

Appendix M: Comparison of Objectives and Strategies by Alternative

Appendix M: Comparison of Objectives and Strategies by Alternative

	Alternatives				
	A	B	C	D	E
Goal: Maintain or enhance populations of federal and, where compatible, state threatened and endangered species that occur at or near Crab Orchard National Wildlife Refuge.					
Objectives					
Assure that federally listed species and state-listed species and federally proposed species and their habitats are protected.	X	X	X	X	X
<i>Strategies</i>					
No disturbance of Bald Eagles will take place during critical periods within protective zones as described in the 1983 Northern States Bald Eagle Recovery Plan, Appendix E. Areas are designated closed through signing and brochures.	X	X	X	X	X
Forest management activities, such as thinning and prescribed burning, will require close coordination with U.S. Fish and Wildlife Service, Ecological Services personnel. These activities will require standard surveys to determine whether Indiana bats are present in a given forest unit and/or forest management activities will be scheduled outside of the season when Indiana bats are likely to use Refuge forests.	X	X	X	X	X
Goal: Maintain or enhance resident fish and wildlife populations consistent with management activities for federal trust resources in cooperation with the Illinois DNR.					
Objectives					
Manage Refuge fisheries with emphasis on mixed-species, warmwater sport fishing.	X	X	X	X	X
Manage Refuge resident wildlife populations at levels that allow opportunities for sport hunting of game species.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
<i>Strategies</i>					
Continue cooperative management of Refuge fisheries with Illinois DNR. Continue managing fish populations and habitat through activities such as: setting length and creel limits, seasonal closures of spawning bed areas, habitat enhancements, annual surveys, and fish stocking.	X	X	X	X	X
Continue managing the Refuge agriculture program with methods that benefit resident game species, such as: leave 25 percent of the corn crop unharvested, plant winter wheat in soy bean fields each fall, use low tillage planting techniques, keep fields in clover 2 years out of the 5-year rotation, delay mowing until after August 1, and use no insecticides.	X	X	X	X	X
Incorporate beneficial practices such as those suggested in the Northern Bobwhite Conservation Initiative: convert cool-season to warm-season grasses and burn and thin pine plantations.	X	X	X	X	X
Allow controlled hunting for turkey and deer in the restricted use portion of the Refuge.	X	X	X	X	X
Goal: Visitors, cooperators, tenants, and local residents will understand Refuge goals, issues and activities. Service personnel will understand the expectations and concerns of the general public by being receptive to their feedback.					
Objectives					
The positive attitude toward Refuge management will increase among visitors, cooperators, tenants, and local residents throughout the life of the plan.	X	X	X	X	X
<i>Strategies</i>					
Issue press releases, hold Refuge open houses and hold regularly scheduled forums.	X	X	X	X	X
Within 2 years of the Plan's approval, create and maintain a "listening log" of written and verbal public input submitted to the Refuge. Review this log quarterly and address voiced community concerns.	X	X	X	X	X
Provide annual reports on the "State of the Refuge." Distribute these reports upon request at the Visitor Center and by mail and post the current year's report on the Refuge website.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
Continue to permit selected annual and special events that are sponsored by nonprofit organizations, provided they do not damage Refuge resources or interfere with wildlife-dependent recreation.	X	X	X	X	X
Goal: Protect the integrity of Refuge biological and cultural resources and the health and safety of visitors, industrial workers, farmers and the Refuge staff.					
Objectives					
Refuge lands and waters are safe for fish, wildlife, plants, and people.	X	X	X	X	X
Visitors will feel safe on the Refuge and illegal harvest of fish and wildlife will be reduced.	X	X	X	X	X
Manage or eliminate invasive species on the Refuge.	X	X	X	X	X
Protect the cultural, historic, and pre-historic resources of federally-owned lands within the Refuge.	X	X	X	X	X
Meet Service policy guidelines (“Administration and Enforcement Procedures for Conservation Easement”) for 12 conservation easements by 2007, for all easements by 2010.	X	X	X	X	X
Strategies					
Work with USEPA, Illinois EPA, Departments of Interior and Justice, and responsible parties to remediate contaminated sites.	X	X	X	X	X
Maintain full-time law enforcement staff.	X	X	X	X	X
Write and implement an Integrated Pest Management Plan following guidance developed by the Service’s “Promises Invasive Species Team.”	X	X	X	X	X
Implement the Cultural Resource Management Plan for Cultural Resources within the Crab Orchard National Wildlife Refuge (Godfrey and Stubbs 2001).	X	X	X	X	X
Ensure archeological and cultural values are described, identified, and taken into consideration prior to implementing undertakings. Notify the Regional Historic Preservation Officer early in project planning or upon receipt of a request for permitted activities.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
Develop a step-down plan for surveying lands to identify archeological resources and for developing a preservation program.	X	X	X	X	X
Complete accessioning, cataloging, inventorying, and preserving the museum collection at the Refuge in accordance with "Survey of Collections at Crab Orchard NWR" by Mayda S. Jensen.	X	X	X	X	X
Complete legal surveys on 50 percent (12 tracts) of all conservation easements by 2007 through contracted services. Complete contracted surveys on the remaining tracts by 2010.	X	X	X	X	X
Conduct annual inspections of all conservation easements.	X	X	X	X	X
Develop land use plans for 50 percent (12 tracts) of the conservation easements and restore grassland and wetland habitats on 25 percent of these tracts by 2009.	X	X	X	X	X
Hire a permanent 6-month law enforcement officer to conduct annual inspections, develop land use plans, and restore wetland and grassland habitat projects.	X	X	X	X	X
Goal: Protect the ecological integrity, preserve the wilderness character, restore natural conditions to the extent practicable, and provide opportunities for solitude and primitive recreation within the Crab Orchard Wilderness.					
Objectives					
Recommend the designation of two parcels (120 acres) as Wilderness within two years of approval of the CCP.	X	X	X	X	X
Revise and implement the Crab Orchard Wilderness Management Plan within 5 years of approval of the CCP.	X	X	X	X	X
Restore native hardwood forest on 325 acres of pine and pine-hardwood forest in the Crab Orchard Wilderness within 15 years of approval of the CCP.	X	X	X	X	X
Control or eradicate invasive species (especially autumn-olive, multi-flora rose, Amur honeysuckle, white poplar, and Oriental bittersweet) over the 15-year life of the CCP.	X	X	X	X	X
Explore ways to increase cooperation with the U.S. Forest Service on management of the Crab Orchard Wilderness and the adjoining Panther Den Wilderness within two years of approval of the CCP.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
Provide opportunities for primitive recreation, such as hiking, hunting, nature study and wild food collection, over the 15-year life of the CCP.	X	X	X	X	X
