

ENVIRONMENTAL ASSESSMENT

FUNK WATERFOWL PRODUCTION AREA, PHELPS COUNTY, NE.

MOIST SOIL MANAGEMENT/WETLAND ENHANCEMENT PROPOSAL

PREPARED BY

**RAINWATER BASIN WMD
U.S. FISH AND WILDLIFE SERVICE
KEARNEY, NEBRASKA**

1991

PURPOSE AND NEED FOR ACTION

The U.S. Fish and Wildlife Service purchased the Funk Waterfowl Production Area (WPA) in 1985. The 2000 acre Rainwater Basin wetland and surrounding upland area is located in central Phelps County, Nebraska. The surrounding private land is primarily irrigated cropland with corn and soybeans the predominant crops grown. Central Nebraska Public Power and Irrigation District (CNPPID) supplies surface irrigation water to the area. The Funk WPA has water service agreements for 468 acres. The district annually delivers 702 acre feet of irrigation water to the area from these agreements and also delivers an unspecified quantity of surge flows. The Funk basin sets on a large underground water mound created by irrigation flows and actually experiences ground water discharge into the basin.

Approximately 1000 acres of wetland are present in three basins on the area. Each basin is characterized by an expanse of open deep water (semi-permanent to permanent wetland) in the center which is surrounded by cattails (temporary wetland). Approximately 820 acres of cattail are present. Upland habitat is comprised of seeded native grass stands, alfalfa, and some food plots.

The primary purpose of the area is to provide endangered species habitat and migratory waterfowl habitat. Phelps County is directly in the migration corridor of whooping cranes and the area around Funk WPA has had sightings. The area is one of the heaviest used Rainwater Basin wetlands by waterfowl. It is highly attractive during spring and fall migrations. Populations of 80,000 geese and 40,000 ducks are present during spring and in fall 10,000 geese and an equal number of ducks are common. Shorebirds and wading birds use the area during migrations and during summer months. In most summers there is sufficient water to attract breeding waterfowl. The area also supplies habitat for resident wildlife, including pheasants, deer, furbearers, raptors and songbirds. Because of this abundant wildlife presence, the area is a favorite site for nonconsumptive wildlife recreation during all seasons and by consumptive users during fall hunting seasons.

Despite the above positive characteristics the area presently is poorly developed and it's wildlife habitat benefits are considerably below it's potential. A major problem is our inability to manage water effectively. An effect of this problem is that nearly all of the temporary wetland is severely choked with cattail. This thick vegetative cover is unattractive to all wildlife species that use the area and prevents use of the best potential habitat by migratory birds, endangered species, and other wildlife. The area presently is not able to fully beneficially use it's irrigation water. This environmental assessment discusses alternatives considered, our proposed alternative, and the impacts associated with these alternatives. It also reveals our consultation and coordination with others.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

PROPOSED ALTERNATIVE - Construction of dikes to create individual management units.

Under this alternative, contour dikes would be constructed in each of the 3 basins. A total of 9.3 miles of dike are proposed to create 8 management units. Construction of these dikes would be phased over a 3-4 year period. The first two dikes are proposed to be funded and built during the 1991 calendar year. Dikes will be 14' wide on top to permit vehicle use and will generally have 3:1 side slopes on the downslope side and 4:1 sideslopes on the uphill (impoundment) side. Dike height will be 4'. Maximum water height on the impoundment side is 3'. Average depths will be 18". Dike location will be at the edge of the semipermanent wetland zone and will provide a physical separation between the temporary wetland and the semipermanent wetland. Dikes will have water control structures so that each wetland type and unit can be managed independently. Proposed dike locations are presented in Figure 1. Dike length, contour elevations, pool elevations, and cubic yardage of earth needed are shown in Table 1.

This alternative upon completion will provide the management flexibility needed to meet Service objectives for the Funk WPA. It will allow the maximum utilization of temporary wetland habitat by migratory waterfowl, endangered species, shorebirds, and wading birds. Through the practices of moist soil management the now stagnant stands of cattail will be replaced by plant species such as smartweed, wild millet, arrowhead, sprangletop and a variety of other moist soil plants. In general the dikes and water control structures will allow the temporary wetland area to be dried up sufficiently to be disced. Cattail tubers are exposed and allowed to dry, effectively killing them. Then the normal management process is to place water on the area during the fall and winter months. In April, when soil temperatures warm up, the unit is slowly drawn down. As it draws down, moist soil plants emerge and grow. When the irrigation flows arrive in late May several inches of water is applied to the unit. This allows the emerging plants to have sufficient moisture to grow and set seed. The remainder of the irrigation water is applied during late August on the last run of the ditch. Water for maximum pool levels during the fall and spring would be pumped from the permanent pool in October.

By having individual management units, water management can be targeted for several different species groups in any given year. For example, disced units (all units will probably have to be disced once every 3-4 years to control cattail reinvasion) could be flooded to very shallow depths specifically to provide shorebird habitat in August and September. In good water years some units

Table 1. Project Feature Descriptions and Wetland Acreage Impacts.

