geese, northern shovelers, northern pintails, ruddy ducks, redheads, and canvasbacks. The Refuge produces about 3,500 waterfowl per year, mostly canvasbacks and redheads, as well as around 3,000 coots per year.

Lake Alice NWR is also important for nongame birds. The world's second largest colony of Franklin's gulls can be found at the Refuge. An additional 21 species of birds nest on the Refuge, including the American bittern, upland sandpiper, and black tern which are all Fish and Wildlife species of concern (USFWS 1995). Piping plovers, a federally threatened species, has also nested at Lake Alice NWR.

## Social and Economic Considerations

The Hanson property is in southeastern Towner County on the border with Ramsey County. Both are productive agricultural counties in North Dakota. Approximately 87 percent of the land in both counties is farmland. Primary agricultural products include wheat, barley, oats, sunflowers, and hay (National Agricultural Statistics Service 1997). Devils Lake is also a popular recreational area for fishing, hunting, and boating.

### Agricultural Resources

In years when the water has been completely drained off of the property, approximately 307 tilled acres exist. In 1991 and 1992, the land was planted with barley, durum wheat, flax, and sunflowers. Flooding prevented planting crops on much of the land in 1997 and 1998 (see Chapter 4, Table1). The land is currently rented for \$25 per planted acre with no payment for flooded land. The property also has 10 grain storage bins that currently are not being used.

### Landownership

The land is currently under one private ownership, and that owner rents the tillable land to a local farmer. No new or additional zoning or land-use regulations would be created by the Service within the approved proposed addition to the Refuge or to neighboring landowners. The land-use would change from agricultural land to wildlife preservation with various recreation use.

### Property Tax

Towner County currently collects property taxes on the Hanson tract. The private property tax is based on the assessed value of the agricultural land. Upon acquisition of the Hanson tract by the Service, Towner County will receive payments-in-lieu-of-taxes from the Service under the Refuge Revenue Sharing Act (see Chapter 1).

### Public Use and Wildlife-dependent Recreational Activities

The Hanson tract is not currently open to public use. Major public uses at Lake Alice NWR include hunting, wildlife observation, photography, environmental education, and interpretation. Five thousand people are estimated to visit the Refuge annually.

## Cultural Resources

Archaeological and historical resources within any fee title lands receive protection under Federal laws mandating the management and protection of cultural resources. These laws include, but are not limited to, the Archaeological Resources Protection Act, the Archaeological and Historic Preservation Act, the Native American Graves Protection and Repatriation Act, Native American Religion Freedom Act, and the National Historic Preservation Act.

The Service has taken the necessary steps to be certain that the action of purchasing the Hanson property and moving the headquarters buildings to this site complies with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. The Service would also make certain that any future projects, programs or activities that would result in changes to the character of, or would potentially adversely affect, any historic cultural resource or archaeological site were also in compliance with the NHPA.

# Chapter 4. Environmental Consequences

This section assesses the environmental impacts expected to occur from the implementation of Alternatives A or B as described in Chapter 2. Environmental impacts are analyzed by issues for each alternative and appear in the same order as discussed Chapters 1 and 3.

## Effects on the Biological Environment

### ✓ Wildlife Habitat

**Alternative A (No Action):** If the Service does not purchase the Hanson tract, the value of the property for wildlife will continue to be limited. In dry years, the wetlands on the property probably will be tilled, providing no feeding or nesting habitat for many species of wildlife that utilize wetlands. This includes the 12 species of waterfowl and 38 species of nongame birds that regularly use the adjacent Refuge wetlands.

Under current ownership, the property will most likely continue to be used as cropland. This has a negative impact on waterfowl and other grassland birds as cropland has been shown to be inferior nesting habitat (Klett *et al.* 1988, Kantrud and Higgins 1992). Cropland also has a high potential for associated pesticide use, which can often be toxic directly to wildlife or adversely affect wildlife by destroying nesting cover (Messmer and Dahl 1991, Zollinger *et al.* 1996). Since soil erosion and wetland sedimentation is higher in tilled areas than grassland, continued use of this property for cropland can also be expected to further sediment loads on the adjacent Refuge wetlands (Gleason and Euliss 1998).