Within 5 years of approval of the CCP, determine an appropriate level of opportunities to offer equestrians based on an evaluation of the current level and extent of horseback riding use and its effects on the Wilderness.	X	X	X	X	X
<i>Strategies</i>					
Prepare and submit a Wilderness Study Report according to policy in Part 610 Chapter 7 of the Fish and Wildlife Service Manual.	X	X	X	X	X
Prepare and implement a Wilderness Management Plan according to policy in Part 610 Chapter 6 of the Fish and Wildlife Service Manual.	X	X	X	X	X
Thin the pine plantations (229 acres) and pine-hardwood stands (96 acres) in the Wilderness to promote establishment and growth of native hardwoods. Thinning would be conducted in several phases over a 10- to 15-year period to mimic the natural process of succession where pines are gradually replaced by hardwoods. Individual pines would be killed by cutting, girdling or injecting herbicide. No trees would be removed from the site. Treatments would be conducted so that the results would appear natural as much as possible. However, trees along heavily used trails may need to be felled to avoid personal injury to visitors, in which case this zone may appear unnatural for several years. Eventual removal of all the non-native pines would restore the natural vegetative cover of the area and enhance wilderness characteristics.	X	X	X	X	X
Prescribed burn the pine and pine-hardwood stands during the dormant season (November through March) on a 3- to 5-year cycle to enhance habitat conditions and promote desirable hardwood regeneration. Control lines would be established by hand tools where necessary, using natural firebreaks as much as possible.	X	X	X	X	X
Prepare and implement an Integrated Pest Management Plan following guidance developed by the Service's "Promises Invasive Species Team."	X	X	X	X	X
Contact the Forest Supervisor of the Shawnee National Forest and discuss ways our agencies could work together in managing the adjoining wildernesses.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
Continue current primitive recreational opportunities.	X	X	X	X	X
Prepare and distribute a wilderness brochure and conduct interpretive programs to inform the public about primitive recreational opportunities available.	X	X	X	X	X
Evaluate the current, unauthorized River to River route. Cooperate with partners to plan, construct, and maintain an authorized River to River trail route through the Refuge.	X	X	X	X	X
Goal: Volunteers and Refuge support groups will be stewardship partners and strong advocates for the Refuge.					
Objectives					
Improve Refuge support for volunteer and Friends of Crab Orchard activities to a point where at least 95 percent of volunteers and Friends members feel like valued contributors to the success of Refuge programs and endeavors.	X	X	X	X	X
<i>Strategies</i>					
Continue to manage volunteer and support programs in accordance with Service guidelines detailed in “A Guidebook for Working with Volunteers.” Maintain an active liaison with support groups and partners.	X	X	X	X	X
Provide in-depth initial training to Refuge volunteers that will enable them to effectively and efficiently complete projects and responsibilities. Encourage involvement in diverse volunteer activities that match volunteer interests.	X	X	X	X	X
Continue demonstrating Refuge appreciation for volunteer contributions and Friends support annually through a Volunteer Appreciation Banquet. Present awards for service hours in accordance with Service guidelines.	X	X	X	X	X
Goal: Provide habitat for wintering Canada geese in support of the Mississippi Valley Population Canada Goose Management Plan.					
Objectives					
Provide enough food for wintering Canada geese to support 6.4 million goose-use-days.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
<i>Cropland Strategies</i>					
Maintain 4,500 acres of cropland in agricultural production. Manage 1,000 acres of pasture and 700 acres of hay fields.	X				
Maintain 4,400 acres of cropland in agricultural production.		X			X
Maintain 4,800 acres of cropland in agricultural production.			X		
Maintain 4,300 acres of cropland in agricultural production.				X	
Continue managing the Refuge agriculture program with methods that benefit Canada Geese, such as: leave 25 percent of the corn crop unharvested, plant winter wheat in soybean fields each fall, use low tillage planting techniques, keep fields in clover 2 years out of the 5-year rotation.	X	X	X	X	X
<i>Moist-soil Units Strategies</i>					
Manage 450 acres of moist-soil units.	X			X	
Manage 500 acres of moist-soil units.		X	X		X
<i>Other Management Strategies</i>					
Continue fall mowing around selected ponds.	X	X	X	X	X
Maintain seasonal closure to boating on the east end of Crab Orchard Lake.	X	X	X	X	X
Goal: Maintain or enhance populations of forest, early successional and grassland birds, with emphasis on priority species, as identified in Partners in Flight Physiographic Area Bird Conservation Plans.					
Forests					
Objectives					
Complete about 240 acres of reforestation as outlined under the existing Refuge reforestation plan to benefit forest wildlife species.	X				
Manage forest land to favor oak-hickory forest types on suitable sites with all age classes from seedling stage to old-growth represented. Manage native, shade-tolerant tree species (such as sugar maple) to prevent wide-spread succession to climax forest cover types.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
<p>Manage two portions of the Refuge as large forest blocks to benefit area-sensitive forest birds. The first area (about 13,000 acres) extends from the southern end of Grassy Bay east to Caney Creek, and south including the wilderness area. The second area (about 1,700 acres) extends from the federal prison north and includes the Crab Orchard Creek bottomlands. This will include about 490 acres of reforestation of open habitat to consolidate large blocks of forest habitat.</p>		X		X	X
<p>Manage the southern portion of the Refuge as a large forest block to benefit area-sensitive forest birds. This area (about 9,500 acres) extends south from Grassy Road and includes the wilderness area.</p>			X		
<i>Strategies</i>					
<p>Conduct reforestation activities which may include site preparation (mechanical clearing and/or applying herbicides to unwanted vegetation), planting hardwood tree seedlings, and follow-up mechanical or chemical treatments.</p>	X	X	X	X	X
<p>Write and implement a Habitat Management Plan</p>	X	X	X	X	X
<p>Apply appropriate silvicultural treatments to manage forest health, species composition and age structure.</p>	X	X	X	X	X
<p>Reforest available open sites located outside of the two large forest blocks.</p>	X	X	X	X	X
<p>Control exotic invasive plants through integrated pest management practices.</p>	X	X	X	X	X
<p>Reforest about 290 acres of crop fields, 130 acres of fallow fields, and 90 acres of perennial grasslands. This may include site preparation planting a cover crop, planting tree seedlings, and weed control treatments.</p>		X		X	X
<p>Reforest 1 fallow field (52 acres) south of Grassy Road. This may include site preparation, planting a cover crop, planting tree seedlings, and weed control treatments.</p>			X		
Pine Plantations					
Objectives					
<p>Accelerate succession of all (about 3,300 acres) pine plantations to hardwood forest.</p>	X	X		X	X