<u>Dike Segment</u>	<u>Dike Located At Contour Elev.</u>	<u>Top of Dike Elev.</u>	<u>Maximum Pool Elev.</u>	<u>Dike Length</u>	<u>No. of H2O Control Structures</u>	<u>Cubic Yards</u>	<u>Acres Created Wetland</u>	<u>Acres Enhanced Wetland</u>	<u>Acres Filled</u>
Ⓐ	2,229	2,233	2,232	7,150	3	27,500	30	60	4
B	2,228	2,232	2,231	5,100	2	17,100	40	20	3
C	2,225.5	2,229.5	2,228.5	8,280	5	36,800	10	110	8
C ROAD BUILDUP TO	-	2,229.5	-	200	-	300	-	-	-
Ⓓ	2,225.5	2,229.5	2,228.5	6,400	4	28,500	20	160	6
D ROAD BUILDUP TO	-	2,229.5	-	4,600	-	8,000	-	-	-
Ⓔ	2,224	2,228	2,227	5,250	3	24,000	5	65	5
E ROAD BUILDUP TO	-	2,228	-	400	-	800	-	-	-
F	2,224	2,228	2,227	5,700	4	27,000	30	170	6
G	2,228	2,232	2,231	2,800	2	13,000	25	0	0
Ⓕ	2,224	2,228	2,227	3,850	2	18,000	15	60	3

can be kept wet all summer to provide wading bird use. All units which produce moist soil plants will be managed so that water depths are shallow enough (6-18") so that utilization by migrating waterfowl will be optimized. We expect waterfowl and other migratory bird use to double or more after a complete management cycle.

Besides the wildlife benefits this option allow the Service to beneficially use its water rights to grow food for wildlife. This protects our legal water right status. Positive relationships between the Service, irrigation companies, and surrounding landowners are fostered. The dikes will only be driven by authorized personnel but they will make excellent walking tour sites for interested birders and photographers. We expect wildlife recreational opportunity will be increased for both consumptive and nonconsumptive users.

NO ACTION

This alternative would preserve the status quo. Water management is not improved, individual unit management is not possible. Managing temporary wetland habitat separately from semipermanent habitat is not possible. Cattail management opportunities and potential remains poor. Water rights are not well protected legally as the question of beneficial use is open to question. The productivity and potential of the Funk WPA is not achieved. Local users are critical of FWS lack of management. For all these reasons this alternative was not considered.

MOIST SOIL MANAGEMENT WITHOUT DIKES

This alternative has limited usefulness. During dry years cattail stands can be disced and controlled to a degree that is less successful than with dikes. Without dikes unforeseen rainfall events or other water level occurrences make control efforts considerably more difficult. Individual unit management aimed at different bird groups is not possible. Managing temporary and semipermanent wetland types individually is not possible. Water right protection is improved over current conditions, but overall beneficial use of irrigation water and actual production of moist food sources is limited. Local users are less critical of FWS management than currently. In order to achieve maximum results the highest physical control possible of water is desired, in order to achieve this dikes are necessary. For this reason, this alternative is not the proposed alternative.

CATTAI CONTROL BY OTHER MEANS

Other possible ways to control cattail include flooding it with water, chemical application, burning, mowing, or use by livestock. In order to flood cattail with water it is necessary to have the plants covered by at least 2' of water during the growing season. The entire plant must be covered. Water depths at this level flood out surrounding cropland and generally are not available. Chemical

application is effective if the correct conditions exist. Costs of over \$50/acre is beyond current budgets. Burning is effective in removing old growth and will in fact be a normal practice prior to disking to remove old plant material. As a long term practice burning by itself only makes the cattail stand thicker. Mowing can be used to open up stands temporarily, its effects last only a short time and can only be accomplished in dry years. Cattle will use cattail for short periods in the summer when it is green and other vegetation is dried out. They do not eat substantial quantities and most ranchers will remove them if that is all there is to eat. It is at best a low level maintenance feed and most cattle lose weight when on it exclusively. None of these methods are effective substitutes for dikes and effective moist soil management with discs and good water control. None of these methods turn the soil which is critical to achieving good stands of moist soil plants.

AFFECTED ENVIRONMENT

The affected area is the Funk WPA which is located in central Phelps county in south central Nebraska. The Funk WPA consists of approximately 1000 acres of Rainwater Basin type wetland. Approximately 180 acres are semipermanent to permanent wetland characterized by open water or mud flat when dry. The remainder is temporary wetland currently choked by cattail. Dike placement will be where these two types meet. Soil disturbance will generally be limited to a narrow 150-200 foot area along the dike.

The Funk WPA as mentioned earlier is heavily used by migrating waterfowl. The whooping crane migration route is directly over this area and whooping crane sightings have occurred in the vicinity. The area is home to an abundant array of resident wildlife including pheasants, deer, furbearers, songbirds and is a favorite viewing area and hunting area for local citizens and nonresidents. The Nebraska State Historical Preservation officer has been contacted and has no record of any historical or cultural resources of significance. A general description of other pertinent environmental attributes was provided in the Purpose and Need for Action section at the beginning of the report.

