

Chapter 6: Plan Implementation

Funding

In the preceding chapters, the Mark Twain Refuge Complex Comprehensive Conservation Plan has outlined a vision for the Area of Ecological Concern and included the management strategies needed to realize that vision. The current level of refuge funding will not move the Complex beyond a slow deterioration of the current habitat and public use condition. Pre-plan staff levels do not allow adequate interactions with the public for education, interpretation, information, safety or enforcement purposes. In addition, habitat management strategies are not achievable with minimum staffing. The rate at which each refuge achieves its full potential of contributing to locally, regionally and nationally important wildlife outputs will depend on the resources provided for those purposes. Increased staffing and funding on each refuge unit will result in long-lasting protection, maintenance and enhancements to river habitats and public use facilities and programs.

One of the most significant elements contained in this plan is the 27,659-acre boundary expansion. Land acquisition funds and other options to protect identified lands will occur outside the normal Operations and Maintenance funding process for refuges. However, it is predicted that the future Operations and Maintenance costs for much of the proposed expansion area will be quite low. This is because the majority of identified areas would be managed through initial natural succession or by



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partnerships for forest restoration. Although the Complex ranks extremely high nationally in the Service objective based Land Acquisition Priority System (LAPS), considerable work will be needed to work with willing seller landowners, conservation organizations and political interests to coordinate the Refuge Complex program with larger public policy efforts on the floodplain. The needed Realty program support to implement this plan will depend on the land acquisition funding devoted to the AEC each year. There is not a Realty Specialist identified in the Complex Organization Chart. However, due to the close proximity of the AEC to other Service projects with expanded boundaries, co-locating a

Realty Specialist at the Complex could serve several stations in the southern part of the Region.

The following tables list the projects identified to implement the CCP. They also represent the best known approach to address habitat and facility needs. Changes to project plans will occur as new data becomes available and adaptive management strategies are implemented. As such, this information will be updated annually with the Refuge Operations Needs (RONS) system and the Maintenance Management System (MMS), which are used to track and manage refuge operations and maintenance budgeting each year. These changes will focus on “means” adjustments, while major changes to the desired future condition will be documented in future CCP revisions. Some adjustments to the means of getting to the defined future condition may also occur when step-down plans, such as a forest management plan, are prepared and greater levels of detail developed.

Table 12: Mark Twain NWR Complex Funding Needs Summary as of September 2002

Refuge	RONS Projects	MMS Deferred Maintenance Cost
Mark Twain NWR Complex	\$971,000	NA
Port Louisa NWR	\$4,522,000	\$665,000
Great River NWR	\$1,830,000	\$1,725,000
Two Rivers NWR	\$2,533,000	\$1,611,000
Middle Mississippi NWR	\$750,000	\$368,000
Complex-wide Totals	\$10,606,000	\$4,360,000

Table 13: Port Louisa NWR Funding Needs Summary / RONS Tier 1

Activity	Project Title	Project No.	Costs
Monitoring and Studies	Develop GIS database that aids in Refuge management decision-making efforts.	970015	\$123,000
Habitat Management	Moist soil management area enhancement.	98002	\$118,000
Public Education and Recreation	Provide erosion control and boardwalk on interpretive trail.	98006	\$38,000
Public Education and Recreation	Expand wildlife-dependent public use program.	97002	\$82,000
Habitat Restoration	Wetland restoration of Mud Bottoms and Diggin's Pond of the Horseshoe Bend Division.	00001	\$27,000
Habitat Management	Control invasive species and provide supplemental food.	97003	\$41,000
Public Education and Recreation	Install direction signs.	99003	\$26,000
Monitoring and Studies	Evaluate public use impacts on wildlife.	99005	\$49,000
Public Use and Recreation	Minimum Refuge operation needs.	99006	\$86,000

Table 13: Port Louisa NWR Funding Needs Summary / RONS Tier 1 (Continued)