	Alternatives				
	A	B	C	D	E
Accelerate succession of pine plantations south of Grassy Road and outside the wilderness area (about 650 acres) to native hardwood forest.			X		
<i>Strategies</i>					
Thin pine plantations to promote establishment and growth of native hardwoods. Most thinning treatments will be conducted under contract by commercial timber harvesting firms.	X	X	X	X	X
Conduct prescribed burning during the dormant season (November through March) on a 3 to 5 year cycle to enhance habitat conditions and promote desirable hardwood regeneration.	X	X	X	X	X
In some cases, remove pine overstory to release young hardwoods.		X		X	X
Early Successional Habitat					
Objective					
Maintain about 300 acres in early successional habitat.		X	X	X	X
<i>Strategies</i>					
Use prescribed fire or mechanical treatment (mowing, discing) to disturb about 200 acres every 3 to 5 years. Add about 100 acres of 30-foot-wide borders of native warm-season grasses in row crop fields in the open portion of the Refuge.		X	X	X	X
Grasslands					
Objectives					
Maintain 240 acres of native warm-season grassland to benefit grassland birds, such as northern bobwhite, eastern meadowlark, and Hen-slow's sparrow.	X				
Maintain 260 acres of native warm-season grassland.		X	X	X	X
<i>Strategies</i>					
Prescribed burn all native warm-season grasslands on a 2 to 3 year cycle to favor grassland vegetation and control undesirable plants. Apply mechanical or herbicide treatments to control vegetation, when needed.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
Pasture, Hay and Clover Fields					
Objectives					
Maintain 1,000 acres of pasture, 700 acres of hay fields, and about 1,600 acres of clover fields with increased emphasis on habitat quality for grassland birds.	X	X	X		X
Maintain 1,000 acres of pasture, 500 acres of hay fields, and about 1,500 acres of clover fields with increased emphasis on habitat quality for grassland birds, along with an emphasis on cattle production on pastures.				X	
Strategies					
All mowing of pastures, hay fields, and clover fields will take place after August 1.	X				
Remove 124 acres of linear forest habitat and 8 miles of hedge rows. Install fences to create paddocks within pastures to enable greater control of grazing intensity. Convert fescue pastures to other cool-season and native warm-season grasses by preparing the site and reseeding. The typical Refuge pasture would become three or four paddocks with a paddock of cool-season grass and two or three paddocks of native warm-season grasses. Cattle would enter the cool season grass paddock in the spring, switch to the warm season grasses in the summer, and move back to the cool season grass in the fall. The native warm season grass will provide the grassland birds with nesting, migration, and winter habitat. Vegetation structure will be managed by the amount of grazing applied to each paddock. Most of the pasture grass would not require fall mowing and would be taller than 6 inches during the winter. All mowing of hay fields, pastures, and clover fields will take place after August 1.		X	X		X
Remove 15 acres of linear forest habitat and 2 miles of hedge rows. Increase forage diversity in fescue pastures by adding legumes, other cool-season or warm-season grasses by reseeding or interseeding. Subdivide larger pastures for rotational grazing to increase cattle production. All mowing of hay fields, pastures, and clover fields will take place after July 15.				X	

	Alternatives				
	A	B	C	D	E
Goal: Maintain or enhance populations of ducks, shorebirds, and other waterbirds, with emphasis on priority species, as identified in the North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan, and North American Waterbird Conservation Plan.					
Objectives					
Provide 350 to 450 acres of moist soil habitat during fall, winter and spring for migrating shorebirds, waterfowl, and other waterbirds.	X			X	
Provide 450 to 500 acres of moist-soil habitat during fall, winter and spring for migrating shorebirds, waterfowl, and other waterbirds.		X	X		X
<i>Strategies</i>					
Maintain dikes and water control structures. Manipulate water levels and vegetation to encourage production of food.	X			X	
Construct 50 to 70 acres of new moist-soil habitat. Maintain dikes and water control structures. Manipulate water levels and vegetation to encourage production of waterfowl foods.		X	X		X
Goal: Provide and manage for quality of water in streams and lakes at Crab Orchard National Wildlife Refuge.					
Objectives					
Keep Refuge soil erosion and chemical inputs at low levels.	X		X	X	
Improve the quality of water within the watershed of the Refuge.		X			X
<i>Strategies</i>					
Work with farmers to establish buffer strips and keep stock away from water. Continue using current soil and water protection measures in the Refuge farm program: use no insecticides, use only Service-approved herbicides, use minimum tillage practices, and use winter cover crops.	X	X	X	X	X
Continue cleanup of contaminated industrial sites. Ensure Refuge industrial operations conform to prescribed environmental standards.	X	X	X	X	X

