

CHAPTER 4 - ENVIRONMENTAL CONSEQUENCES

This chapter evaluates two alternatives on the basis of environmental consequences or impacts to the environment. Alternative 1, "No Action", is the status quo alternative where current conditions and trends of management, public use, and land ownership and use are projected into the foreseeable future. The analysis of Alternatives 2 focuses on anticipated changes in comparison to conditions under Alternative 1.

I. IMPACTS TO THE BIOLOGICAL ENVIRONMENT

1. Waterfowl

L *Alternative 1* would result in no direct change in waterfowl production or use at the Refuge since there would not be an appreciable increase in nesting, resting, or feeding habitats in the immediate area, or the quality of existing Refuge habitats would not improve appreciably. In the long-term, local waterfowl populations could decline as existing wetland habitats degrade and predation continues to take its toll.

L *Alternative 2* would increase waterfowl production at the Refuge by increasing the quantity and quality of nesting habitat available to Refuge waterfowl (see CMP). Nesting success would increase as birds disperse their nests over a larger area, thus creating a larger area that predators must search. Predator populations may not increase if newly established nesting habitat is established in existing predator territories (Debarred et al. 1981). In South Dakota, agricultural fields converted to permanent cover had lower nest destruction rates due to predation 10 years after initial conversion (Debarred and Lokemoen 1976). Similar predictions have been made in other areas of the prairie pothole region (Klett et al. 1988). Additional resting and feeding habitats would also disperse staging birds over a larger area and decrease the chance of catastrophic accident or disease. Additional habitat would also help ensure that migrating ducks arrive on their northern breeding grounds in better reproductive condition (Krapu 1981, LaGrange et al. 1988).

Additional waterfowl production would also be achieved through the implementation of an intensive artificial nesting structure program. Nest baskets for mallards at a density of 1 basket for every 5 wetland acres should produce .3 fledglings per wetland acre (IPPJVP, 1989). Studies in Iowa have shown that wood duck boxes placed at a density of 1 box for every 3 wetland acres will produce .8 fledglings per wetland acre. Additional predator control, particularly for crows, would also enhance waterfowl production at the Refuge. An electric fence study on a 40-acre upland associated with a large wetland in northern Iowa produced 4.4 fledglings per upland acre compared to .6 to 1.0 fledglings per upland acre produced without a predator barrier (IPPJVP, 1989). Other techniques such as planting low-growing shrubs on islands to reduce avian predation on nesting birds, and by simply removing tall trees and shrubs used as perches by avian predators have been shown to be effective.

2. Grassland Birds

L *Alternative 1, No Action*, would probably contribute to continued long-term declines for many grassland-dependent bird species that utilize the Refuge.

L *Alternatives 2* would benefit grassland-dependent bird species by providing additional nesting, resting, and feeding habitats. Several species, whose population status is of special management concern, could benefit directly. These include the American bittern, upland sandpiper, least bittern, black tern, red-shouldered hawk, northern harrier, dickcissel, short-eared owl, barn owl, sedge wren, loggerhead shrike, grasshopper sparrow, vesper sparrow, savannah sparrow, henslow's sparrow, field sparrow, bobolink, eastern meadowlark, and western meadowlark.

Re-establishment of riparian areas, wetlands, wet prairies, sedge meadows, and associated grasslands would create habitats essential for many nesting and migrating songbirds, and should contribute to the long-term recovery of some neotropical migrant populations. Large wetlands, particularly wetland complexes with interspersed grassy uplands, are vital to the survival of many of these species in Iowa. Wet prairies and sedge meadows are particularly important as they thaw earlier in the spring and provide an important early source of insects and other invertebrates for grassland birds. These areas also tend to stay moist longer into the summer, thus prolonging insect and invertebrate availability.

3. Threatened and Endangered Species

L *Alternative 1, No Action*, would have no impact on threatened and endangered species that utilize the Refuge since no additional habitats would be restored or preserved.

L *Alternative 2*, would benefit threatened and endangered species by restoring and preserving additional wetland and upland habitats, reducing disturbance to certain species through re-routing the auto tour route, and by increasing research activities on the Refuge aimed at certain species.

5. Resident Wildlife

L *Alternative 1, No Action*, would have little or no impact on resident wildlife that utilize the Refuge since no significant amount of habitat would be restored, enhanced, or preserved.

