

IV. Management Direction

INTRODUCTION

Described below is the proposed Comprehensive Conservation Plan (Alternative 2) for managing Lake Ophelia National Wildlife Refuge over the next 15 years. This proposed plan contains the goals, objectives, and strategies that will be used to achieve the Refuge vision.

The planning team evaluated three other alternatives for managing the Refuge and chose *Alternative 2* as the proposed alternative. The other alternatives evaluated were *Alternative 1 - No Action*, *Alternative 3*, and *Alternative 4*. All of these alternatives are described in the Alternatives section of the Environmental Assessment.

Implementing the proposed alternative will result in restoring the largest amount of interior bottomland hardwood forest possible while meeting the Refuge's primary purpose of providing habitat for multiple species of migratory waterfowl. Specific results will include increased waterfowl and songbird use and production; enhanced habitat and increased protection for the Louisiana black bear and other forest interior-dependent wildlife; enhanced resident wildlife populations; restored wetlands and hydrology; and greater opportunities for a variety of compatible wildlife-dependent recreational activities.

An overriding concern reflected in this plan is that wildlife conservation is the first priority in Refuge management. Public uses are allowed if they are compatible and appropriate with wildlife and habitat conservation. Wildlife-dependent public uses (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) will be emphasized.

VISION

The vision for the Refuge is as follows:

Lake Ophelia National Wildlife Refuge will become a highly productive bottomland hardwood forest and open wetland ecosystem, which will provide a diverse complex of habitats that protect and restore biological diversity for the enjoyment and benefit of present and future generations. Habitat restoration and management activities will be directed toward waterfowl, migratory songbirds, the threatened Louisiana black bear, and other resident and migratory wildlife. To these ends, the Refuge will foster new partnerships with the community and provide opportunities for wildlife-dependent recreation.

COMPREHENSIVE CONSERVATION PLAN

SUMMARY

Under the proposed alternative, Refuge lands will be protected, maintained, restored, and enhanced for resident wildlife, waterfowl, migratory game birds, migratory nongame birds, and threatened and endangered species. Extensive wildlife and plant census and inventory activities will be initiated to develop the baseline biological information needed to implement management programs on the Refuge.

Refuge management actions will be directed towards achieving the Refuge's primary purposes: (1) preserving wintering habitat for mallards, pintails, and wood ducks; (2) providing production habitat for wood ducks; and (3) helping to meet the habitat conservation goals of the North American Waterfowl

Management Plan. In addition, the Refuge will be managed to contribute to other national, regional, and State goals for protecting and restoring populations of shorebirds, Neotropical migratory birds, woodcock, and the threatened Louisiana black bear.

Active habitat management will be implemented through water level manipulations, moist soil and cropland management, reforestation, and forest management designed to provide a historically diverse complex of habitats that meets the foraging, resting, and breeding requirements of a variety of species. An extensive system of levees, water control structures, and pumps will be developed and used in an effort to mimic historic flooding regimes and provide approximately 1,500 acres of seasonally flooded habitats for a variety of wetland-dependent species.

Under this alternative, the Refuge will continue to seek acquisition of all willing seller inholdings within the present acquisition boundary. Land protection and conservation are needed in the LMRAP. One way to achieve protection is by expanding the Refuge acquisition boundary. While this was considered as an option in the past, internal reviewers questioned the utility of a large land acquisition component relative to Region-wide funding and priorities. The Service concluded that if the lands within and outside the existing Refuge acquisition boundary were prioritized for land protection, working with partners, trust resource responsibilities would best be achieved.

Currently, the Refuge is pursuing acquisition from willing sellers within the current acquisition boundary as an option that will be used to improve conservation efforts. Also, the Refuge will use outreach programs and seek partnerships with State, Federal, and private landowners. In seeking partnerships with adjacent landowners and hunting clubs the Refuge will use conservation easements and cooperative agreements, and work to promote other Federal programs such as the Wetland Reserve Program (WRP), to link bottomland hardwood forest tracts and provide wildlife and soil and water conservation benefits. The primary purpose of these efforts in targeting new lands is to provide a bottomland forest system of sufficient size and carrying capacity to reach regional objectives associated with area-sensitive Neotropical migratory birds, Louisiana black bears, forest-associated waterfowl, and wetland forest landscapes (Figure 4-1). Land acquired as part of the Refuge will be available for compatible wildlife-dependent recreation.

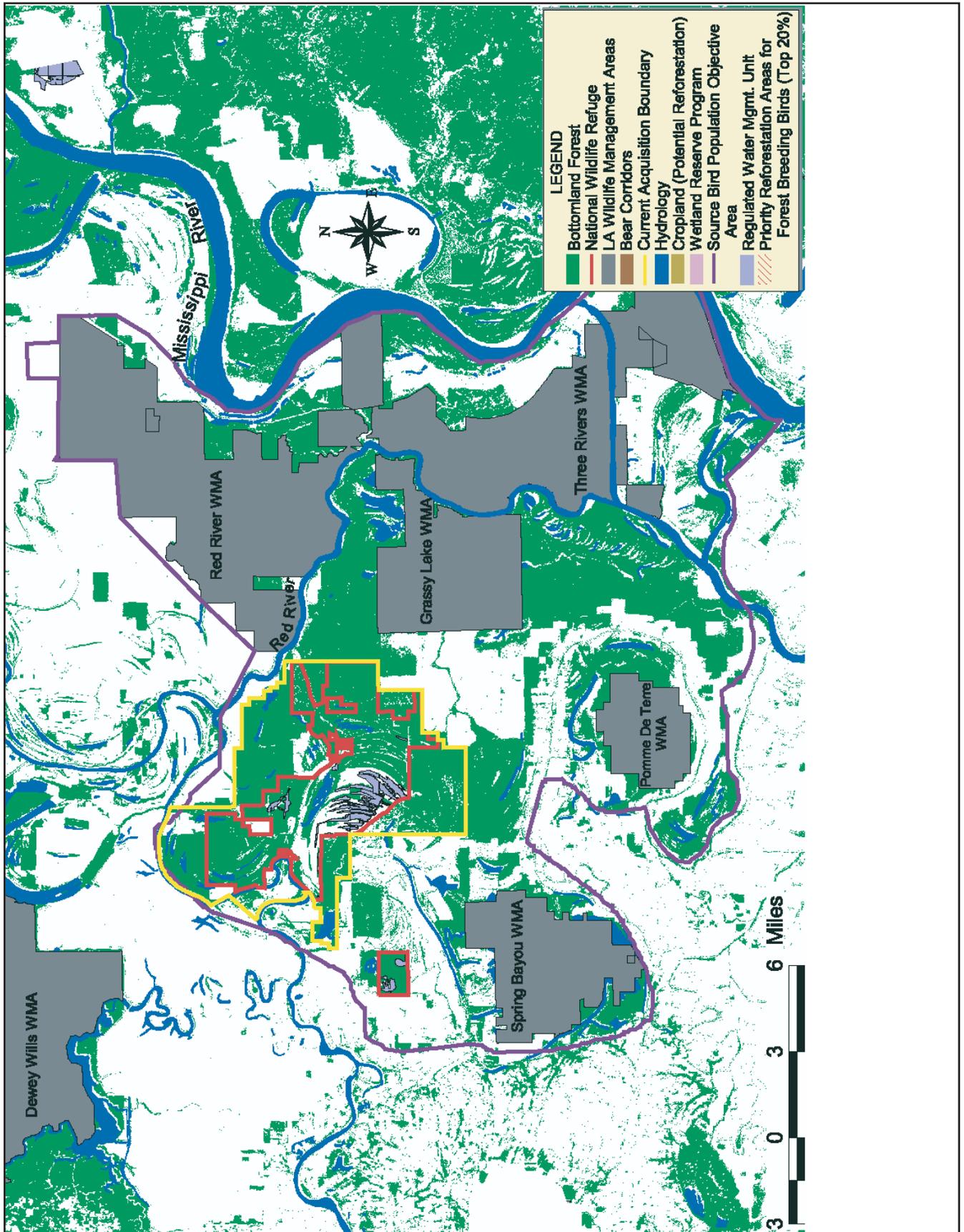
During the fifteen-year life of this plan, 1,178 acres of existing Refuge cropland will be reforested to achieve wildlife habitat objectives. A forest management plan, designed to create spatially and specifically diverse bottomland hardwood forest (with little negative effect to waterfowl objectives), will be developed and implemented.