	Alternatives				
	A	B	C	D	E
<p>Cooperate with Illinois Environmental Protection Agency to monitor water quality. Identify landowners and land uses in the watershed. Provide education and technical assistance to landowners with particularly sensitive riparian areas. Work with municipalities and developers to enhance on-site storm water retention.</p>		X			X
<p>Goal: Hunters, anglers, viewers and photographers of wildlife, general visitors, and students enjoy high-quality experiences through a variety of opportunities that promote an understanding and appreciation of the Refuge's natural and cultural resources and their management.</p>					
<p style="text-align: center;">Hunting</p>					
<p>Objectives</p>					
<p>Provide hunting opportunities at the levels offered in 2001.</p>	X				
<p>Increase the quality of hunting opportunities to a level where at least 90 percent of hunters experience uncrowded conditions, no conflicts with other users, a reasonable harvest opportunity, and satisfaction with their overall experience. Instill a sense of awareness among hunters of Crab Orchard as a component of the National Wildlife Refuge System and of hunting as a wildlife management tool.</p>		X			
<p>Increase the quality of hunting opportunities to a level where 75 percent of hunters experience uncrowded conditions, no conflicts with other users, a reasonable harvest opportunity, and satisfaction with their overall experience. Instill a sense of awareness among hunters of the Refuge as a component of a National Wildlife Refuge System and of hunting as a wildlife management tool.</p>			X	X	X
<p><i>Strategies</i></p>					
<p>In the open area of the Refuge, continue the policy of providing hunting opportunities based on state hunting seasons and state and federal regulations.</p>	X				
<p>In the restricted use area of the Refuge, maintain current hunting opportunities by permit during shotgun deer and shotgun spring turkey seasons. Maintain shotgun deer season hunting opportunities for youth and persons with disabilities.</p>	X				
<p>Continue providing waterfowl hunting opportunities in the controlled area through an agreement with a partner organization.</p>	X				

	Alternatives				
	A	B	C	D	E
In the public hunting area of the Refuge, continue the policy of providing hunting opportunities based on state hunting seasons and state and federal regulations.		X	X	X	X
In the restricted use area of the Refuge, maintain current hunting opportunities by permit during shotgun deer and shotgun spring turkey seasons. Maintain shotgun deer season hunting opportunities for youth and persons with disabilities and, within 3 years of the plan's approval, provide these groups with opportunities for shotgun spring turkey season hunting when populations warrant.		X	X	X	X
Within 6 years of the plan's approval, establish additional special hunts to encourage participation in the Refuge hunting program by non-traditional segments of the public such as youth, persons with disabilities and women.		X			
Administer goose hunts in the controlled area through an agreement with a partner organization.		X	X	X	X
Over the life of the plan, continue to promote conservation practices and increase hunter adherence to federal and state regulations through effective informational brochures and signs. Increase the visibility of Refuge law enforcement.		X	X	X	X
Over the life of the plan, enhance public understanding of Refuge hunting opportunities, ethical behaviors, the role of hunting in wildlife management, and Crab Orchard Refuge as a component of a National Wildlife Refuge System by increasing the quality of maps, signs, and wording within brochures.		X	X	X	X
Fishing					
Objectives					
Provide fishing opportunities at the levels offered in 2001.	X				
Increase the quality of fishing opportunities to a level where at least 90 percent of anglers experience uncrowded conditions, no conflicts with other users, a reasonable harvest opportunity, and satisfaction with their overall experience. Enhance angler understanding of the issues, strategies, and policies involved in Refuge fisheries management and conservation. Instill anglers with a sense of awareness of Crab Orchard Refuge as a component of a National Wildlife Refuge System.		X			

	Alternatives				
	A	B	C	D	E
Increase the quality of fishing opportunities to a level where 75 percent of anglers experience uncrowded conditions, no conflicts with other users, a reasonable harvest opportunity, and satisfaction with their overall experience. At least 75 percent of anglers understand the issues, strategies, and policies involved in Refuge fisheries management and conservation.			X	X	X
<i>Strategies</i>					
In the public fishing areas, continue the policy of providing fishing opportunities based on state and federal regulations.	X	X	X	X	X
Continue to provide bank and boat fishing opportunities in accordance with state and federal regulations. Maintain existing Refuge boat ramps, fishing piers, and parking facilities.	X				
Within 5 years of the plan's approval and in cooperation with other partners, promote current and develop additional fishing opportunities and programs to encourage participation by non-traditional segments of the public such as youth, persons with disabilities, and women.		X			
Continue to provide bank and boat fishing opportunities in accordance with state and federal regulations. Maintain existing Refuge boat ramps, fishing piers, and parking facilities. Study the feasibility for constructing accessible fishing facilities at Little Grassy Lake and Devils Kitchen Lake within 4 years of the plan's approval.		X	X	X	X
Over the life of the plan, promote Refuge fishing opportunities and encourage conservation practices such as catch-and-release fishing through the development and maintenance of high-quality maps, signs, and the Refuge web page.		X	X	X	X
Ensure that the fishing public clearly understands the fish consumption advisories for Crab Orchard Lake through signs and brochures within 2 years of the plan's approval.		X	X	X	X
Over the life of the plan, provide insight to anglers regarding Refuge strategies, issues, and policies for fisheries management and conservation by redesigning and developing more effective informational signs and brochures. Increase angler awareness of the Refuge as a component of a National Wildlife Refuge System by improving the quality and content of maps, signs, and brochures.		X	X	X	X