Activity	Project Title	Project No.	Costs
Monitoring and Studies	Wildlife response to habitat restoration investigation.	97009	\$49,000
Public Education and Recreation	Observation deck and interpretive exhibits.	98009	\$61,000
Public Education and Recreation	Provide interpretive/educational trails.	98008	\$36,000
Public Education and Recreation	Placement of kiosks and interpretive panels.	99001	\$40,000
Habitat Restoration	Fisheries enhancement at Keithsburg Division.	99004	\$49,000
Monitoring and Studies	Fish utilization of floodplain-connected habitats on Keithsburg Division.	00003	\$324,000
RONS Tier 1 Total Costs:			\$1,149,000

Table 14: Port Louisa NWR Refuge Funding Needs Summary / RONS Tier 2

Activity	Project Title	Project No.	Costs
Habitat Management	Enhance Refuge land management and provide private land and interagency assistance.	00002	\$129,000
Habitat Management	Conservation easement regulation and enhancement.	98011	\$67,000
Habitat Management	Nongame bird response to post-flood changes.	97012	\$44,000
Public Education and Recreation	Public use accessibility enhancement.	97011	\$67,000
Habitat Management	Experimental prairie cordgrass plots and seed bank.	97010	\$37,000
RONS Tier 2 Total Cost:			\$373,000

Table 15: Port Louisa NWR Funding Needs Summary / MMS Deferred Maintenance Projects

Project No.	Project Title	Property No.	Costs
99108889	Repair deteriorated observation platform at the Louisa Division.	10013891	\$46,000
99108500	Rehabilitate the deteriorated Louisa boat ramp.	10013817	\$60,000
00109154	Repair erosion on Keithsburg levee spillway.	10013818	\$68,000
86109077	Replace deteriorated concrete boat ramp at Big Timber.	10013900	\$163,000
00109135	Repair washouts on Rocky Road on the Horseshoe Bend unit.	10013909	\$131,000
00109154	Repair erosion on the Louisa levees.	10013818	\$68,000
00109170	Repair displaced riprap on the Keithsburg river levee.	10013869	\$157,000
00109002	Replace worn out diesel engine on the Fox Pond Pump Station.	10013836	\$30,000
02120561	Replace deteriorated Fox Pond Water Control Structure	10013820	\$125,000
02118449	Replace rusted out culverts and gates at several locations on the Division.	10013844	\$35,000

Table 15: Port Louisa NWR Funding Needs Summary / MMS Deferred Maintenance Projects (Continued)

Project No.	Project Title	Property No.	Costs
02120562	Replace the non functioning pump station at Keithsburg Division.	10013879	\$325,000
Deferred Maintenance Projects Total Cost			\$1,208,000

Table 16: Great River NWR Funding Needs Summary / RONS Tier 1

Activity	Project Title	Project No.	Costs
Monitoring and Studies	Improve/increase understanding of biological issues and needs along the Mississippi River.	98005	\$139,000
Public Education and Recreation	Improve environmental education facilities for the public	97002	\$567,000
Public Education and Recreation	Improve environmental education/wildlife observation facilities.	97005	\$195,000
Public Education and Recreation	Increase/improve environmental education and outreach program.	98008	\$139,000
Habitat Management	Minimum Refuge Operations Need	99002	\$106,000
Monitoring and Studies	Study the effects on Refuge flooding from new spillway on fish spawning and nursery success.	99001	\$86,000
Resource Protection	Conduct contaminant investigations on three units of the Refuge.	98006	\$107,000
Habitat Restoration	Restore native wet prairie vegetation	97010	\$169,000
Monitoring and Studies	Improve migratory bird and habitat management through comprehensive surveys.	98014	\$57,000
Great River NWR has 10 additional RONS			
86108822	Replace gravel on deteriorated roads at the Delair unit.	10013922	\$28,000
96108906	Replace deteriorated storage shed at Delair Division.	10013920	\$69,000
02120456	Clean out silted-in ditches on the Delair Unit.	10013926	\$168,000
Deferred Maintenance Projects Total Cost:			\$1,830,000

Table 17: Clarence Cannon NWR Funding Needs Survey / Maintenance Management System (MMS) and Deferred Maintenance Projects