Wildlife adapted to agricultural land, such as white-tailed deer and ring-necked pheasants, will continue to use the property. Barn swallows and rock doves likely will continue to use the abandoned buildings for roosting and possibly nesting. Likewise, the trees in the shelterbelts still would provide potential nesting and roosting habitat for raptors and other migratory birds.

**Alternative B (Purchase Hanson tract, Preferred Alternative):** If the Service purchases the Hanson property, restoration of wetland and upland grass habitat will occur, and the overall value of the tract for wildlife will improve. The restoration of the temporary and seasonal wetlands in the NW<sup>1</sup>/<sub>4</sub> of Section 31 will provide feeding and nesting habitat for many types of wildlife. Temporary wetlands are important as invertebrate food supplies early in the nesting season for dabbling ducks, such as mallards and pintails, because they are the first to thaw. Seasonal wetlands provide additional food and nesting habitat, not only for dabbling ducks, but also for diving ducks such as canvasbacks, redheads, and ruddy ducks (Kantrud *et al.* 1989). Migrating shorebirds and nongame marsh and aquatic birds that regularly use Lake Alice NWR would also benefit from the restoration of adjacent wetlands. Other species of wildlife, including at least three species of amphibians and at least 16 species of mammals, are known to be associated with wetlands and would likely use any restored wetlands on the Hanson property (Kantrud *et al.* 1989).

If the Service purchases the Hanson property, the cropland will be planted into native or tame grasses. This change in cover likely would improve nesting habitat for waterfowl and other nongame bird species since nest initiation and success is higher in grasslands than in cropland (Klett *et al.* 1988, Kantrud and Higgins 1992). Restoration of upland grass will also reduce or eliminate pesticide use, which is primarily associated with cropland and can be harmful to wildlife either through direct poisoning or by removal of nesting cover (Messmer and Dahl 1991, Zollinger *et al.* 1996). Sedimentation into adjacent wetlands from soil erosion would also be reduced as cropland is replaced by grassland (Gleason and Euliss 1998).

Much of the wildlife currently using the property would not be negatively affected by the restoration of upland and wetland habitat. The shelterbelt trees will remain on the property and continue to provide potential nesting and roosting habitat for raptors and other migratory birds. However, some potential roosting and nesting habitat for birds using the abandoned buildings will be lost when the headquarters buildings are moved to the site.

#### ✓ Water Management

**Alternative A (No Action):** Since 1993, high water levels in Lake Alice have prevented drainage of wetlands on the Hanson property. However, drainage ditches exist for the 15-acre temporary wetland and the 18-acre seasonal wetland, and a history exists of draining these wetlands off of the property into Lake Alice. At an estimated average depth of 1-2 feet for these wetlands, that represented 33-66 acre-feet of water contributing to flooding and water management problems on Lake Alice NWR. If the Service does not purchase the Hanson property, these wetlands have the potential to be drained when conditions permit.

**Alternative B (Purchase Hanson tract, Preferred Alternative):** Purchasing the Hanson tract would improve the Service's ability to manage water on Lake Alice NWR. By restoring the temporary and seasonal wetlands on the property, 33-66 acre-feet of water storage could be added to the 4,000 acre-feet stored through water development projects on the Refuge. The 33-66 acre-feet of water would, therefore, be prevented from flowing into Lake Alice and contributing to flooding problems on the Refuge and in the Devils Lake basin. It should be noted, that this benefit will not be realized in years when flood waters are above 1445 feet, and most of the property is inundated.