In the early stages of the conservation plan implementation, cooperative farming will be used to manage and maintain approximately 3,678 acres of cropland and moist soil habitats. As reforestation of cropland proceeds, the cropland acreage will ultimately be reduced to 2,500 acres.

During the drafting of this plan, serious consideration was given to the concept of “in-house” farming to meet Refuge purposes. Under this concept, a larger percentage of the existing cropland could be reforested, provided adequate resources (staffing, equipment, and Operation and Maintenance) were acquired that allowed the Refuge to provide the wetland/waterfowl habitat requirements as set forth in the North American Waterfowl Management Plan and Louisiana step-down objectives.

In the end, given the unlikelihood of these resources becoming available and the economic benefit to the local community, the Service is proposing to continue the practice of cooperative farming for the lifespan of the current CCP. However, another comprehensive review should be undertaken at the end of this plan to determine if cooperative farming is still the most practical and viable mechanism to meet Refuge purposes.

Figure 4-1. Priority areas of protection at Lake Ophelia National Wildlife Refuge.



This sequential increase in forested land coupled with a decline in cropland is described in Chapter V, Plan Implementation.

Opportunities for high quality wildlife-dependent recreation (hunting, fishing, wildlife observation and photography, and environmental education and interpretation) will be provided. Improvements will be made to the Refuge's exterior and interior access roads to provide all-weather vehicular access to a broad segment of the public. Opportunities for hiking and ATV use will be provided to support wildlife-dependent recreation to the extent that these activities do not significantly interfere with or detract from the achievement of wildlife conservation. Wildlife observation sites and platforms; interpretive trails, boardwalks, and kiosks; and restrooms will be provided at specific sites to allow for fully accessible environmental education and interpretation programs. Quality fishing and hunting programs will be provided, consistent with sound biological principles with sufficient focus on waterfowl/waterbird sanctuary, loafing, feeding, and courting requirements. Fishing will be permitted on Lake Ophelia, Duck Lake, Westcut Lake, Nicholas Lake, Possum Bayou, and Frazier-Whitehorse Lake. A visitor services plan, incorporating an aggressive and proactive promotion of both on- and off-site programs, will be developed and implemented.

GOALS, OBJECTIVES, AND STRATEGIES

The goals, objectives, and strategies addressed below are the Service's response to the issues, concerns, and needs expressed by the planning team, the Refuge staff, and the public. These goals, objectives, and strategies reflect the Service's commitment to achieving the mandates of the National Wildlife Refuge System Improvement Act of 1997, the mission of the NWR System, the North American Waterfowl Management Plan, Louisiana Black Bear Recovery Plan, and the purpose and vision for Lake Ophelia NWR. Depending upon the availability of funds and staff, the Service intends to accomplish these goals, objectives, and strategies during the next 15 years.

Goal 1. Fish and Wildlife Populations

Maintain viable, historically diverse populations of native fish and wildlife species consistent with sound biological principles.

Discussion: Population management activities will focus on establishing, inventorying, and monitoring procedures to document species occurrence, habitat association, recruitment, and diversity. Species will be managed as populations rather than individuals. Threatened and endangered species will be protected and managed toward recovery. All population management activities will strive to protect, maintain, and enhance species diversity in the broad context of the Refuge and/or ecosystem.

Objective 1: Work with partners in the Three Rivers SPOA to contribute to the creation of a 100,000-acre forest block to provide sufficient habitat to support 80 nesting pairs of swallow-tailed kites, 7,000 nesting pairs of prothonotary warblers, 4,000 nesting pairs of Swainson's warblers, 350 nesting pairs of red-shouldered hawks, and 200 pairs of broad-winged hawks.

Discussion: Priority forest blocks, known as Source Population Objective Areas, were mapped to guide establishment of sustainable populations of priority forest interior-nesting migratory songbirds. Lake Ophelia NWR is located in the Three Rivers SPOA, one of only thirteen 100,000-acre forest blocks designated within the LMRAP (refer to Figure 1-3. This is the largest block size recognized using current methodology (Refer to Appendix VI, Management Methods). A 100,000-acre block contains 84,000 acres of core habitat

capable of supporting the species most dependent upon large forest blocks, including swallow-tailed kites, red-shouldered hawks, broad-winged hawks, pileated woodpeckers, and Cooper's hawk (Mueller et al., 1999). The Three Rivers SPOA currently has a core area of 80,261 acres, only 3,739 acres short of the core area objective (84,000 acres) (USFWS, Lower Mississippi Joint Venture, 1998). These large forest blocks also are expected to support other less area-sensitive forest-nesting migrants.