	Alternatives				
	A	B	C	D	E
Wildlife Observation and Photography					
Objectives					
Provide wildlife observation and photography opportunities at the levels offered in 2001.	X				
Ensure that viewing and photography opportunities meet the needs of 95 percent of participants. Establish and maintain viewing and photography opportunities for all major Refuge habitat types and optimum seasons.		X	X	X	X
Strategies					
Continue popular, established programs and tours like the October Discovery Auto Tours, January Eagle Tours, and Spring Wildflower Walks that enhance visitor experience, bring visitors in closer proximity to resources, and provide optimum seasonal opportunities for observation and photography.	X				
Continue popular, established programs and tours like the October Discovery Auto Tours, January Eagle Tours, and Spring Wildflower Walks that enhance visitor experience, bring visitors in closer proximity to resources, and provide optimum seasonal opportunities for observation and photography, and continually evaluate these programs for effectiveness.		X	X	X	X
Maintain existing photo blinds, observation blinds, and identified observation areas.	X				
Within 2 years of the plan's approval, develop an annual observation/photography fact sheet for the Refuge that will include a calendar of established tours, programs, and events; information on identified and recommended viewing and photography areas; guidelines to enhance viewing enjoyment; and a Refuge map delineating trails, blinds, platforms, and identified viewing areas.		X	X	X	X
Within 2 years of the plan's approval, improve the existing photography/observation blinds and platform by adding camouflage as needed to enhance viewing opportunities. Evaluate location of existing blinds and platforms and move as needed. Position interpretive and identification panels in or near blinds and platform to promote understanding and appreciation of Refuge resources. Enhance panels to promote awareness of the Refuge as a component of the National Wildlife Refuge System.		X	X	X	X

	Alternatives				
	A	B	C	D	E
<p>Within 5 years of the plan's approval, evaluate need for and add additional blinds/platforms, including interpretive and identification panels, where and if needed to ensure observation and photography opportunities in all major Refuge habitat types. Maintain all identified viewing and photography sites.</p>		X	X	X	X
<p>Over the life of the plan and in cooperation with other partners, encourage utilization of the Refuge for birding and other wildlife observation through development of informational materials, programs, tours, and special events. Promote Crab Orchard as a site for quality wildlife and cultural observation and photography through participation in selected community and regional birding, nature, and photography festivals and events.</p>		X	X	X	X
<p>Within 8 years of the plan's approval, identify and create a Refuge birding trail that may include enhancement and coordination of existing trails, viewing areas, and signs, and creation of a birding trail brochure and map.</p>		X	X	X	X
<p>Over the life of the plan, expand the Refuge web site to promote wildlife observation and photography. Include updates on Refuge and area sightings of rare birds and other wildlife; profiles of selected seasonally-occurring and resident species; suggested optimal viewing times and locations; and current Refuge programs, facilities, tours, and other opportunities for observation and photography.</p>		X	X	X	X
Interpretation					
Objectives					
<p>Provide interpretive opportunities and materials at the levels offered in 2001.</p>	X				
<p>Increase the effectiveness of the Refuge interpretive program such that 85 percent of visitors gain a better understanding of three primary concepts: (1) the value and unique purposes of the Refuge, (2) the Refuge as a component of a national network of refuges, and (3) the significance and mission of the National Wildlife Refuge System. Heighten awareness of conservation and stewardship concepts. Encourage visitors to adopt ethical behaviors and to take positive actions that support Refuge goals and the Refuge System mission.</p>		X			

	Alternatives				
	A	B	C	D	E
<p>Increase the effectiveness of the Refuge interpretive program so that 70 percent of visitors gain a better understanding of three primary concepts: (1) the value and unique purposes of the Refuge, (2) the Refuge as a component of a national network of refuges, and (3) the significance and mission of the National Wildlife Refuge System. Heighten awareness of conservation and stewardship concepts. Encourage visitors to adopt ethical behaviors and to take positive actions that support Refuge goals and the Refuge System mission.</p>			X	X	X
<p><i>Strategies</i></p> <p>Continue to maintain and replace damaged and outdated interpretive and information panels on Refuge kiosks, wayside exhibits, trails, ramps, and other facilities. Ensure all panels comply with Service standards.</p>	X				
<p>In cooperation with Refuge volunteers and other partners, conduct a variety of quality interpretive programs annually. Continue popular and established interpretive programs and special events, such as the Families Understanding Nature program and National Wildlife Refuge Week.</p>	X				
<p>Continue to plan interpretive auto tour route, using existing roads, that will facilitate opportunities for wildlife and cultural resource observation and provide visitors with an overview of the Refuge, its resources, and its management.</p>	X				
<p>Within 3 years of the plan's approval, develop the interpretive portion of the Refuge Visitor Services Plan outlining a comprehensive, multifaceted approach emphasizing selected themes and key Refuge resources. Themes will be selected based on importance to Refuge and System goals and relevance to surrounding communities. All interpretive materials, tours, and programs will focus on one or more of these Refuge themes, along with the three basic concepts of the Refuge and Refuge System. Refuge interpretive themes may be in a storyline form that includes three or more themes. Themes may include: Exploring the Diversity of Wildlife, Understanding the Past, Protecting the Balance, and Communicating Visitor Opportunities.</p>		X	X	X	X
<p>Within 4 years of the plan's approval, renovate and replace damaged and outdated interpretive and information panels on Refuge kiosks, wayside exhibits, trails, ramps, and other facilities. Ensure that all panels comply with Service standards.</p>		X	X	X	X