ENVIRONMENTAL CONSEQUENCES

The major environmental consequence is the disturbance of soil associated with the building of the 9.3 miles of dike. An estimated 191,000 cubic yards of earth will be moved and placed to create the dikes. Soil disturbance will generally be in the area of the dike alignment within 150-200' of the dike. If conditions are dry a scraper will probably be used, if wet a dragline or large excavator. In the latter case the width would be determined by the reach of the equipment. It is preferred that most of the dirt be moved from the deep water side. This reduces the amount of water needed to irrigate and flood the moist soil unit and maintains the maximum amount of temporary wetland. Once constructed all dikes will be seeded to prevent erosion.

Earthen fill for the dikes will replace an estimated 32 acres of wetland. This assumes a dike bottom width of approximately 42'. An estimated 175 acres of temporarily flooded wetland will be created by the project. This results in a net gain of 140 wetland acres. The project will enhance an estimated 645 acres of existing wetland. The water regime of the overall wetland area will not be changed. Managed drawdowns and timing of irrigations and flooding will be controlled by Rainwater Basin WMD. Overall management goals will be to flood temporary wetland areas to a depth of 6-18" during fall and spring migrations. Moist soil areas will be primarily dry during summer but will have an irrigation applied to insure seed and tuber production. Certain units will be managed for shorebirds, wading birds, and endangered species as opportunity allows.

Two small 40' X 20' pumping pits will be placed on the deep side of each dike to allow a permanent pumping site so that water can be pumped over the dike if needed. Earth removed from these sites will be placed on the dike. A 3-4' wide head ditch will be constructed from each irrigation delivery point across the unit. This ditch will be used to provide irrigation deliveries to all parts of the unit. The head ditch will generally be located on upland habitat near the shoreline of the temporary wetland.

The proposed construction schedule is to build the entire project in 3-4 years. The first two dikes will be built in 1991. Thus alternative habitat exists for resident wildlife to escape construction activity impacts during summer and early fall months. No construction activities will occur during spring migration of waterfowl and endangered species.

The estimated cost of the project is \$250,000. Funds available for the first two dikes during 1991 are \$60,000. This project has received funding from several private groups; Ducks Unlimited, Safari Club, Big Bend Waterfowlers, and Duck Callers Association of Nebraska. Matching funds under the Challenge Grant program are available from FWS. These funds would obviously not be available for other projects should this project be approved.

Overall wildlife use will improve and be significantly increased as a result of this project. Migratory waterfowl use is expected to double or more. Disease control will be enhanced as water level manipulations will be possible. Use by endangered species, shorebirds, wading birds, and resident upland game should increase due to a significant portion of the area being made available for their use.

CONSULTATION AND COORDINATION WITH OTHERS

U.S. Fish and Wildlife Enhancement, Grand Island, NE: Early development plans were shown to this staff and in depth discussions of the projects features and effects were discussed. Concurred with the proposal.

Nebraska Game and Parks Commission, Lincoln, NE: The proposal and its effects were discussed with Asst. Director Bill Bailey and wetland specialist Dick Gersib. There was general agreement that the project was beneficial and that developments on the south side of the permanent pool had the greatest benefit.

Ducks Unlimited: Central Flyway MARSH Representative, B.J. Rose: Discussed proposal and submitted an application for MARSH funds. \$16,500 was allocated for the project for 1991.

Safari Club: Holdrege Chapter, Mike Gleason and Gloria Erickson: Discussed proposal. Combined with the national chapter they promised \$10,000 for project for 1991.

Big Bend Waterfowlers, Jim McKay and Rich Ostenkowski: Discussed proposal and was promised \$2,000 for project for 1991.

Duck Callers Assoc. of Nebraska. Marty Sterkel: Discussed proposal and was promised \$200 for project for 1991.

CNPPID, Board of Directors: Discussed proposal and water rights issue, Board was supportive of project and is currently discussing ways of participation to aid project. Water deliveries are assured for the remainder of the current 10 year contract, 7 years. Highly likely that contract will be extended indefinitely.

John Abrahamson, Darrel Sjogren, Jim Paulson. Landowners that are adjacent to dikes planned for 1992: Elevations of pools on proposal are close enough to our boundary to cause concern for their farming operation. After discussing several options for potential remedies, the most appropriate appear to be judicious placement of culverts across head ditch and/or lowering of maximum managed pool elevations by about 6-12" to keep water and subsoil effects further away from our boundary. This area is the only area where that concern exists.

Phelps County Commissioners and Road Department: Discussed project and anticipated need to build up two county road segments. Both segments are currently problem areas for the county during high water periods. Road commissioner is supportive of road buildup, commissioners have not yet responded officially.

COMPATIBILITY DETERMINATION

Moist Soil Management/Wetland Enhancement Proposal

Funk Waterfowl Production Area

The proposed alternative, construction of dikes to create individual management units has been determined to be compatible with the establishment orders for the Funk WPA. The construction of these dikes will allow improvement of natural food production, and increase available resting areas for waterfowl. They will allow better water management which will promote use by endangered species, shorebirds, wading birds and resident wildlife. These wildlife habitat and use improvements will also increase human enjoyment of the property. All of these improvements are established goals and objectives of the Services' Waterfowl Production Areas.

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