Strategies:

1. Survey the Refuge and determine baseline populations for forest-breeding migratory songbirds and nongame birds.
2. Establish point-count stations to determine population size changes and species occurrence over time.
3. Conduct nest productivity studies, including predator disturbance, during the nesting season both in existing forests and in areas undergoing reforestation, to determine actual population health for as many species as possible, especially high priority species. If population objectives are not met, then evaluate management actions and other possible causes to take appropriate corrective measures.

Objective 2: Provide 50 acres of shallowly flooded mudflat habitats to support 4,000 shorebird forage use-days during the period of fall migration, July 15 through October 15.

Discussion: Shorebirds annually migrate through the LMRAP from the southernmost parts of South America to the northernmost parts of North America. They typically probe in soft mud (mudflats) and shallow water for worms and small crustaceans. In the LMRAP, these distant migrants typically move through during spring and fall, foraging as they migrate. They may only spend 10 days here. Few shorebirds overwinter or nest in the summer in the LMRAP. During migration, different species move through at different times, all searching for similar habitat and foods.

Foraging habitat (mudflats and shallow water areas) objectives were recommended for fall migrating shorebirds by the U.S. Shorebird Working Group and a smaller group of shorebird experts working in the LMRAP (Loesch et al., 1999). These ecosystem-wide objectives were then stepped down to private and public lands. The step-down objective for Lake Ophelia NWR is 4,000 shorebird forage use-days during the fall migration period. This objective can be met on a 50-acre area. Foraging habitat is not considered limiting during the spring migration, when river stages are typically falling and mudflats are common throughout the LMRAP.

Strategies:

1. Conduct shorebird surveys of the Refuge at 10-day intervals during the migration period to establish baseline information on species occurrence, numbers, and chronology, and provide these data to a national program (e.g., Manomet Bird Observatory) designed to monitor species numbers and migration chronology.
2. Survey the food resources available in the shorebird habitat and the shorebird response to the availability of those foods. If shorebird food production objectives are not being

met or if existing resources are being underutilized, then evaluate management actions and other possible causes to take appropriate corrective measures.

Objective 3: Support the North American Waterfowl Management Plan and Louisiana Step-down Plan by providing habitat capable of supporting a minimum of 2.5 million duck-use days in the core waterfowl sanctuary area each year for dabbling species including mallards, pintails, and wood ducks.

Discussion: The Refuge is strategically located on the lower Red River, near the confluence of the Red and Mississippi Rivers. This area is an important wintering area for waterfowl, within the Mississippi Flyway. The Refuge was established with its primary purposes to preserve wintering habitat for mallards, pintails, and wood ducks; to provide production habitat for wood ducks; and to help meet the habitat conservation goals of the North American Waterfowl Management Plan.

Waterfowl habitat requirements for feeding, breeding, and resting are specific. The temporal and spatial distribution of these habitats needs to match the migration chronologies of migratory species and meet the year-round needs of resident species. Use of the Refuge by migratory waterfowl is determined by several factors, including the availability of flooded habitat and food supply, absence of disturbance on the Refuge, and unfavorable weather and water conditions in the more northern parts of the flyways.

Guidelines for minimum duck-use days were developed based on a series of stepped-down plans starting with the North American Waterfowl Management Plan population objectives. These objectives were stepped down to the Lower Mississippi Valley Joint Venture, which in turn determined minimum foraging requirements that needed to be met to support the North American goals. These foraging requirements were then allocated to each State within the Joint Venture. Within each State, coordination meetings were held to determine who could provide the habitat requirements among management units on public and private lands. Taking into account sanctuary requirements (in addition to foraging requirements), public land managers determined what potential there was to meet State objectives. For Lake Ophelia National Wildlife Refuge, these potential objectives were adjusted based on multi-species, duck life-history requirements (molting, pairing, courtship, foraging, etc.), other Refuge waterfowl (pintail, teal, goose) requirements, and a more refined assessment of Refuge purposes and capabilities.

Strategies:

1. Prepare a Biological Inventory/Monitoring Plan by 2005 which includes Refuge-specific waterfowl inventory and monitoring protocols, standardized routes, and computerized databases.
2. Continue to conduct waterfowl inventories at least twice monthly (October to mid-March) with emphasis in the more visible areas of the Refuge where ground/ocular surveys can be made using standard techniques and survey routes.
3. Conduct a special August/September survey for blue-winged teal within key wetlands using standardized technique and routes.
4. Maintain the current core waterfowl management area (6,000 acres) as an inviolate sanc-

tuary for migratory game birds where few to no disturbance factors are allowed during the critical winter period (November to mid-March).

5. Provide, monitor, and maintain a minimum of 75 wood duck nest boxes following Regional wood duck program guidelines.
6. Help meet flyway and State banding goals by annually banding the Refuge's wood duck quota.

Objective 4: Provide wintering habitat for woodcock in support of the National Woodcock Management Plan, and for other bird species preferring shrub habitat.

Woodcock are showing significant long-term declines in the eastern United States. Habitat loss, including the loss of preferred, safe nocturnal wintering habitats, is likely a key factor. Quality daytime habitat such as mature bottomland hardwood forest with a dense understory that provides overhead cover from predators yet is open underneath is lacking at Lake Ophelia NWR due to a closed forest canopy. Diurnal scrub-shrub and nocturnal fields are also important woodcock habitats that need to be quantified and managed on the Refuge. Lake Ophelia NWR will assist the Service in meeting the national and regional objectives outlined in the North American Woodcock and regional woodcock management plans.

Woodcock use moist areas in non-disked farm fields or fallow fields that have vertical structure as nocturnal foraging and singing/breeding habitat. These early successional stage fields generally must be within .5 miles of diurnal habitat for maximum use.

Strategies:

1. Complete Habitat Management Plan, which includes a digital habitat map and database created from National Wetland Inventory delineations (habitat polygons) and Continuous Forest Inventory Data. This digital map will be used to assess optimal nocturnal and diurnal habitat quality, size, and justiposition. Habitat management activities that maximize benefits to woodcock, bears, and other species but minimize negative impacts on Neotropical migratory birds. The decision-making processes of where and how many acres to reforest should include woodcock.
2. Continue to assess the woodcock use of Lake Ophelia NWR and relate to available cover and feeding habitat.
3. Maintain the more than 4,000 acres of reforested land that serves as diurnal scrub-shrub habitat for woodcock on the Refuge.
4. Assess the use of scrub-shrub habitats by other wintering birds to monitor species occurrence and population levels.
5. Provide open areas or agriculturally manipulated fields in various stages of plant succession or crop removal for nocturnal woodcock habitat.
6. Restrict fall plowing by cooperative farming to maximize earthworm production in agricultural fields.