	Alternatives				
	A	B	C	D	E
In cooperation with Refuge volunteers and other partners, conduct a variety of high-quality interpretive programs annually. Continue popular and established interpretive programs and special events, such as the Families Understanding Nature program and National Wildlife Refuge Week. Ensure interpretive programming remains current and dynamic by continually creating new programs, incorporating new ideas, updating information, and revitalizing ongoing programs. Focus each interpretive program on one or more Refuge themes.		X	X	X	X
In cooperation with other partners, continue publication of a quarterly newsletter that includes interpretive articles, information on Refuge management activities, and a calendar of events. Distribute this newsletter at the Visitor Center, as well as a separate events calendar for the year. Post this newsletter on the Refuge web site.		X	X	X	X
Within 2 years of the plan's approval, redesign and remodel Visitor Center exhibits to create professional displays that effectively illustrate one or more Refuge themes while incorporating the three basic concepts of the Refuge and Refuge System. Exhibits will be well maintained and designed for easy repair and replacement as needed.		X	X	X	X
Over the life of the plan and in cooperation with Friends of Crab Orchard National Wildlife Refuge and other partners, revise Refuge interpretive brochures, handouts, and other written materials as needed to improve consistency and to meet Service standards.		X	X	X	X
Within 1 year of the plan's approval, create a custom audiovisual program that provides visitors with orientation information about the Refuge. Ensure this program and a variety of other wildlife-related audiovisual programs are made available for view at the Visitor Center and for use in interpretive programs.		X	X	X	X
Within 3 years of the plan's approval, establish and maintain an interpretive auto tour route, using existing roads, that will facilitate opportunities for wildlife and cultural resource observation and provide visitors with an overview of the Refuge, its resources, and its management. Include identified stations with interpretive panels.	X				

	Alternatives				
	A	B	C	D	E
<p>Within 3 years of the plan's approval, establish and maintain an interpretive auto tour route, using existing roads, that will facilitate opportunities for wildlife and cultural resource observation and provide visitors with an overview of the Refuge, its resources, and its management. Include identified stations with interpretive panels and corresponding, radio-broadcasted interpretive messages.</p>		X	X	X	X
Environmental Education					
Objectives					
<p>Provide environmental education programs and materials at the levels offered in 2001.</p>	X				
<p>Increase the effectiveness of the Refuge environmental education program so that 90 percent of participants gain a better understanding and appreciation of the resources, purposes, and value of the Refuge and the Refuge System. Heighten awareness of conservation and stewardship concepts and encourage participants to take positive actions on the Refuge and in their community that support Refuge goals and the Refuge System mission.</p>		X			
<p>Increase the effectiveness of the Refuge environmental education program so that 75 percent of participants gain a better understanding and appreciation of the resources, purposes, and value of the Refuge and the Refuge System. Heighten awareness of conservation and stewardship concepts and encourage participants to take positive actions on the Refuge and in their community that support Refuge goals and the Refuge System mission.</p>			X	X	X
<i>Strategies</i>					
<p>Continue currently-offered environmental education programs done by request, including on-site and off-site programs, special educational events, group camp programs, and special interest group programs.</p>	X			X	
<p>Continue the development and maintenance of a multi-faceted environmental education resource library, available for use by educators and in Refuge educational programs, comprised of books, videos, posters, audio tapes, written materials, and environmental education kits.</p>	X				
<p>Conduct an annual review of the Refuge environmental education program. Invite feedback from area educators. Revise as necessary.</p>	X		X	X	X

	Alternatives				
	A	B	C	D	E
<p>Within 1 year of the plan's approval, select primary Refuge concepts and key resources that will be emphasized as central themes in the environmental education and interpretive programs. Themes will be selected based on importance to Refuge and System goals and relevance to surrounding communities. All educational materials and programs will focus on one or more of these Refuge themes.</p>		X	X	X	X
<p>Within 2 years of the plan's approval, develop the environmental education portion of the Visitor Services Plan outlining a comprehensive, curriculum-based approach structured to be compatible with state learning standards.</p>	X				
<p>Within 2 years of the plan's approval, develop the environmental education portion of the Visitor Services Plan, outlining a comprehensive, curriculum-based approach structured to be compatible with state learning standards and national environmental education guidelines. Emphasize key Refuge resources, the Refuge, the National Wildlife Refuge System, and selected Refuge themes. These themes will be based on importance to Refuge and System goals and relevance to surrounding communities. All environmental education materials, facilities, and programs will focus on one or more of these Refuge themes, along with the basic concepts of the Refuge and the Refuge System. Refuge themes may be in a storyline form that includes three or more themes. Themes may include: exploring the diversity of wildlife, understanding the past, protecting the balance, and communicating visitor opportunities.</p>		X	X	X	X
<p>Within 3 years of the plan's approval and in cooperation with Friends of Crab Orchard National Wildlife Refuge and other partners, create an array of environmental education kits, each focusing on one or more aspects of Refuge themes. Educational kits will include interactive materials and a detailed instructional and activity guide designed with a clear, consistent format and coordinated with state learning standards. Develop and maintain a multi-faceted environmental education resource library, available for use by educators and in Refuge educational programs, comprised of books, videos, posters, audio tapes, written materials, and environmental education kits.</p>		X	X	X	X
<p>Within 4 years of the plan's approval and in cooperation with other partners, establish an environmental education complex that incorporates an outdoor amphitheater with educational displays, a set of associated trails, the Refuge Visitor Center, and an educator's trail specifically designed to facilitate environmental education activities and function as an outdoor classroom.</p>		X	X	X	X

	Alternatives				
	A	B	C	D	E
<p>Within 4 years of the plan's approval and in cooperation with other partners, create an Educator's Guide to Crab Orchard National Wildlife Refuge that provides an orientation, guidelines, grade-level and state learning standards information, maps, and site-specific activities that focus on one or more Refuge themes. Incorporate input from area educators to ensure that the Refuge guide meets area teachers' needs.</p>		X	X	X	X
<p>In cooperation with other partners, conduct or host bi-annual teacher workshops that encourage area educators to incorporate environmental education into their curriculum and to utilize Refuge materials, staff, and resources, both in the classroom and during field trips. Within 5 years of the plan's approval, develop a Refuge-specific teacher workshop to demonstrate methods for combining use of the Educator's Guide, environmental education kits, and the educator's trail. Explore continuing education credit options for all teacher workshops.</p>		X			
<p>Over the life of the plan, establish a positive, cooperative relationship with educators and schools in surrounding communities. Promote use of the Refuge, environmental education resources, and staff through e-mail newsletters to educators, the Refuge web page, informational fliers and materials, targeted special events, and involvement in area parent-teacher and other organizations.</p>		X			
<p>Continue currently-offered environmental education programs done by request, including on-site and off-site programs, special educational events, group camp programs, and special interest group programs. Over the life of the plan, expand the environmental education program to include additional on-site and off-site programs, special educational events, group camp programs, and special interest group programs. Develop pre- and post-visit activities in addition to on-site activities.</p>		X	X	X	X
<p>Over the life of the plan, establish partnerships with selected local schools, agencies, and nonprofit organizations to more effectively develop and expand environmental education programs. Involve volunteers in educational programs and explore the potential for environmental education interns through Southern Illinois University and John A. Logan College. Explore the potential for creating a grant program to help area schools with field trip expenses.</p>		X	X	X	X