✓ Refuge Management

**Alternative A (No action):** Not purchasing the Hanson property would have a negative impact on the ability of Service staff to manage Lake Alice NWR and the Devils Lake WMD effectively and efficiently. Fill to build up the road into the current headquarters site is extremely limited, and it is likely that the site will be flooded within the next year or two. The inability to use the flooded Refuge headquarters at Lake Alice NWR has forced Service staff to use the only other storage and maintenance facility in the District at Sullys Hill National Game Preserve. This site requires approximately 50 additional miles of travel each week in addition to the loss in personnel work time (Kahan 1999, *pers comm*).

Other options to restore a fully functioning, efficient headquarters site have been considered, but are limited by the availability of road fill and low elevations. A small hill is located in the northeastern part of Lake Alice NWR at 1460-1465 feet that could be a potential headquarters site; however, the ¾ mile access road into the site would need to be built up 10 feet to prevent future flooding, and fill is extremely limited. The Service does not own any other land within a 10-mile radius of Lake Alice NWR at an elevation above 1460 feet. In addition, no other privately owned land exists adjacent to the Refuge higher than 1460 feet. Not moving the headquarters to the Hanson Property, therefore, might result in increased costs due to access road construction and/or having to move the buildings again if the water in the Devils Lake area rises to 1462 feet, the maximum predicted elevation.

**Alternative B (Purchase Hanson Tract, Preferred Alternative):**

The Hanson property would provide a long-term, efficient and cost effective solution to relocating the Lake Alice NWR headquarters. The building site is three feet above the highest expected water level and access via county roads to the headquarters site should continue to be available without any additional investment by the Service. Since the Hanson property is adjacent to Lake Alice NWR, travel time to use the headquarters facilities for management of the Refuge will be minimized. Travel time from the northern parts of Devils Lake WMD to the headquarters on the Hanson property will also be less for Service personnel than traveling to the facility at Sullys Hill National Game Preserve, which is on the southwestern edge of the WMD.

✓ Water and Soil Contamination

**Alternative A (No Action):** If the Service does not purchase the Hanson property, soil and water contamination problems on the tract will persist. The three open wells on the property serve as conduits for contaminants to reach groundwater supplies. Unlabeled pesticide currently located in the abandoned barn likely will not be disposed of and will continue to pose a contamination threat. Additionally, soils potentially contaminated by leaks from farm equipment stored on the property will not be cleaned up or removed.

**Alternative B (Purchase Hanson tract-Preferred Alternative):** If the Service purchases the Hanson property, soil and water contamination problems on the acquisition will be reduced or eliminated. Open water wells on the property would be closed by the Service, thereby removing the threat to groundwater contamination. Pesticides stored in unlabeled containers would be identified and disposed of safely. Any soils contaminated by leakage from farm equipment would also be cleaned up and/or removed.

## Effects on the Social and Economic Environment

### ✓ Property Taxes

**Alternative A (No Action):** If the Service did not purchase the land from Mr. Hanson, he would continue to pay taxes to Towner County. The total property taxes paid in 1998 for the proposed acquisition were \$1,386.76.

**Alternative B (Purchase Hanson tract, Preferred Alternative):** If the Service purchases the Hanson property, it would be exempt from taxes. However, under the Refuge Revenue Sharing program (see Chapter 1), the Service would make payments to Towner County at the rate of  $\frac{3}{4}$  of 1 percent of the appraised value of the land or a maximum of \$962.62. Under 1998 funding to the Service, Revenue Sharing payments were made at a rate of 62.26 percent, which would translate to an annual payment of \$599.33 for the Hanson property. Under these conditions, a net loss would occur in tax revenue for Towner County of \$787.43 annually. This is less than .02 percent of the \$3,628,644.81 in total property taxes levied in Towner County for 1998 (Clayburgh 1998).

### ✓ Land-use and Revenue

**Alternative A (No Action):** The Hanson property is currently used as cropland. The average gross income for four different years was estimated (see Table 1). Two relatively dry years (1991,1992) as well as two wet years (1997,1998) were analyzed to obtain a more accurate estimate of the average income that could be expected from this property if it was not purchased by the Service. The four-year average gross income was \$12,305.32. This is the income to the renter of the property. Mr. Hanson receives \$25/acre for each acre that is planted. However, since Mr. Hanson currently lives out of State, this income would have little or no impact on the immediate community, and thus is not considered in this evaluation.