L *Alternative 2*, would benefit resident wildlife. Since this alternative emphasizes habitat preservation, restoration, and enhancement, the greatest increase in resident wildlife would be noted in those species dependent on wetlands and associated grasslands, namely muskrat, raccoon, mink, weasel, reptiles, river otter, amphibians and reptiles, and to some extent, white-tailed deer. In addition, as water quality improves, important resident game fish populations would be expected to increase in proportion to the amount of quality habitat made available.

5. Biological Diversity

L *Alternative 1* would do little for biological diversity, and in the long-term, could lead to further declines in species richness and abundance. As Refuge wetlands continue to degrade, plant diversity and production will continue to decline, thus adversely affecting many wildlife and fish populations.

L *Alternatives 2* would increase and preserve biological diversity by restoring and preserving diverse habitats, including seasonal wetlands, wet meadows, native prairies, and riparian associations, all of which have experienced serious declines in the area since settlement. Once restored, these areas could create a number of interconnected habitat niches for indigenous and migrant wildlife that currently do not exist at the Refuge, thus increasing the overall biological diversity of the Refuge and area.

II. IMPACTS TO THE PHYSICAL ENVIRONMENT

1. Land Area and Use

L *Alternative 1, No Action*, would result in small increases in wetland and upland habitats through existing Service and nonservice programs. However, since most of these programs generally restore and preserve small tracts of habitat scattered throughout large geographic areas (as opposed to larger single blocks), increased use and production of migratory birds, threatened and endangered species, and other diverse wildlife at the Refuge would probably be minimal.

L *Alternatives 2* would lead to restoration and preservation of additional wetlands, wet meadows, and prairie habitats by the Service. Three thousand seven hundred and fifty (3,750) acres could be acquired by the Service over the next 15 years (willing buyer/willing seller only).

2. Hydrology and Drainage

L *Alternative 1, No Action*, would have no affect on hydrology and drainage in the area.

L *Alternatives 2* could affect drainage on wetlands the Service restores. However, it is Service policy not to impede the flow of waters from other lands, even if that flow passes through lands acquired by the Service. The Service would not cause any artificial increase of natural water levels, width, or flow of waters without ensuring that impacts would be limited to those lands in which the Service acquires an appropriate management interest. No work would be done with county tile without approval of county drainage supervisors. Additional studies and detailed planning would be performed prior to the Service undertaking any management activity. If the Service does inadvertently create a water-related problem for any private landowner (flooding, soil saturation, increase in water table height, etc.), the problem would be corrected by the Service.

3. Sedimentation And Water Quality

L *Alternative 1, No Action*

In the short-term, water quality within Refuge wetlands and their tributaries would remain about the same, or could possibly improve as technology, techniques, and programs evolve to address current issues associated with runoff. Sediment loads would remain fairly high as long as unprotected banks and valley slopes continue to erode and export sediment to Refuge waterways. USDA soil conservation requirements currently minimize soil erosion on neighboring farms with highly erodible soil, but sediment and farm chemicals continue to enter waterways that feed the Refuge. No coordinated effort, other than the current WQIP, are anticipated with this alternative.

L *Alternative 2* would reduce sedimentation and improve water quality within the Refuge through an intensified and coordinated watershed stewardship program aimed at assisting private landowners within the Refuge watershed. In this regard, the Service would facilitate watershed improvements using existing Federal, State, local, and private programs (Appendix). Highly erodible lands would be converted to permanent cover, stream banks and waterways would be stabilized through vegetative plantings or natural development, and filter wetlands/sediment retention basins would be constructed to cleanse tile waters entering the Refuge. Re-establishment of a tree canopy over certain stream edges would stabilize the stream bank, reduce summer water temperatures for aquatic organisms, and provide a micro environment required by many fish and wildlife species.

4. Cultural Resources

Cultural resources are archeological, historic, and architectural sites, places, and structures located on the Refuge or that could be affected by Refuge activities. Significant cultural resources are those on or eligible for the National Register of Historic Places, and are to be protected from unconsidered effects. In addition, all archeological sites on the Refuge more than 50 years old are to be protected from unauthorized excavation and collection. Native American human remains and cultural objects are subject to special treatment.