	Alternatives				
	A	B	C	D	E
Conduct a biannual review of the Refuge environmental education program. Invite feedback from area educators. Revise as necessary.		X			
Promote the use of the Refuge as an outdoor classroom and incorporate national environmental education guidelines and state learning standards into programs and materials.		X			
Manage the environmental education program as described in Service policy.		X			
In cooperation with other partners, conduct or host annual teacher workshops that encourage area educators to incorporate environmental education into their curriculum and to utilize Refuge materials, staff, and resources, both in the classroom and during field trips.			X	X	X
Goal: Visitors will enjoy high quality, land- and water-based activities that fulfill the recreation purpose of the Refuge.					
Objectives					
Maintain and gradually improve the quality of boat launches, marinas, beaches, picnic areas, and campgrounds at levels offered in 2001.	X				
Maintain the quality of non wildlife-dependent recreation facilities and activities at the levels offered in 2001 until facilities are transferred in a land exchange. Improve the quality of facilities not a part of the exchange to industry standards within 5 years of completion of exchange.		X			
Improve the quality of boat launches, marinas, beaches, picnic areas, and campground to industry standards within the life of the CCP.			X	X	X
Strategies					
Use recreation fee funds and compete for Maintenance Management System funds to improve facilities. Follow guideline for evacuating concession operations.	X				
Maintain picnicking at Greenbriar, Wolf Creek, Harmony Trail, and Visitor Center recreation areas. Within 2 years of the land exchange convert the Cambria Neck recreational area to foot traffic only.		X			
Explore the potential for a bicycle route within the restricted area of the Refuge. The route would run along old railroad beds.		X	X	X	X

	Alternatives				
	A	B	C	D	E
Continue current policies on swimming at Devils Kitchen, Little Grassy, and Crab Orchard Lakes.		X	X	X	X
With in 5 years of the plan's approval, upgrade boat ramps and associated parking at Devils Kitchen, Little Grassy and Crab Orchard Lakes.		X			
Continue current policies on lake zoning on Crab Orchard Lake with the additional zoning of no-wake east of Highway 148.		X			
Camping at Devils Kitchen would be discontinued to allow the Service to upgrade Little Grassy Campground to standards comparable to others in the area.		X			
Camping at Devils Kitchen would be reduced to primitive sites only.			X	X	X
Maintain picnicking at the Refuge recreational areas of Greenbriar, Wolf Creek and Harmony Trail, and allocate picnic facilities from Cambria Neck and Playport Marina to Images Marina site. Explore the option of concession-operated picnic shelters at Little Grassy and Crab Orchard Campgrounds.			X	X	X
With in 10 years of the plan's approval, upgrade boat ramps and associated parking at Devils Kitchen, Little Grassy and Crab Orchard lakes.			X	X	X
Continue current policies on lake zoning on Crab Orchard Lake with the additional zoning of no-wake zones.			X	X	X
Within 2 years of the plan's approval, consolidate Playport and Image marinas on Crab Orchard Lake. Image marina slips will be moved to Playport marina. Within 5 years of the plan's approval, remove the building at Image Marina and develop the area into a large access area to the lake with a comfort station.			X	X	X
Gas Motors on Devils Kitchen Lake					
Implement the zoning of motorized boating at Devils Kitchen Lake. Gas motors would be prohibited south of the southernmost boat ramps on Devils Kitchen Lake and ponds within the open area of the Refuge.		X			

	Alternatives				
	A	B	C	D	E
Gas motors would be prohibited at Devils Kitchen Lake.			X		
Gas motors would be permitted on Devils Kitchen Lake.				X	
Implement the zoning of motorized boating at Devils Kitchen Lake. Gas motors would be prohibited in the most southeastern arm of Devils Kitchen Lake, from the mouth of Grassy Creek south to the Refuge boundary, and in ponds within the open area.					X
Horseback Use					
Horseback use on the Refuge would be confined to designated trails only (see map) and erosion due to trail use would be actively controlled through maintenance and/or seasonal closures.		X	X		X
Horseback use would be prohibited on the Refuge.				X	
Goal: Visitors of all abilities will feel welcome and enjoy a safe visit to an area that they recognize as a national wildlife refuge.					
Objectives					
Meet Service standards for signs, information sources, facilities, and opportunities for visitor feedback at the levels offered in 2001.	X				
Provide visitors with a safe and enjoyable visit and a feeling of security.	X				
Improve Refuge signs, kiosks, and facilities so 90 percent of visitors feel welcome and secure, enjoy their visit, and recognize the area as a national wildlife refuge.		X	X	X	X
<i>Strategies</i>					
Maintain and gradually improve kiosks, rest rooms, boundary signing, and opportunities for visitor feedback as time and resources permit.	X				
Conduct annual safety inspections of all Refuge facilities and reaffirm compliance with Service standards.	X				
Maintain recognizable, consistent signs that clearly identify public hunting areas.	X				