The income generated by the renter will likely be spent within the community and will generate additional income. This phenomenon is known as the "multiplier effect." The Department of Agricultural Economics at North Dakota State University (Coon and Leitch 1990) has developed a model that predicts how income from different sectors in the economy is multiplied to generate additional income. The \$12,305 in agricultural income from the Hanson tract is predicted to generate \$44,000 in total economic revenue for the community.

**Alternative B (Purchase Hanson tract, Preferred Alternative):** If the Service purchases the Hanson property, the 322.73-acre parcel will become part of Lake Alice NWR. Under Service ownership either tame or native grass would be planted on the cropland. Small wetlands on the property would also be restored. The Refuge Manager for Lake Alice NWR estimates the cost of managing the parcel at \$15/acre or total of \$4,830 in management expenditures. The grass on the property would likely be hayed once every three years to maintain vigor. Based on yield estimates from the various soil types on the property, approximately 673 tons of hay could be harvested (Towner County, *unpubl data*). The average price for a ton of hay from 1993-1998 was \$50.80 or a total revenue of \$34,168 (North Dakota Agricultural Statistics Service 1998, 1999). Since the crop income analyzed in Alternative A was based on a four-year average, the total hay revenue was averaged with three years of no hay income to produce a four-year average agricultural income of \$8,542 for the property under Service ownership.

Table 1. Summary of estimated gross income for Hanson property for two dry years (1991,1992) and two wet years (1997,1998). Acres planted in each crop were provided by the Towner County Farm Services Agency. Estimates of yields were obtained from unpublished soil survey data from Towner County. Average price per unit values were taken from yearly summaries published by the North Dakota Agricultural Statistics Service.

<b>Crop Year: 1991</b>				
<b>Crop</b>	<b>Acres</b>	<b>Yield</b>	<b>Avg price/unit</b>	<b>Gross Income</b>
Sunflowers	99.0	134,050 lbs.	\$8.10/100 lbs.	\$10,858.05
Barley	108.5	4861 bu.	\$1.75/bu	\$8,506.75
Durum	23.0	700 bu.	\$3.10/bu	\$2,170.00
Fallow	76.5	0	0	0
TOTAL	307.0			\$21,534.80
<b>Crop Year: 1992</b>				
<b>Crop</b>	<b>Acres</b>	<b>Yield</b>	<b>Avg price/unit</b>	<b>Gross Income</b>
Barley	82	3599 bu.	\$1.75/bu.	\$6,298.25
Flax	15	240 bu.	\$4.10/bu.	\$984.00
Wheat	57	1401 bu.	\$3.15/bu.	\$4,413.15
Fallow	148	0	0	0
Wet	60	0	0	
TOTAL	308			\$11,695.40
<b>Crop Year: 1997</b>				
<b>Crop</b>	<b>Acres</b>	<b>Yield</b>	<b>Avg price/unit</b>	<b>Gross Income</b>
Canola	19	22420 lbs.	\$11.10/100 lbs.	\$2,488.62
Prevented Planting	291	0	0	0
TOTAL	310			\$2,488.62
<b>Crop Year: 1998</b>				
<b>Crop</b>	<b>Acres</b>	<b>Yield</b>	<b>Avg price/unit</b>	<b>Gross Income</b>
Wheat	147	4067 bu.	\$3.32/bu.	\$13,502.44
Prevented Planting	159	0	0	0
TOTAL	306			\$13,502.44

The restoration of wetlands and upland habitat on the property would also be expected to attract visitors to the property for activities such as hunting and birdwatching. Some of these visitors would likely come from out of town and, therefore, would have expenditures for lodging, gas, meals, and merchandise. Although the actual number of visitors is very difficult to estimate, previous analysis for land purchased in the Lake Alice vicinity and opinions of Service staff indicate that the addition of the Hanson property to Lake Alice NWR might increase visitation by approximately 12 parties of 3 people per year. Based on a previous analysis of recreation and tourism costs in the Lake Alice NWR vicinity, the average expenditure of a three-person party for a three day-two night stay is \$270 (Wacker and Powers 1998). The recreation and tourism income generated by this property is estimated to be \$3,240/year. The four-year average total annual income for the property under Service ownership is estimated at \$16,612 (see Table 2 for summary).