L *Alternative 1* would continue preservation of cultural resources on the Refuge, and off the Refuge when affected by Refuge activities. The Refuge Manager obtains professional cultural resources support and assistance from the Regional Historic Preservation Officer. Prior to ground disturbing activities, project areas are analyzed, and inventoried when warranted, for archeological sites. Identified archeological sites that could be affected are evaluated for significance. Structures 50 years old meet the age criteria for the National Register; no buildings that old remain on the Refuge. Some water control structures and the Refuge itself have passed the 50-year limit, but they are not yet understood to be historically significant. Damage to significant cultural resources is avoided or, if not avoidable, is mitigated.

L *Alternative 2* would extend cultural resources preservation to any additional lands acquired for the Refuge. Land acquisition would have no effect on archeological resources, but could have an adverse effect on standing structures. The Service seldom acquires structures with the intent to maintain and preserve them, and neglect as well as demolition is an adverse effect on structures on or eligible for the National Register. Thus the Service informs the Iowa Historic Preservation Officer of forthcoming acquisitions and the Refuge protects structures until evaluation, and mitigation if appropriate, is completed. The Service will consider how significant structures can be retained and used for Refuge purposes. The Refuge Manager will develop a program to inventory the significant cultural resources on the Refuge.

III. IMPACTS TO THE SOCIOECONOMIC ENVIRONMENT

For the purpose of this assessment, impacts to the socioeconomic environment are generalized in terms of potential gains and losses. Gains could include increases in Refuge management expenditures, water quality benefits from retiring certain croplands, increases in wildlife-oriented recreation expenditures, and revenue sharing payments on lands the Service purchases in fee-title. Losses could include crop production expenditures, profits on acres taken out of production, and tax revenues when lands are acquired in fee-title by the Service. No economic multipliers were used or was any estimate made to

reflect economic activity that would occur as monies are reinvested in the local economy from such things as the sale of lands, conservation easements, leases, etc.

1. Agricultural Production

L *Alternative 1, No Action*, would not affect agricultural production and values.

L *Alternative 2* could result in reduced agricultural production when existing croplands are converted to wetland or permanent upland cover. Approximately three thousand seven hundred and fifty (3,750) acres of cropland adjacent to the Refuge could be acquired by the Service and converted to wildlands (willing seller only) over the next 15 years. However, this diversion would not be permanent or irreversible if it is determined that it is in the best public interest, at some future date, to again cycle these lands back to agricultural use. Certain programs, such as the CRP and State and Federal private lands programs, offer landowners short-term contracts while keeping lands in private ownership. Any conversion of agricultural land to other uses would occur gradually as acquisition and habitat restoration dollars become available over time and as landowners emerge as willing participants and/or sellers.

2. Crop Depredation

Neighboring farmers are suffering crop losses due to grazing geese, ground squirrels, pheasants, and deer. Early season losses following emergence of corn and/or soybeans occurs from all species on lands bordering the Refuge. For ground squirrels and pheasants, most damage occurs soon after crop emergence, but also occurs at other times as well. Geese graze on soybeans and to a lesser extent, corn, for several weeks after emergence. Damage by grazing geese and goslings usually occurs only where the distance between Refuge wetlands and adjacent farmlands is very narrow, less than ten yards in some cases. White-tailed deer feed on crops throughout the growing season. Crop damage varies by species and location, with some Refuge neighbors suffering greater losses than others.

L *Alternative 1*, Refuge staff would continue to assist landowners suffering crop depredation when requested. Most assistance in the past has been given to those landowners losing soybeans to Canada geese with goslings. For this the Refuge has erected goose-proof fences, constructed scarecrows, and provided landowners propane guns and shell crackers.

L *Alternative 2*, Refuge staff would continue to assist landowners when requested. In addition, the Refuge would explore new ways to address crop depredation concerns. To address the growing concern about the deer herd, the Refuge will hold special hunts. The number of permits issued can be adjusted to accurately meet the goal of reducing the deer herd to a winter population of about 200 animals. This action will be closely coordinated with the Iowa DNR.

To address concerns regarding crop losses due to grazing geese, the Refuge would facilitate restoration of a 1/4-mile vegetative buffer between Refuge wetlands and adjacent croplands. Studies have shown that grazing geese and goslings will seldom penetrate dense vegetative barriers.

3. Public Use

Auto Tour Route

L ***Alternative 1, No Action***, Under this alternative, the auto tour would continue to have access restrictions during critical spring and fall migrations and during the breeding season.