Project No.	Project Title	Property No.	Costs
97108694	Repair sloughing slopes on Bryant's Creek levee.	10013942	\$400,000
99108727	Repair erosion on top of the main spillway.	10013950	\$150,000
00237	Replace deficient interpretive displays.	8000	\$60,000
88108984	Repair erosion on Big Pond dike slopes.	10013942	\$384,000

Table 17: Clarence Cannon NWR Funding Needs Survey / Maintenance Management System (MMS) and Deferred Maintenance Projects (Continued)

Project No.	Project Title	Property No.	Costs
99109047	Repair deteriorated wooden walkways on the pump station.	10013941	\$384,000
00109388	Replace deficient Hemphill Crossing Bridge.	Pending	\$250,000
01100749	Energy retrofit the office building.	10013928	\$34,000
01110751	Equipment storage building repairs.	10013929	\$31,000
02118565	Repair moist-soil unit dikes.	10013943	\$116,000
00108941	Replace deficient interpretive facilities in the Visitor Contact area.	10013926	\$168,000
02118566	Replace six rusted out water control structures.	10013933	\$46,000
01110752	Clean out silt from main ditches.	10013944	\$463,000
02118567	Repair two vertical lift pumps at the pump station.	10013941	\$51,000
02120450	Replace rusting out moist-soil unit 8b outlet structure.	10013934	\$60,000
02120449	Replace rusted out moist-soil unit 8a outlet structure.	10013934	\$60,000
Deferred Maintenance Projects Total Cost			\$2,411,000

Table 18: Two Rivers NWR Funding Needs Summary / RONS Tier 1

Activity	Project Title	Project No.	Costs
Habitat Management	manage water level and habitat in Swan Lake.	99001	\$119,000
Monitoring and Studies	Develop biological monitoring program.	99101	\$139,000
Monitoring and Studies	Monitoring wildlife and habitat on Swan Lake.	00001	\$55,000
Habitat Management	Improve upkeep of wildlife and visitor facilities.	99103	\$99,000
Public Education and Recreation	Develop public use facilities.	99034	\$107,000
Habitat Management	Improve water-level control in Batchtown moist-soil units.	00003	\$193,000
Resource Protection	Provide better security and faster law enforcement response time.	00005	\$167,000
Resource Protection	Survey boundary of Apple Creek WMA and several FmHA easements.	99023	\$108,000
Public Education and Recreation	Enhance wildlife viewing opportunity at Gilbert Lake Division.	00010	\$106,000
Public Education and Recreation	Provide disabled accessible bank fishing opportunity at Bloom's Landing Recreation Area.	99026	\$56,000
Public Education and Recreation	Enhance protection of Refuge visitors and natural resources.	00011	\$80,000
Refuge Operations Needs Total Cost:			\$1,229,000

Table 19: Two Rivers NWR Refuge Funding Needs Summary / RONS Tier 2

Activity	Project Title	Project No.	Costs
Habitat Management	Increase seasonally flooded wetland habitat at the Gilbert lake Division.	00008	\$252,000
Resource Protection	Enhance protection of Refuge visitors and natural resources.	99039	\$131,000
Public Education and Recreation	Improve environmental education, recreation and outreach programs.	99036	\$129,000
Resource Protection	Enhance Refuge operations through seasonal personnel recruitment.	00006	\$162,000
Resource Protection	Restore wetland habitat in the Prairie Pond Impoundment.	99012	\$88,000
Resource Protection	Restore wetland habitat in Gilbert Lake.	00002	\$54,000
Resource Protection	Improve boundary maintenance and natural resource protection.	00007	\$488,000
Two Rivers NWR had 11 additional RONS projects totaling \$1,816,000.			
Refuge Operations Needs Total Costs:			\$1,304,000

Table 20: Two Rivers NWR Funding Needs Summary, Maintenance Management System and Deferred Maintenance Projects