Objective 5: Provide quality bottomland hardwood forest, scrub-shrub, and open agricultural areas in addition to lakes and bayous to sustain balanced resident wildlife populations.

Discussion: Because of their high productivity, the Refuge's bottomland hardwood forests support relatively high populations of resident wildlife. Sound biological principles will be used to maintain natural population parameters for resident species. Management efforts will be directed at maintaining viable populations of all resident species, rather than favoring certain species, age classes, or sexes.

Strategies:

1. Develop and implement a Biological Inventory and Monitoring Plan by 2005. This plan will include key indicator resident wildlife species, e.g., white-tailed deer. Integrate population objectives for resident species into the Refuge's habitat management plans.
2. Continue to monitor the deer population through deer spotlight surveys, deer harvest data collection and analysis, and deer herd health checks. Maintain a healthy deer population through public deer hunts. Deer harvest objectives will be determined with population data in coordination with Louisiana Department of Wildlife and Fisheries.

Objective 6: Manage furbearer populations to levels that are not negatively impacting bottomland hardwood forests and ground-nesting birds.

Discussion: In Louisiana, animals classified as furbearers include: beaver, bobcat, coyote, gray fox, mink, muskrat, nutria, opossum, river otter, red fox, raccoon, and skunk. Beaver and raccoon populations can reach population levels that adversely affect ecosystem functions. Beaver have caused deterioration and loss of bottomland hardwoods throughout the Refuge.

Excessive numbers of raccoons can cause negative impacts on the reproduction of breeding nongame birds and wild turkeys. Trapping and hunting remain the only viable methods to reduce furbearer population levels. Trapping will be regulated on a permit basis, as needed to regulate furbearers that are adversely affecting ecosystem functions.

Strategies:

1. Conduct a baseline study of furbearer populations and their effects on the ecosystem, and develop effective population management plans that promote diversity and stability in flora and fauna.
2. Develop management guidelines (contracts, special use permits, special conditions) to administer a trapping program consistent with sound biology, Service guidelines, Refuge purposes, and the conservation of ecosystem functions. Trapping may be permitted in accordance with State of Louisiana regulations and licensing requirements. A Refuge special use permit containing conditions designed to meet wildlife population goals and requiring, among other things, careful harvest reporting will be required for trapping.
3. Monitor the effects of furbearer management measures on population status and habitat protection and restoration efforts.

Objective 7: Reduce nonnative invasive plants such as water hyacinth and hydrilla and animal populations such as feral swine to minimize negative effects to native bottomland hardwood forest and wildlife.

Discussion: Water hyacinth and hydrilla are two exotic species found in Refuge lakes and sloughs. These plants form dense mats that impede water flow and recreational use. They also retard the growth of desirable submersed aquatic plants. Approximately 700 acres of the Refuge's lakes and bayous are currently infested with water hyacinth and hydrilla.

Feral swine are a major nonnative animal pest found throughout the Refuge and on adjoining lands. These wild pigs have an adverse effect on the habitat and productivity of most native wildlife. They are omnivorous and use virtually all components of the habitat, directly competing for food and reducing the carrying capacities, reproduction, and recruitment of native wildlife. In addition, feral swine are documented as a source of several infectious diseases that adversely affect wildlife as well as domestic livestock.

Strategies:

1. Inventory and map the distributions of nonnative invasive plant species, and develop an Integrated Pest Management Plan (IPM) by 2007.
2. Use IPM techniques to reduce the water hyacinth and hydrilla infestations to levels that do not negatively affect trust resources or impede recreational use of water bodies.
3. Require the use of IPM techniques in all cooperative farming agreements and assist the farmers with information transfer, experimental approaches, and a range of approved control options.
4. Revise the Nuisance Animal Control Plan by 2007.
5. Inventory feral swine numbers and monitor their effects on natural habitats and crop depredations.
6. Continue to allow public opportunities on the Refuge to take feral swine by including swine as a miscellaneous species during any established Refuge hunt. This provision will help reduce the number of feral swine on the Refuge.
7. Use Refuge staff and contracted animal damage control experts to maintain feral swine at acceptable population levels in closed areas and in other parts of the Refuge as needed.
8. Continue working cooperatively with the Aquatic Plants Division of the Louisiana Department of Wildlife and Fisheries to implement control programs.
9. Disseminate information concerning success/failure of control treatments to regional office and other appropriate entities, especially in regard to hydrilla control.

Objective 8: Inventory the distribution and habitat use of all threatened and endangered species, on the Refuge, especially the bald eagle, pallid sturgeon, and Louisiana black bear, on the Refuge and follow appropriate management/recovery plans to contribute to their recovery.

Discussion: The only known federally listed threatened or endangered species that occur on the Refuge are the bald eagle and Louisiana black bear. However, complete flora and fauna inventories have not been conducted for the Refuge.

Historically, bald eagles have nested in the lower Red River area, but nesting populations are now found primarily in the Atchafalaya River Basin. During 2003 and 2004 a pair of eagles produced some false nests within the closed waterfowl sanctuary area.

The Service's recovery plan for the Louisiana black bear identifies two viable subpopulations in need of recovery. These separated populations, one each in the Atchafalaya and Tensas river basins, have immigration and emigration corridors between them (refer to Figure 1-4, p. 14). The Red River/Three Rivers Complex (which contains Lake Ophelia NWR) is the largest unoccupied forested area between these two subpopulations. During the spring of 2003 and 2004 the Louisiana black bear repatriation project has successfully relocated 11 adult female bears (radio-collared) with cubs on Lake Ophelia NWR. As of fall 2004, a majority of these bears either are using the Refuge or are on adjacent private lands. Refuge staff assisted in implementing all phases of repatriation and will continue to assist in black bear management, nuisance control, and public outreach.