L ***Alternative 2*** would improve the existing auto tour route and expand its use by the public. Acquiring key parcels of adjacent land will allow the roadway to be moved away from the water's edge. This will enhance the biological value of the wetland edge and reduce disturbance to resting waterfowl. Ideally, the route would meander through prairie habitats and then approach the pools from higher, overlook areas which would provide excellent viewing opportunities. These changes in alignment will allow the tour route to be open for longer periods during the year. Two new overlooks on the tour route are proposed as well as hiking trail and eagle viewing/photo blind to encourage people to get out of their cars and observe wildlife. The south overlook could be open march through November for observing wildlife. A watchable wildlife theme will be included in tour route brochures and interpretive signs.

Fishing

L ***Alternative 1, No Action***, would result in no significant change in fishing use on the Refuge. Access problems at Tienan's Dam would prevent improved development of that site.

L ***Alternative 2*** would improve fishing opportunities at the Refuge. Funding specifically targeted for fishing opportunities under this alternative should be used at the Tienan's dam site. Site plans for this area will need to consider access, facilities, safety, and maintenance.

Trails

L ***Alternative 1, No Action*** would still allow needed improvements in the Deer Meadow and Vanishing Prairie sites to go forward. Specific plans for improving these trails would be developed in the next year to allow planning for needed funds. Improvements not requiring special funding will proceed as soon as plans are finalized. Public input will help determine which improvements are made and when they should be done.

L ***Alternatives 2*** would improve trails throughout the Refuge. Acquisition of additional lands would present opportunities for new trails if specific public use objectives were developed which differed significantly from those met by existing facilities. Two trails would be upgraded to provide opportunities to hike and observe wildlife. The southern part of the Refuge will be served by a two mile loop trail through Buffalo Creek bottoms and overlooking Lowe Pool. Trail parking and access will be provided at two locations also, the Deer Watch area and the Deer Meadow site. Parking and trail information will be provided at both parking sites. A toilet facility will be added depending on the amount of use observed after improvements are made. An observation deck or blind is planned as a trail destination point. This site will serve as a place to rest while observing wildlife. The Headquarters trail will connect the headquarters with the eagle viewing area and with the new outdoor classroom site. This 5 mile hiking and bicycling trail will follow the auto tour route south from the headquarters on the east, cross the dike and head north to the classroom site.

Signing And Interpretation

L ***Alternative 1, No Action***, would still allow currently planned improvements to go forward. Existing facilities could be rehabilitated and the quality of service provided to Refuge visitors improved.

L *Alternative 2* would also allow currently planned improvements to go forward and existing facilities could be rehabilitated and the quality of service provided to refuge visitors improved. New Refuge recognition signing would be required for any new tracts. Interpretive signing would be developed for any new trails or public observation areas constructed on newly acquired tracts.

Seven Day-A-Week Access And Information

L *Alternative 1* would still permit needed improvements to existing Refuge facilities.

L *Alternatives 2* would permit improvements to existing Refuge facilities and development of new sites, particularly vehicle access overlook points open seven days a week if adequate ownership interests are acquired in key locations along refuge pools.

Environmental Education

L *Alternative 1, No Action*, would allow improvements to existing environmental education programs to continue.

L *Alternatives 2* would also result in continued environmental educational use of existing areas. Restoration of pothole type wetlands and native grasslands in the watershed would allow students to view and study the predominant habitat that early Iowa settlers found in the 1800's. The potential also exists for students to study water quality in a small created wetland located between private farmland and the main Refuge pools. The gravel pit ponds could be developed to filter water before it enters refuge wetlands. A demonstration project on private land adjacent to this site could also be incorporated into the education program. An overall theme related to watershed stewardship would provide focus for this facility and program.

Hunting

L *Alternative 1, No Action*, would not affect existing hunting programs on the Refuge.

L *Alternative 2* would expand and improve public hunting opportunities on the Refuge. It is the intent of the Service to allow public hunting on Refuge lands within current guidelines for compatibility with the Refuge's objectives. It is likely that certain areas acquired by the Service away from the core Refuge would be open for hunting of pheasants and deer. However, any decisions on expanding hunting to other areas will be made on a tract by tract basis.

IV. GENERAL IMPACT ANALYSIS

1. Unavoidable Adverse Impacts

Under Alternatives 2, the potential development of access roads, dikes, control structures, visitor parking areas, and reclamation of former building sites could lead to local and short-term negative impacts to plants, soil, and some wildlife species. Some loss of cultural resources could occur by restoring former wetlands. Greater public use may result in increased littering, noise, and vehicle traffic.