Table 2. Summary of revenue generated in the local community from Hanson property under Service ownership.

Source of Revenue	Cost/Unit	Yearly Total	Four-year Average
Hay Production - 672.6 tons	\$50.80	\$34,168.08	\$8,542.02
Refuge Mgmt. - 322.73 acres	\$15/acre	\$4,830.00	\$4,830.00
Rec/Tourism - 12 parties of 3	\$270/party	\$3,240.00	\$3,240.00
Total Revenue			\$16,612.02

The NDSU economic model was also used to estimate the total economic revenue generated under Service ownership. The input of agricultural revenue (\$8,542), government revenue (management costs \$4,830) and recreation/tourism (\$3,240) were entered into the model. The total economic impact on the local economy is estimated at \$44,000. This is the same estimated economic impact generated under Alternative A.

### Unavoidable Adverse Impacts

The purchase of the Hanson property (Alternative B) would not result in any direct or indirect adverse impacts on the physical and biological environment. Acquisition by the Service would reduce current adverse impacts by restoring wildlife habitat and removing contamination threats on the property. If the Service does not purchase the property, adverse impacts such as digging for road fill on the Refuge to build up flooded roads could occur. Also, wetlands drainage, pesticide runoff, soil erosion, and contamination of soil and water from on-site hazardous materials would likely occur or continue to occur on the Hanson property.



Table 3.  
Comparative Summary of Environmental Consequences by Alternatives

<b>Issue</b>	<b>Alternative A (No Action)</b>	<b>Alternative B (Purchase Hanson Tract)</b>
<b>Wildlife Habitat</b>	Wetlands on property continue to be tilled; Property is used as cropland with associated effects of pesticide use, soil erosion and inferior migratory bird nesting habitat.	Wetlands on property restored and upland habitat planted in grass providing improved wildlife habitat and decreased pesticide and sediment loads.
<b>Water Management</b>	Two wetlands representing 33-66 acre-feet of water can be drained onto Lake Alice NWR in most years contributing to flooding on the Refuge and in the Devils Lake Basin.	Wetlands on property are restored allowing storage of 33-66 acre-feet of water and improving water management on Lake Alice NWR.
<b>Refuge Management</b>	Additional Service time and expense to travel to maintenance and storage facilities not adjacent to Lake Alice NWR; Additional costs to raise flooded roads and/or relocated buildings twice.	Long-term and cost effective location for storage and maintenance facilities improving Refuge and WMD management; No additional costs to improve access roads.
<b>Water and Soil Contamination</b>	Potential contamination threats including open wells, unlabelled containers of pesticides and possible soils contaminated by farm equipment would be untreated.	The Service would close open wells, dispose of pesticides and clean/ remove contaminated soils found on the property to reduce or eliminate contamination threats to the soil and water.
<b>Property Tax</b>	Landowner continues to pay property taxes to Towner County; \$1,386.76 payment in 1998.	Service makes payments to Towner County under the Refuge Revenue Sharing program estimated at \$599.33; Net loss to Towner County of \$787.43 or .02 percent of total property taxes levied in 1998.
<b>Land-use and Revenue</b>	Land continues to be used as cropland; Four-year average gross income estimated at \$12,305.32; Generates \$44,000 in total economic activity in the community.	Land managed as part of Lake Alice NWR; Four-year average revenue for community estimated at \$16,612.02; Generates \$44,000 in total economic activity for the community.