Strategies:

1. Prepare a Biological Inventory and Monitoring Plan and Habitat Management Plan by 2005.
2. Monitor and document bald eagle use on the Refuge. Provide protective zones around any bald eagle nests to minimize disturbance during the nesting season.
3. Implement vertebrate and invertebrate species inventories on the Refuge to identify the presence, population status, and distribution of threatened and endangered species.
4. Continue to support the recovery of the Louisiana black bear by assisting in all efforts to increase the bear population in the repatriation area between the two current subpopulations.
5. Provide technical support for surveys of endangered and threatened species within the Refuge watershed, including, but not limited to, the pallid sturgeon.
6. Provide habitat to support the recovery of the threatened Louisiana black bear and bald eagle within the existing Refuge.
7. Enhance, restore, protect, and manage imperiled species' habitat using available conservation tools, including habitat management on existing lands (Federal, State, and private), conservation easements, partnership agreements, conservation agreements, and land acquisition from willing sellers. Conduct outreach with adjacent landowners to convey the importance of Louisiana black bear, their habitats, and reduce nuisance bear human conflicts.
8. Monitor the population status of species of special concern and candidate species.

Objective 9: Develop inventory and monitoring program to protect and conserve populations of amphibians and reptiles in hardwood habitats in support of Partners in Amphibian and Reptile Conservation.

Discussion: Reptiles and amphibians are abundant and functionally important in most freshwater and terrestrial habitats and are significant components of their ecosystem. Many species of herpetofauna are wide-ranging and may serve as key indicator species in evaluating the environmental health of an ecosystem. Knowledge of which species occur on Lake Ophelia NWR is fundamental to an understanding of the biological diversity of the area.

Strategies:

1. Prepare a Biological Inventory and Monitoring Plan by 2005, which includes inventorying, monitoring, and standardized data collection procedures for amphibians and reptiles.
2. Expand on the amphibian and reptile inventories conducted by the U.S. Geological Survey to establish baseline information on species occurrence and habitat utilization.
3. Develop population estimates for the American alligator and monitor their effects on other trust species.

Objective 10: Protect and promote self-sustaining fish populations such as crappie, largemouth bass, and bream fish in Lake Ophelia, Duck Lake, Westcut Lake, and Possum Bayou for the benefit of the ecosystem and public within five years of the plan's approval.

Discussion: Fish are an important component of the lower Mississippi River ecosystem. Historically, the fishery in this system has supported a great diversity of fish adapted to the seasonal flooding of a large river. While the inherent productivity of the fishery has not changed significantly, hydrological alterations have isolated habitats outside the main river levees and favored species of fish that are less adapted to riverine habitats with dynamic seasonal flooding regimes. Except during extreme flood events, most areas of the Refuge are separated from the influence of the Red River. Because it is impractical to reestablish or mimic the river's influence on the majority of the Refuge's aquatic habitats, these areas will be managed to provide a native recreational fishery. Those areas that can be reconnected to the Red River will be managed to restore a more historical fishery.

Strategies:

1. Develop and implement fisheries management with emphasis on maintaining balanced and healthy sport fish populations using proportional stock density (PSD) and relative weight (Wr) measurements.
2. Conduct annual fishery, creel, and water quality surveys.
3. Enhance sport fish populations in Duck and West Cut lakes by retrofitting the water control structure to provide greater seasonal water depths.
4. Implement the Lake Ophelia Restoration Plan to allow successful stocking of sport fish and promote a stable population.

Goal 2. Habitats

Conserve, restore, and manage the functions and values associated with diverse bottomland hardwood forest and open wetland systems in order to achieve Refuge purposes and wildlife population objectives.

Discussion: Habitat management will be used to restore the biological integrity, biological diversity, and environmental health of all Refuge lands, while providing benefits to a wide range of resident, migratory, and threatened and endangered species. The Refuge’s habitat management procedures, including activities ranging from no intervention to intensive manipulation of soils, water, topography, and vegetation, will be consistent with the Service’s Refuge Manual.

Objective 1: In cooperation with private, State, and Federal partners, assemble a 100,000-acre block of contiguous bottomland hardwood forest and forested corridors between existing forest blocks in the Three Rivers SPOA.

Discussion: Prior to settlement, the LMRAP contained over 24 million acres of bottomland hardwood forest that supported a wide variety of wildlife species. Today over 75 percent of the original forest has been lost to land clearing for agriculture, transportation, industrialization, and urbanization. The remaining 4.8 million acres of this bottomland hardwood forest is composed of numerous isolated islands that are often surrounded by a sea of agriculture. Because most Neotropical migratory birds and the Louisiana black bear are generally associated with large blocks of forest, fragmentation has been detrimental to these species.

The Mississippi Alluvial Valley Migratory Bird Conservation Plan has identified 101 patches that, with varying amounts of reforestation, could provide forest patches of 10,000, 20,000, or 100,000 acres in size. Forest patches of these size categories are believed to be the minimum sizes suitable to support breeding populations of Neotropical migratory birds. The shape and continuity of each forest patch may dictate the need for additional forest in patches that superficially appear to meet forest patch size goals. The Three Rivers SPOA, which includes Lake Ophelia NWR, encompasses 283,000 acres, of which 172,000 acres is forest (refer to Figure 1-3, p. 12). This area contains just over 80,000 acres of core forest (an interior forest that is at least one kilometer (0.62 mile) from a non-forested edge). Because a typical 100,000-acre forest block provides approximately 84,000 acres of core forest, an additional 4,000 acres of core forest is needed to meet this standard. Since the Migratory Bird Conservation Plan was written, a geospatial decision support model (DSM) was developed (and refined) that prioritizes reforestation of every “available” ha in the MAV from 1 - 255 based on how that piece of real-estate would benefit area sensitive forest breeding birds. This CCP uses the top 20 percent of highest priority lands that need to be reforested to protect forest breeding birds in the Three Rivers SPOA.

Refuge croplands that are surplus to planned waterfowl and shorebird habitat objectives will be reforested as the Refuge obtains the necessary staff, equipment, and funding to manage and maintain these habitats. Other areas outside the current boundary will be prioritized for reforestation and conservation in order to contribute to the 100,000-acre forest block goal and provide forested travel corridors between the Refuge and two State WMAs for the threatened Louisiana black bear and other forest dependent wildlife.

Strategies:

1. Use a diversity of bottomland hardwood species appropriate for each site to reforest approximately 1,178 acres of existing Refuge croplands over the next 15 years in a phased management approach. At the end of the third phase, the Refuge will contain 5,766 acres of reforested lands (Table 4-1).