2. Short-Term Use Versus Long-Term Productivity

The local short-term uses of the environment under alternative 2 includes wetland restoration and enhancement, and conversions of other lands to wetlands or upland cover. Alternative 2 could also include development of public use facilities. The resulting long-term affect of these alternatives include increased protection of threatened and endangered species, increased waterfowl and songbird production, and long-term recovery of a myriad of species dependent on quality wetland and grassland habitats. In addition, the local public will gain long-term opportunities for wildlife-oriented recreation and education.

3. Irreversible and Irretrievable Commitments of Resources

Funding and personnel commitments by the Service or other organizations under Alternatives 2 would be unavailable for other programs. Fee-title acquisition of lands by the Service would make them "public lands" and preclude individual freedom to use these lands in accordance with individual desires. Traditional land uses may change since uses on Service lands must be shown to be compatible with the purposes for which the land is acquired. Any lands purchased will lose their potential for future development by the private sector as long as they remain in public ownership. Structural improvements that are purchased with any land may be declared surplus to government needs and sold or demolished on site.

3. Service Land Acquisition

Land acquisition by the Service could involve approximately 3,750 acres (250 acres/year) over the next 15 years (based on a future funding scenario). These acquisitions could involve conservation easements, cooperative agreements, fee-title purchases, leases, or a combination of all methods, depending on the site and circumstances. Priority would be given to lands adjacent to Service owned lands within the Refuge watershed. All lands acquired by the Service would be administered and managed by the National Wildlife Refuge System, Union Slough National Wildlife Refuge. Tracts in which less than fee-title agreements are negotiated would remain in private ownership. All restoration and preservation would be carried out on a tract-by-tract basis as participants and fiscal resources become available over a 15 year time period (willing buyer/willing seller basis). Funding for land acquisition would be from the Migratory Bird Conservation Fund (proceeds from the sale of Federal duck stamps) using the authority of the Migratory Bird Conservation Act.

Property Taxes and the Refuge Revenue Sharing Act

The Refuge Revenue Sharing Act of June 15, 1935, as amended, provides for annual payments to counties or the lowest unit of government that collects and distributes taxes based on acreage and value of National Wildlife Refuge lands located within the county. The monies for these payments come from two sources: (1) net receipts from the sale of products from National Wildlife Refuge System lands (oil and gas leases, timber sales, grazing fees, etc.) and (2) annual Congressional appropriations. Annual Congressional appropriations, as authorized by a 1978 amendment, were intended to make up the difference between the net receipts from the Refuge Revenue Sharing Fund and the total amount due to local units of government.

Payments to the counties are calculated based on the following formulas as set out in the Act which provides the largest return: (1) \$.75 per acre; (2) 25 percent of the net receipts collected from refuge lands in the county; or (3) 3/4 of 1 percent of the appraised value. In the state of Iowa, 3/4 of 1 percent of the appraised value always brings the greatest return to the taxing bodies. Using this method, lands are re-appraised every five years to reflect current market values. According to the Kossuth County Assessor, the difference between refuge revenue sharing payments (full entitlement) and taxes on those same lands is 1.01 percent (nearly equal). Therefore, fee-title land acquisition by the Service should not adversely affect tax revenues if private lands are purchased by the Service and removed from the area tax base.

Relocation Benefits

The uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act) provides for certain relocation benefits to home owners, businesses, and farm operators who are displaced as a result of Federal acquisition. The law provides for benefits to eligible owners and tenants in the following areas:

- Reimbursement of reasonable moving and related expenses;
- Replacement housing payments under certain conditions;
- Relocation assistance services to help locate replacement housing, farm, or business properties;
- Reimbursement of certain necessary and reasonable expenses incurred in selling real property to the government.

5. Landowner Rights Adjacent To Refuge Lands

Service or other agency control of access, land use practices, water management practices, hunting, fishing, and general use next to any tracts acquired under Alternatives 2 is limited only to those lands in which the Service or other entities have acquired that ownership interest. Any landowners adjacent to lands acquired retain all the rights, privileges, and responsibilities of private land ownership, including the right of access, hunting, vehicle use, control of trespass, right to sell to any party, and obligation to pay taxes.

