Appendix E: Swan Lake NWR Priority Refuge Operations and Maintenance Costs

Monitor & Research Invasive and Endangered Species, & Migratory Bird Resources

This includes hiring one full time Wildlife Biologist to assist with monitoring and management of Refuge resources. Swan Lake NWR contains approximately 12,000 acres of habit important to migratory birds and threatened/endangered species (Indiana Bat/Massasagua Rattlesnake). These Refuge habitats are utilized by over 400,000 migratory birds and numerous resident wildlife species. This requires management coordination with the State of Missouri and other agencies. The Refuge is also located in the hydrologically complicated ecosystem of the Grand River Riparian Zone. This intensive management in a complicated system requires scientifically supported decision making with the ability to adapt to changing circumstances such as the effects of Climate Change. This project would provide the science to support adaptive management decision with a special emphasis to Climate Adaptation. It would provide the scientific research for decision making and monitoring to make better decisions within the adaptive management process.

Estimated cost: $118,458 annually

Restore/Maintain 3,100 acres of managed wetland moist soil habitat.

This includes funding for one half-time temporary worker. Swan Lake NWR currently has 1,075 acres of managed moist soil wetland units. Refuge staff is working with private partners and the Missouri Department of Conservation on a project that would add an additional 300 acres of habitat into managed moist soil units with private funding. This project would ensure the proper resources to maintain 3,100 acres of wetland moist soil and an additional 1,800 acres of emergent Marsh as called for in the station CCP. Adequate wetland conditions are necessary to support the more than 1,000,000 migrating birds (Geese, ducks, and shorebirds) that utilize the Refuge. It also requires the assistance of seasonal employees over and above permanent staff levels during peak work times. This funding would fully allow the Refuge to meet its responsibilities in the long term upkeep of these habitats restored through private partnerships as well as maintain over 1,800 acres in emergent marsh and additional wet meadow habitats. Estimated first year cost: $247,181

Estimated recurring annual cost: $45,000

Provide Conservation Education & Land Stewardship Opportunities to Landowners, Schools, & Rural Communities.

Swan Lake NWR is located in Chariton County, Missouri. With approximately 20,107 acres enrolled, Chariton County has more acres of wetlands enrolled in the Wetland Reserve Program (WRP) than any county in Missouri. There are an additional 29,937 WRP acres in the surrounding counties as well. The first part of this project would be to forge an educational partnership between Swan Lake NWR and private landowners who hold over 50,000 acres of WRP easements. This partnership would allow Swan Lake to be utilized as a learning site for private landowners to learn how to properly manage and maintain their wetlands to meet habitat objectives of migratory birds. The second part of this project would enhance outdoor learning opportunities at Swan Lake NWR for area schools. There are 12 schools with over 6,000 enrolled students within a 25 mile radius of the Refuge that could make use of

Swan Lake as an outdoor learning destination.

Estimated first year cost: $105,901

Estimated recurring annual cost: $55,000

Manage Satellite Properties and Assist With Daily Refuge Operations

This includes hiring and Assistant Refuge Manager. Swan Lake National Wildlife Refuge is responsible for overseeing 12,000 acres of on Refuge property and 53 units (4,058 acres) of off-Refuge property. This involves the complex oversight of wetland moist soil management and managed hunt programs requiring much of the staffs time. The Refuge is located in the wetland riparian zone of the Gran River requiring extensive permitting for project work. In addition to the on Refuge work load there is an extensive work load for off Refuge fee title properties and easements, which are currently not receiving the needed management attention due to lack of Refuge staff. This project would allow the Refuge to meet management obligations on off-Refuge responsibilities and provide needed relief to the current staff for on-Refuge management activities.

Estimated cost: $118,458 annually

Partner With Landowners to Improve Water Quality and Watershed Resources

This includes hiring one full time Private Lands Biologist. Swan Lake National Wildlife Refuge is supplied with water from four separate watersheds; Elk Creek, Turkey Creek, Tuff Branch, and Yellow Creek. Over 90% of these drainages which covers thousands of acres are in private land. The water quality of these watersheds carries significant sediment loads. This project would allow the Refuge to work more closely with private landowners in these drainages to improve the water quality of incoming water onto the Refuge. It would enhance wetland acres surround the Refuge and allow private landowners an opportunity to preserve the biological integrity of their properties.

Estimated cost: $97,911 annually

Maintain On/off Refuge Wetland Resources and Visitor Services Facilities

This includes hiring one full time Maintenance Worker. Swan Lake NWR currently has 1,998 acres of managed moist soil wetland units. Refuge staff is working with Ducks Unlimited, the Friends of Swan Lake NWR, and the State of Missouri on a project that would add an additional 1,370 acres of habitat into managed moist soil units with private funding. This project would ensure the proper resources to maintain 3,368 acres of wetland moist soil. Adequate wetland moist soil conditions are necessary to support migrating birds that utilize the Refuge as a rest area. This requires the operation of farm equipment to adequately maintain. The addition of these 1,998 acres of moist soil will expand maintenance responsibilities. In addition, the Refuge has 53 units (4,058 acres) of off-Refuge fee title and easement properties that are currently not receiving maintenance attention. This project would ensure maintenance attention to the wetland moist soil units and the off-Refuge properties in addition to Refuge visitor services facilities.