2. Make a priority of seeking funding opportunities and partners to assist in reforesting Refuge lands and marginal croplands to create a 100,000-acre forest block for Neotropical migratory birds and bear travel corridors that connect Refuge and State Wildlife Management Areas (Figure 4-1).
3. Work cooperatively with private landowners, State agencies, and other Federal agencies to accomplish reforestation on private lands in the Three Rivers SPOA. Focus partnership efforts on areas desirable for black bear and Neotropical migratory birds as shown on Figure 4-1.
4. Provide technical assistance on reforestation priorities and planting methodologies based on regional conservation objectives and Service reforestation experience.
5. Monitor the survival, growth, and species composition of all reforestation sites.
6. Maintain the GIS databases of all forest and reforestation management actions within the Refuge acquisition boundary.

Objective 2: Protect, restore, and manage the functions and values on 11,678 acres of current Refuge bottomland hardwood forests and reforested land as well as any future acquired forests to support viable populations of native flora and fauna consistent with sound biological principles and other objectives of this plan.

Discussion: The Refuge's current forest consists of approximately 7,000 acres of mid-aged (20- to 60-year-old) woodlands interspersed with 4,588 acres of recently reforested areas. The area's characteristic ridge and swale topography and associated high plant diversity provide habitat for a variety of resident and migratory wildlife. The forest is a mix of even- and uneven-aged stands, probably a result of timber harvest events that occurred at different times prior to the establishment of the Refuge.

Because of the large amount of early successional forest due to recent and planned reforestation, there is a need to create and manage for mature forest conditions within several of the current mid-aged stands. In these stands, forest management actions, including timber stand improvement and selective harvest, will be implemented to provide a more complex forest stand structure that contains large tree crowns interspersed with openings to promote vertical structure and desirable species composition in the mid-story and understory.

Table 4-1. Summary of existing and planned habitat types at Lake Ophelia National Wildlife Refuge.

Habitat Type	Existing Acreage	Planned Acreage
Bottomland Hardwood Forest	6,745	6,745
Reforestation	4,588	5,766
Nonflooded Cropland	2,523	1,345
Floodable Cropland	605-855	405-775
Floodable Moist Soil	300-550	330-700
Floodable Mud Flat	0	50
Floodable Bottomland Hardwoods Lakes, Bayous and Seasonally	345*	345
Flooded Forest Swales	1,879	1,879
Roads, Trails, Levee and Facilities	290	290
TOTAL	17,525	17,525

* Includes 68 acres of reforestation.

Strategies:

1. Develop and implement a Forest Habitat Management Plan designed to mimic and maintain a historic diversity of forest cover types, tree species, and tree size-class distributions.
2. Analyze continuous forest inventory data/habitat maps that will be used in a Forest Habitat Management Plan to make sound timber management decisions that will benefit Neotropical migratory birds, woodcock, Louisiana black bears, and other wildlife species.
3. Monitor survival and growth of all current and future reforestation sites.
4. Implement forest management actions that result in the maintenance and development of understory, mid-story, and overstory stand components (i.e., a complex vertical forest stand structure) to meet the needs of forest-dwelling nongame birds. The development and maintenance of a dominant and/or emergent tree crown class component will aid in establishing or maintaining species such as the swallow-tailed kite and cerulean warbler.
5. Manage the forests to provide hard and soft mast, escape cover, den trees, and forested travel corridors for the Louisiana black bear using the Louisiana Black Bear Management Handbook as a guide.
6. Manage existing mature forests to provide diurnal habitat for wintering woodcock and vertical structure of Neotropical migratory birds.
7. Revise and implement a Fire Management Plan that provides adequate wildfire protection.

Objective 3: Conserve, restore, and manage up to 850 acres of open water wetlands (e.g., lakes, sloughs, and bayous) in areas such as Lake Ophelia, Westcut Lake, Duck Lake, Nicholas Lake, and Doom’s Lake to provide resting, foraging, and breeding habitats for resident and migratory wetland-dependent wildlife species.

Discussion: The Refuge lies within the floodplain of the Red River, a tributary of the Mississippi River. Prior to the construction of man-made levees and navigation projects, these rivers experienced overbank flooding that created the area's distinct ridge and swale topography and depressional lakes. This seasonal flooding was the dynamic force that created not only the topography of the area, but also the highly diverse flora and fauna associated with bottomland hardwood ecosystems. The area's natural hydrology has been altered to such an extent that the dynamic processes that were continually creating new oxbow lakes and sloughs are no longer occurring. Overbank flooding now occurs less frequently, but when it does occur it is marked by heavy sediment loads that cause accelerated sedimentation in lakes and sloughs.

Strategies:

1. Develop a GIS database of all open water wetlands to include: surface acres, submerged and emergent vegetation, and sedimentation rates.
2. Use best management practices (BMPs) in all forest, cropland, and Refuge management activities to reduce or eliminate sediment deposition in open water wetlands, and implement restoration techniques that are compatible with the Refuge's overall goals and objectives.
3. Control invasive exotic plants in open water wetlands through integrated pest management techniques.
4. In cooperation with other conservation partners, work to protect, restore, and enhance the biological integrity and environmental health of the Red River.
5. Pursue cooperative efforts (e.g., COE 1135 Restoration Funds) to restore the hydrology in Lake Long, Bayou Jonsonne, and other water bodies associated with the Red River.

Objective 4: Manage 1,155 acres of prior-converted agricultural lands and 345 acres of bottomland hardwood forest as a wetland complex to provide variable water depths and vegetative composition capable of supporting the foraging, resting, pairing, and breeding requirements of a diverse suite of wildlife species.

Discussion: Large-scale hydrological alterations (e.g., flood control and navigation projects) and intensive clearing of bottomland hardwoods have changed the spatial and temporal flooding patterns and vegetative composition of the entire LMRAP. To meet the habitat requirements of resident and migratory wetland-dependent wildlife, active management techniques must be used in an effort to mimic the hydrological processes and vegetative composition that were largely self-perpetuating in the ecosystem before its hydrology was altered. These management techniques may include levees, water control structures, pumping, water level manipulations, discing, mowing, burning, or herbicide applications. Currently, moist-soil management activities and fall flooding for migrating waterfowl, shorebirds, and wading birds are severely limited due to lack of wells, underground pipe, and additional water control structures. Ultimately, a diverse complex of seasonally flooded cropland and moist-soil wetlands will be provided to meet the seasonal needs of a diverse suite of wetland-dependent wildlife species.