Activity	Project Title	Property No.	Costs
00109214	Rehabilitate eroded Bloom's Landing boat ramp.	10013762	\$36,000
89118	Repair deteriorated exhibits in visitor center.	1	\$47,000
95109158	Renovate deteriorated Calhoun wetlands pump station.	10013738	\$466,000
97109096	Repair deteriorated siding and other items on office building.	10013733	\$91,000
97109123	Replace deteriorated siding and other items on shop buildings.	10013724	\$55,000
99109198	Renovate deteriorated boat ramp at the Prairie Pond Unit.	10013790	\$53,000
97109276	Remove silt from Gilbert Lake channel.	10013779	\$93,000
95109307	Rehabilitate eroded Bilead boat ramp.	10013791	\$166,000
97109291	Replace missing Refuge signs.	10013776	\$25,000
00108942	Repair deteriorated decking on the observation platform.	10013733	\$16,000
Two Rivers NWR Deferred Maintenance Projects Total Cost			\$1,048,000

Table 21: Middle Mississippi NWR Funding Needs Summary, Maintenance Management System and Deferred Maintenance Projects

Project No.	Project Title	Property No.	Costs
98158	Replace deteriorated harlow Island culvert bridge.	Pending	\$368,000
Middle Mississippi NWR Deferred Maintenance Projects Total Cost			\$368,000

Table 22: Mark Twain NWR Complex RONS Projects

Activity	Project Title	Project No.	Costs
Public Education and Recreation	Install Refuge Complex signs, Service recognition and interpretive/education information off Refuge in river corridor.	00007	\$81,000
Public education and Recreation	Develop new leaflets, maps and regulatory information for Refuge Complex stations.	00002	\$41,000
Monitoring and Studies	Floodplain forest and grasslands scrub/shrub surveys (UMRS GIS) for adoptive management purposes.	00009	\$157,000
Monitoring and Studies	Improve management of refuge fisheries resources and fisheries habitat within UMRS.	00008	\$150,000
Monitoring and Studies	Refuge GIS capabilities.	00003	\$27,000
Habitat and Restoration	Restore bottomland hardwood forest in cooperation with the COE on refuge fee title lands.	00005	\$150,000
Public Education and Recreation	Public and urban outreach program support.	00010	\$25,000
Resource Protection	Mark Twain Complex “Area of Ecological Concern” aerial photography project planning and CCP monitoring.	00004	\$32,000
Public Education and Recreation	Traveling displays for special events and urban outreach.	00011	\$65,000
Habitat Restoration	Purchase rubber tracked 200-HP tractor to operate in wet and post-spring flood conditions for use throughout the Complex.	00015	\$118,000
Resource Protection	Purchase “MoTrim” type hydraulic deck and weight balanced tractor to be used on refuges throughout the Complex.	00016	\$125,000
Refuge Operations Needs Total Cost:			\$971,000

Personnel Needs

The Complex staffing chart (Figure 2) lists the current level of staffing as well as the proposed staff needed to implement this plan. There are currently 21 positions filled on the Complex, with the Fire Management Officer covering a three-state area. There are 18 and three-quarters full-time equivalent (FTE) positions identified to bring the Complex up to full operations as addressed in this plan, including the additional duties associated with expanded boundary.

Step-down Management Plans

Existing plans that are current with the new CCP direction include: Fire Management Plans for each refuge. The Complex Spill Response Plan is also complete.

New step-down management plans that will be prepared as a result of the CCP include: Habitat Management Plans, as per new policy guidance; and the Inventory and Monitoring Plan, which will be completed by December 2006.

Partnerships

Many active partnerships are discussed in the CCP, and in fact some strategies relate to these efforts. The relationships between the Complex and the Rock Island and St. Louis COE districts, the Illinois DNR, the Iowa DNR, and the Missouri DOC are very strong, although occasional disagreements are inevitable. Throughout the Complex, many other partnerships are in place at the federal, state, local and non-governmental levels. The Complex is committed to partners as the goals in this document cannot be realized through our efforts alone. Each station in the Complex will continue to seek appropriate partnerships with public and private groups as opportunities arise.

Figure 4: Mark Twain NWR Complex Staffing Chart