Estimated cost: $72,371 annually

Develop a Comprehensive Conservation Plan (CCP) Mandated Refuge Hunting Plan

This includes funding for one half-time temporary worker. The Swan Lake Comprehensive Conservation Plan calls for the development of a Refuge Hunting Plan. Within that Hunting Plan it calls to expand hunting opportunities to include duck hunting and provide some opportunities for small game hunting. This will require writing a plan and all the necessary public input and planning strategies for the new hunting programs. The project will provide the necessary resources to develop and write a new hunting plan for the Refuge.

Estimated first year cost: $35,951

Estimated recurring annual cost: $7,000

Restore Moist Soil Capabilites and Shrub Swam Habitat of Wetland Units 12 and 14

This project would involve restoring the management integrity of two moist soil units, MSU 12 and 14. These units both total 1,000 acres of wetland habitat. They are managed for moist soil to provide migration habitat for waterfowl, geese, and shorebirds. In recent years due to a lack of staff much they have been encroached by undesirable plants. This encroachment has limited the Refuges ability to manage much of thes unit as moist soil. This has tremendous impacts on managing the unit for mudflats around the edges for shorebird migrations. This project would be a two year project to dry the unit out and remove this woody vegetation through mechanical treatments. The Swan Lake CCP calls for some of these areas to provide Shrub Swamp habitat as well. This project will enhance the shrub swamp type habitat by removing undesirable species and thinning areas that have become too thick with vegetation creating a mosiac of shrub swam with moist soil habitat.

Estimated first year cost: $85,000

Estimated recurring annual cost: $5,000

Design a Comprehensive Conservation Plan (CCP) Mandated Refuge Visitors Brochure

Swan Lake NWR is located in rural North Central Missouri and provides a significant economic impact to the area by attracting visitors from all over the US. The Refuge is scheduled to have completed its Comprehensive Conservation Plan in 2009. Once the CCP is completed, the Refuge will need a new Brochure for the public. The Refuge does not have a current brochure and with changes made from the CCP process a new brochure will be necessary to properly orient the public as to opportunities on the Refuge.

Estimated Cost: $18,000

Forge Educational Partnerships With Schools and Private Landowners

This includes hiring one full time Park Ranger. Swan Lake NWR is located in Chariton County, Missouri. With approximately 20,107 acres enrolled, Chariton County has more acres of wetlands enrolled in the Wetland Reserve Program (WRP) than any county in Missouri. There are an additional 29,937 WRP acres in the surrounding counties as well. The first part of this project would be to forge an educational partnership between Swan Lake NWR and private landowners who hold over 50,000 acres of WRP easements. This partnership would allow Swan Lake to be utilized as a learning site for private landowners to learn how to properly manage and maintain there wetlands to meet habitat objectives of migratory birds. The second part of this project would enhance outdoor learning opportunities at Swan Lake NWR for area schools. There are 12 schools with over 6,000 enrolled students within a 25 mile radius of the Refuge that could make use of Swan Lake as an outdoor learning destination.

Estimated cost: $97,911 annually

Manage/maintain 3,400 Acres of Wetlands and Migratory Bird Resources

This includes hiring on full time Biological Science Technician. The Refuge Comprehensive Conservation Plan calls for over 3,000 acres of moist soil management on Swan Lake NWR. This project would ensure field support in management and monitoring of wetland conditions on the Refuge. There are over 200,000 migratory birds that utilize the Refuge as well and that number is expected to increase with habitat enhancements on the Refuge. This project would ensure field support in wildlife population and disease monitoring, surveys, and censuses.

Estimated cost: $80,046 annually

Restore/maintain 2,600 Acres of Native Grasslands and Bottomland Hardwood Forest

This includes hiring one full time Rangeland Management Technician. The Swan Lake NWR currently has 921 acres of native grasslands on the Refuge. The Comprehensive Conservation Plan calls for the Refuge to eventually convert approximately 327 more acres of Refuge property to grasslands. This would give the Refuge over 1,200 acres of grassland units to manage in addition to the 1,400 acres of native bottomland hardwood forest in need of management. This project would ensure the necessary management activities are carried out to these habitats on Swan Lake National Wildlife Refuge.

Estimated cost: $80,046 annually

Provide Visitor, Resource, and Facility Protection (Law Enforcement)

Provide one full-time law enforcement officer to protect wildlife, lands, facilities, employees and the general public on Swan Lake National Wildlife Refuge and its outlying Fee Title properties. The Directors Order #155 requires the Service to reduce dependency on dual-function Refuge officers and progress towards a full-time officer workforce. This officer will assist in fulfilling these needs by placing an officer in the field full time to protect wildlife resources. Service wetland easement violations, trespass farming, hunting violations and off-road vehicle use are increasing on Refuge lands. Protection is the most basic form of wildlife management and this project will dedicate a full-time law enforcement officer to preserve and protect wildlife and wildlife habitats. Currently the Refuge depends on State Game Wardens for LE support which puts an additional strain on them and the Refuge cannot depend upon them to make Refuge enforcement a priority.

Estimated cost: $150,000 annually