Strategies:

1. Develop and implement a water management plan that will mimic the Refuge area's historic hydrological conditions while providing dependable flooded habitats to meet national, State, and regional objectives for waterfowl, shorebirds and wading birds.
2. Maintain a GIS database of all water management units that includes: floodable acreage and water depth based on gauge reading, water control structure types, soil types, annual vegetation cover type and seed production, flood chronologies, and vegetation manipulations and responses. Monitor waterfowl and other wader bird use to correlate management practices and adjust management activities to maximize benefit for these wildlife species.
3. Add infrastructure, such as wells, underground pipe, water control structures, and levees, to more efficiently manage waterfowl impoundments.
4. Provide flooded habitats that correspond to the migration chronologies of migratory species and the resting and brood-rearing needs of resident species.
5. Provide 330-700 acres of diverse moist-soil habitat in areas with water management capabilities in support of Louisiana Step-Down Plan and Mississippi Flyway objectives stemming from the North American Waterfowl Management Plan.
6. Provide 50 acres of very shallowly flooded mudflat habitat for the fall shorebird migration period (July 15 to October 15) in support of Louisiana Step-Down objectives and stemming from the North American Waterfowl Management Plan.
7. Provide 405-775 acres of harvested and unharvested cropland habitat in areas with water management capabilities in support of Louisiana Step-Down objectives stemming from the North American Waterfowl Management Plan.
8. Provide 345 acres of floodable bottomland hardwood forest in support of Louisiana Step-Down objectives stemming from the North American Waterfowl Management Plan.

Objective 5: Manage 2,500 acres of Refuge cooperative farming agreements, of which 500 acres (or 20 percent) will be left as Refuge share to support Louisiana Step-Down Plan and Mississippi Flyway objectives stemming from the North American Waterfowl Management Plan.

Discussion: Cooperative farming has been and will continue to be a cost-effective mechanism to provide the high quality "hot foods" required by wintering waterfowl. Management of a cooperative farming program not only reduces dependence on Refuge staff and equipment, it also creates jobs and infuses money into the local economy. Over the course of the plan and depending on funding, the Refuge will reduce the existing cropland from 3,678 to 2,500 acres, the minimum acreage necessary to sustain the Refuge's waterfowl objectives.

Strategies:

1. Provide 300 - 350 acres of unharvested crops (milo, corn, rice, soybeans, or millet) in areas with the necessary water management capabilities in support of the Louisiana Step-down objectives stemming from the North American Waterfowl Management Plan.

2. Provide 50 acres of unharvested corn on ridges or non-floodable cropland to support Louisiana black bear, American woodcock, and other migratory and resident wildlife.
3. Provide at least 50 - 100 acres of winter wheat to support Louisiana black bear recovery and population objectives.
4. Provide 100 -150 acres of millet in areas with the required water management capabilities in support of Louisiana step-down objectives stemming from the North American Waterfowl Management Plan.
5. Revise and implement a Cropland Management Plan that will guide agricultural production and describe the role of cooperative farming in meeting Refuge habitat objectives.
6. Incorporate BMPs and integrated pest management practices into the Cropland Management Plan to ensure soil and water conservation, wildlife habitat, and environmental health benefits.
7. Rotate agricultural crops into moist-soil units as needed to control invasion of undesirable woody vegetation.
8. Maintain vegetated filter strips and grass waterways around all drainage areas and field borders to provide wildlife habitat and soil and water conservation benefits.

Goal 3. Land Protection and Conservation

Conserve natural and cultural resources through partnerships, protection, and land acquisition from willing sellers.

Discussion: Critical to the achievement of the vision for this Refuge is the protection of cultural resources, purchase of additional lands within the Refuge acquisition boundary, and development of partnerships with landowners and conservation organizations to improve wildlife habitat within the Three Rivers SPOA.

Objective 1: Continue to pursue the purchase of land that is not currently part of the Refuge but that is within the current 38,000-acre approved acquisition boundary and identify lands of conservation priority outside the acquisition boundary to facilitate habitat objectives for trust resources and provide additional wildlife-dependent recreational opportunities.

Discussion: As described earlier, the Three Rivers SPOA is identified as a high priority area for the establishment of a 100,000-acre contiguous forest block to support Neotropical migratory bird objectives. Additionally, the protection and reforestation of marginal agricultural lands between Lake Ophelia NWR and the Grassy Lake and Spring Bayou WMAs will provide forested corridors that will contribute to Louisiana black bear recovery efforts (refer to Figure 4-1). Acquisition of additional lands (from willing sellers) within the current acquisition boundary will be based on the Refuge's habitat conservation priorities. These priorities will consider the existing threats to these habitats, their linkages to other protected habitats, the value of these habitats to trust species, their accessibility, and their potential in providing opportunities for wildlife-dependent environmental education and recreation. In addition to land protection within the current acquisition boundary, other conservation tools (i.e., partnership agreements and technical assis-

tance) will be used to protect, restore, and manage high-priority habitats outside the acquisition boundary.

Strategies:

1. Establish land acquisition priorities within the current Refuge acquisition boundary based upon the habitat values and the threats to existing resources.
2. Initiate contacts with all landowners within the current Refuge acquisition boundary to determine their interest in conservation easements, partnerships, technical assistance, or selling their land for inclusion into the Refuge System.
3. Develop partnerships with conservation organizations and agencies such as The Nature Conservancy, The Trust for Public Land, The Conservation Fund, Red River Waterway Commission, and the U.S. Army Corps of Engineers to support land acquisition needs.
4. Work with private, State, and Federal partners to protect high priority lands within the Three Rivers SPOA (See Figure 4-1).

Objective 2: Provide technical assistance, and, where appropriate, use private lands conservation programs to develop partnerships with landowners within the current acquisition boundary and prioritized areas of protection, to achieve wildlife and habitat objectives.

Discussion: Over 90 percent of the land in the LMRAP is privately owned, making private land a critical part of any landscape conservation initiative. The Service can provide technical and financial assistance to private landowners interested in protecting, restoring, or managing fish and wildlife habitats on their property. Conservation tools (i.e., conservation easements, partnership agreements, and technical assistance) will be used to protect, restore, and manage high priority habitats within this area. These priorities will consider the existing threats to these habitats, their linkages to other protected habitats, the value of these habitats to trust species, their accessibility, and their potential in providing opportunities for wildlife-dependent environmental education and recreation. Refuge staff also can help deliver land protection and conservation assistance in concert with other Federal, State, and private agencies. Providing assistance to private landowners is a critical element in achieving the landscape habitat initiatives in the LMRAP.

Strategies:

1. Use the Refuge as a showcase for aquatic and terrestrial habitat conservation, highlighting projects related to restoration and management.
2. Identify sources of funds which may support Refuge, ecosystem, and Service objectives related to habitat conservation.
3. Establish partnerships with agencies and organizations interested in habitat conservation within the Three Rivers SPOA.
4. Establish partnerships with landowners within the Refuge acquisition boundary to achieve Refuge, ecosystem, and Service habitat conservation objectives.