## Irreversible and Irretrievable Commitments of Resources

Alternative A, to not purchase the Hanson property, would not result in any irreversible or irretrievable commitments of resources. However, other solutions to the flooded headquarters would need to be explored and could result in a commitment of resources above those expected under Alternative B. If the Service does purchase the Hanson tract, the purchase costs, expenditures to prepare the headquarters site, hazardous waste removal, moving the buildings, restoration of wetland and upland habitat, as well as management costs, would all be irreversible and irretrievable commitments of resources.

## Short-term Uses Versus Long-term Productivity

The purchase of the Hanson property (Alternative B) contributes to the short-term and long-term productivity of Lake Alice NWR and the Devils Lake Wetland Management District. The elevation of the proposed headquarters site on the Hanson property is a long-term solution to flooding problems. The site is three feet above the highest expected water levels. This will provide immediate relief as well as eliminating the need to relocate the buildings in the future. Access via county roads is expected to continue even under maximum flood conditions as well. The additional wetland and upland habitat addition to Lake Alice NWR will also contribute to the long-term protection of migratory species, endangered and threatened species, and maintenance of biological diversity. The public would also gain long-term opportunities for wildlife-dependent activities.

## Cumulative Impacts

The purchase of the Hanson property would be expected to have positive long-term cumulative impacts on management of the Devils Lake WMD including Lake Alice NWR and on wildlife. The location of the maintenance and storage facilities of the Lake Alice NWR headquarters on the Hanson property would mean that the facilities will continually be accessible and conveniently located. A significant savings in personnel hours and maintenance costs for the headquarters site would accrue over time. The additional acres of restorable wildlife habitat adjacent to Lake Alice NWR would contribute to the Refuge goals of creating a complex of habitats that support an abundance of migratory birds and other wildlife, while providing wildlife-dependent public use and promoting the appreciation of wetland values.

# Chapter 5. Coordination and Environmental Review

## Agency Coordination

The need to relocate the headquarters for Lake Alice NWR was first identified in 1999 by Refuge staff. The relatively high elevation, good access and close proximity to Lake Alice NWR prompted the Service to consider the Hanson Property as a new headquarters site. The building site was not available for purchase as a separate parcel, thus the acquisition under consideration by the Service is for the entire tract of 322.73 acres. This Environmental Assessment addresses the acquisition of this tract as an addition to Lake Alice National Wildlife Refuge.

This Environmental Assessment will be made available to the relevant Federal agencies, Congressional officials, North Dakota state agencies and elected officials, Towner County Commission and County agencies, the cities of Devils Lake and Cando, other interested groups and the general public. Funding for this acquisition will come through emergency funding from the Land and Water Conservation Fund.

## National Environmental Policy Act

As a Federal agency, the U.S. Fish and Wildlife Service must comply with provisions of the National Environmental Policy Act (NEPA). An Environmental Assessment is required under NEPA to evaluate reasonable alternatives that will meet stated objectives and to assess the possible impacts to the human environment. The Environmental Assessment serves as the basis for determining whether implementation of the proposed action would constitute a major Federal action significantly affecting the quality of the human environment. The Environmental Assessment also facilitates the involvement of government agencies and the public in the decision making process.

## Other Federal Laws, Regulations, and Executive Orders

In undertaking the proposed action, the Service would comply with a number of Federal laws, executive orders and legislative acts, including: Floodplain Management (Executive Order 11988); Intergovernmental Review of Federal Programs (Executive Order 12372); Protection of Historical, Archaeological and Scientific Properties (Executive Order 11593); Protection of Wetlands (Executive Order 11990); Management and General Public Use of the National Wildlife Refuge System (Executive Order 12996); Endangered Species Act of 1973, as amended; Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, as amended; Refuge Recreation Act, as amended; Refuge System Administration Act, as amended; National Historic Preservation Act of 1966, as amended.