	Alternatives				
	A	B	C	D	E
Respond to notification of safety problems and unsafe situations promptly and in accordance with Service standards.	X				
Within 5 years of the plan's approval, develop and install distinct and consistent identification markers that allow visitors to recognize and distinguish between each type of Refuge facility, including trails, observation platforms, photography blinds, bank fishing areas, public hunting areas, and other similar locations. Design all such markers in accordance with Service standards.		X			
Within 3 years of the plan's approval, revise information on existing kiosks, trailhead and other identification markers, boundary signs, and other such signs as necessary to meet Service standards.		X	X	X	X
Within 5 years of the plan's approval, create and install additional kiosks where needed at Refuge access points to ensure all visitors are greeted and informed that they are entering a national wildlife refuge. Ensure that all structures comply with Service standards.		X	X	X	X
Verify annually that visitors are welcomed and treated courteously by staff and volunteers. Confirm customer service standards during employee and volunteer orientations. Provide visitors with opportunities for feedback through suggestion cards, verbal reports, written mail, and e-mail through the Refuge web page. Address customer service issues promptly and professionally according to Service standards.		X	X	X	X
Within 2 years of the plan's approval, develop a Refuge brochure with detailed information on accessible facilities, trails, programs, and recreational opportunities at the Refuge.		X	X	X	X
Conduct semi-annual safety inspections of all Refuge facilities and reaffirm compliance with Service standards.		X	X	X	X
Maintain recognizable, consistent signs that clearly identify public hunting areas. Increase awareness among non-hunting visitors of hunting areas and seasons through effective signs and brochures.		X	X	X	X
Respond to notification of safety problems and unsafe situations promptly and in accordance with Service standards. Increase visibility of Refuge law enforcement, particularly during periods of heavy visitation.		X	X	X	X

	Alternatives				
	A	B	C	D	E
Goal: Provide opportunities for agricultural uses on Refuge lands that help attain wildlife conservation goals.					
Objectives					
Continue farming operations on about 4,500 acres of row crops.	X				
Continue farming operations on about 4,400 acres of row crops with greater emphasis on conservation practices.		X			X
Continue farming operations on about 4,500 acres of row crops, and reclaim and farm about 300 acres of former fields with greater emphasis on conservation practices.			X		
Continue farming operations on about 4,300 acres of row crops with greater emphasis on conservation practices, along with reasonable allowances to cooperators.				X	
Continue grazing operations on about 1,000 acres of pastures	X				
Continue grazing operations on about 1,000 acres of pasture with greater emphasis on conservation practices and reasonable allowances to cooperators.				X	
Continue operations on about 700 acres of hay fields.	X				
Continue farming operations on about 700 acres of hay fields with greater emphasis on conservation practices.		X			X
Continue farming operations on about 500 acres of hay fields with greater emphasis on conservation practices.			X		
Continue farming operations on about 500 acres of hay fields with greater emphasis on conservation practices.				X	
Enhance nesting habitat for grassland birds while maintaining or increasing the value for grazing on about 1,000 acres of pastures.		X	X		X
Strategies					
Maintain infrastructure (roads, fences) in support of agricultural operations. Address erosion with buffer strips. Enlist technical oversight from Natural Resource Conservation Service and the University of Illinois Extension.	X				

	Alternatives				
	A	B	C	D	E
Maintain infrastructure (roads, fences) in support of agricultural operations. Address erosion with buffer strips. Identify and drop farmed wetlands from the farm program. Permit cooperators to harvest corn remaining in the field in the spring. Emphasize Johnsongrass control. Prohibit mowing of clover in the crop rotation until after August 1. Enlist technical oversight from Natural Resource Conservation Service and University of Illinois Extension.		X	X		X
Prohibit mowing of hay until after August 1. Maintain an updated rate charge for hay.		X	X		X
Convert fescue pastures to other cool-season grasses and native warm season grasses with higher wildlife value. Divide existing pastures into three or four paddocks with a paddock of cool season grass and two or three paddocks of native warm season grasses. Rotate grazing cattle among the paddocks during the season. Enlist technical oversight from Natural Resource Conservation Service and University of Illinois Extension.		X	X		X
Maintain infrastructure (roads, fences) in support of agricultural operations. Address erosion with buffer strips. Drop small, less profitable fields (less than 5 acres) from row cropping and convert to other cover (about 15 fields totaling 52 acres). Identify and drop farmed wetlands from the farm program. Permit cooperators to harvest corn remaining in the field in the spring. Emphasize Johnsongrass control, for example: allow cooperators adjust rotation by planting soybeans in two successive years in one field annually. Prohibit mowing of clover in the crop rotation until after August 1. Enlist technical oversight from Natural Resource Conservation Service and University of Illinois Extension.				X	
Prohibit mowing of hay until after August 1. Maintain an updated rate charge for hay.				X	
Remove 15 acres of linear forest habitat and 2 miles of hedge rows. Increase forage diversity in fescue pastures by adding legumes, other cool-season or warm-season grasses by reseeding or inter-seeding. Subdivide larger pastures for rotational grazing to increase cattle production. All mowing of hay fields, pastures, and clover fields will take place after August 1. Enlist technical oversight from Natural Resource Conservation Service and University of Illinois Extension.				X	

	Alternatives				
	A	B	C	D	E
<p>Goal: Provide an industrial complex and attendant utility and transportation infrastructure, which conform to prescribed safety, health, environmental and maintenance standards.</p>					
<p>Objectives</p> <p>Meet the guidelines of the Industrial Policy established December 1981.</p> <p>Consolidate the areas occupied by industry.</p>	X				
<p><i>Strategies</i></p> <p>Maintain roads, as well as water and sewer lines, in industrial areas as appropriations become available. Building and grounds maintenance responsibility of lessee in accordance with lease requirements.</p> <p>Update Industrial Policy. Maintain the current infrastructure to support existing facilities.</p> <p>Remove buildings that are no longer suitable for occupancy for reasons of contamination, safety or lack of structural integrity and restore to natural habitats.</p> <p>Non-munitions-related tenants would not be replaced as they leave the Refuge.</p>	X	X	X	X	X