## Distribution and Availability

Copies of this Environmental Assessment were sent to Federal, State, and County legislative delegations and agencies, private groups, and interested individuals (see Appendix B). Additional copies of this document are available at the USFWS Bismarck Realty Office, 3425 Miriam Ave. Bismarck, ND 58501 (tel. 701-250-4415; fax 701-250-4412) and the Devils Lake Wetland Management District Office, 221 2<sup>nd</sup> St. West, Devils Lake, ND 58301 (tel. 701-662-8611, ext. 323; fax 701-662-8612).

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# APPENDIX A.

## Endangered, Threatened and Candidate Species

### Hanson Property Acquisition

<u>Mammals:</u>	gray wolf	<i>Canis lupus</i> (E)
<u>Birds:</u>	bald eagle	<i>Haliaeetus leucocephalus</i> (T)
	piping plover	<i>Charadrius melodius</i> (T)
	whooping crane	<i>Grus americana</i> (E)

Key:

- (E) Endangered      Listed (in the Federal Register) as being in danger of extinction
- (T) Threatened      Listed as likely to become endangered within the foreseeable future

\*These species listed here are those reported in the vicinity or surrounding area (counties), not necessarily in the proposed project area.

# **APPENDIX B.**

## **Distribution List for the Environmental Assessment**

### Federal Government

U.S. Congress

P Senator Kent Conrad

P Senator Byron Dorgan

P Representative Earl Pomeroy

U.S. Department of Agriculture

P Farm Service Agency (Devils Lake)

P Rural Economic and Community Development Center (Devils Lake)

P Natural Resources Conservation Service (Devils Lake)

P ASCS (Towner County)

U.S. Army Corps of Engineers

Environmental Protection Agency

U.S. Department of the Interior

P U.S. Fish and Wildlife Service

USFWS, Regional Office, Denver, CO

### North Dakota State Government

Governor

P Honorable Edward Schafer

State Representatives

P Senator John Traynor

P Representative Curtis Brekke

P Representative Eugene Nicholas

P North Dakota State Water Commission

P North Dakota Game and Fish Dept.

-Devils Lake Office, Bismarck Office

P North Dakota State Historical Society

### County Government

P Towner County Commissioners

P Towner County Soil Conservation District

P Towner County Water Resources District

P Towner County Agent

P Ramsey County Water Resources District

### City Government

P City of Cando

P City of Devils Lake

### Groups

P The Nature Conservancy of North Dakota

P Ducks Unlimited

P North Dakota Wetlands Trust

P Delta Waterfowl Foundation

P National Audubon Society

P Pheasants Forever

P North Dakota Chapter of the Wildlife Society

P North Dakota Wildlife Federation



# APPENDIX C.

## List of Common and Scientific Names Used in the Text

### Plants

Cottonwood	<i>Populus deltoides</i>
Elm	<i>Ulmus spp.</i>
Kentucky bluegrass	<i>Poa pratensis</i>
Siberian peashrub	<i>Caragan arborescens</i>
Smooth brome	<i>Bromus inermis</i>

### Wildlife

American bittern	<i>Botaurus lentiginosus</i>
Barn swallow	<i>Hirundo rustica</i>
Black tern	<i>Chlidonias niger</i>
Blue-winged teal	<i>Anas discors</i>
Canada goose	<i>Branta canadensis</i>
Canvasback	<i>Aythya valisineria</i>
Coot	<i>Fulica americana</i>
Franklin's gull	<i>Larus pipixcan</i>
Gadwall	<i>Anas strepera</i>
Mallard	<i>Anas platyrynchos</i>
Northern shoveler	<i>Anas clypeata</i>
Northern pintail	<i>Anas acuta</i>
Ring-necked pheasant	<i>Phasianus colchicus</i>
Redhead	<i>Aythya americana</i>
Rock dove	<i>Columba livia</i>
Rudy duck	<i>Oxyura jamaicensis</i>
Sharp-tailed grouse	<i>Tympanuchus phasianellus</i>
Upland sandpiper	<i>Bartramia longicauda</i>
White-tailed deer	<i>Odocoileus virginianus</i>





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