5. Assist agencies of the U.S. Department of Agriculture in the delivery of various private lands programs, including the Wetland Reserve Program, Conservation Reserve Program, Environmental Quality Incentive Program, and other such programs that emphasize habitat conservation and restoration.
6. Develop and distribute public information and outreach materials related to the private lands conservation program in Louisiana. Develop and employ outreach initiatives to enroll private landowners in conservation programs.

Objective 3: Protect cultural and historic resources from disturbance or inadvertent damage that could occur as a result of Refuge activities.

Discussion: Lake Ophelia NWR contains several archaeological sites which represent a diverse and rich cultural history. Most sites have been identified by earlier preliminary archaeological surveys; however, detailed surveys and studies have not been conducted to determine their cultural and historic significance. The Tunica-Biloxi Indian Tribe, located in Avoyelles Parish, has an association with the area and can be a valuable partner in any efforts to protect, study, and interpret these sites.

Strategies:

1. Secure funding and develop a comprehensive archaeological survey of all Refuge lands.
2. Develop a Geographic Information System layer for the Refuge's archaeological and historic sites.
3. Develop a partnership with the Tunica-Biloxi Indian Tribe to interpret the significance of the Refuge's archaeological sites to Native Americans and the general public.
4. Comply with all regulations and policy set forth in the National Historic Preservation Act, Archaeological Resources Protection Act, and Native American Grave Protection and Repatriation Act.

Goal 4. Education and Visitor Services

Develop and implement a quality wildlife-dependent recreation program that leads to a greater understanding and appreciation of fish and wildlife resources and enjoyable recreation experiences.

Discussion: The National Wildlife Refuge Improvement Act of 1997 identifies six high priority, wildlife-dependent public use activities: hunting, fishing, wildlife observation and photography, and environmental education and interpretation. Fundamental to the provision of these uses are viable and diverse fish and wildlife populations and the habitats upon which they depend. These priority uses, along with all other proposed uses, must be compatible with the Refuge purpose and the mission of the NWR System. The proposed education and visitor facilities are illustrated in Figures 4-2, 4-3, 4-4 and 4-5.

Objective 1: Develop a community-based environmental education program in coordination with area schools and other area educational organizations.

Figure 4-2. Proposed visitor facilities at the northern end of Lake Ophelia National Wildlife Refuge.

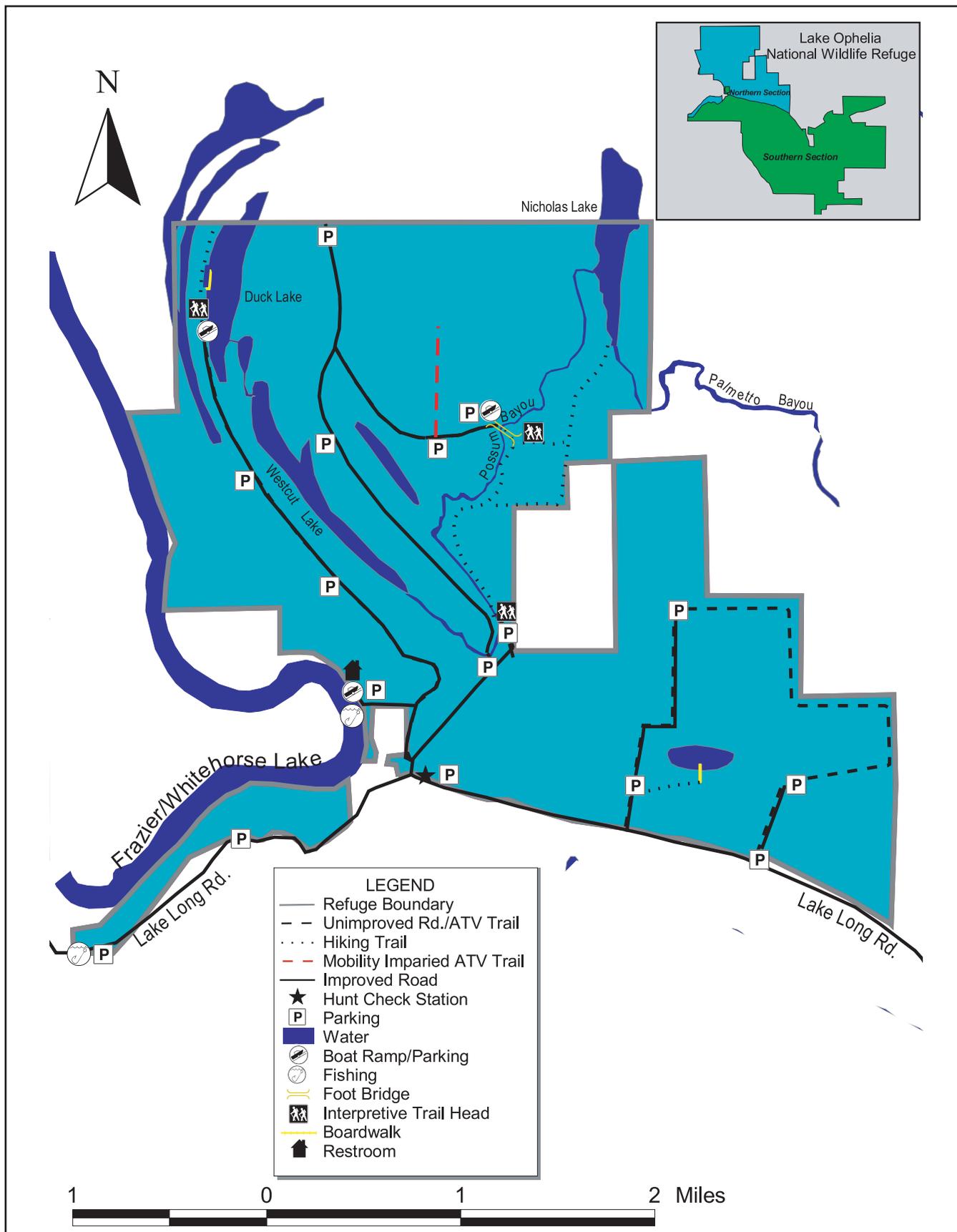


Figure 4-3. Proposed visitor facilities at the southern end of Lake Ophelia National Wildlife Refuge.

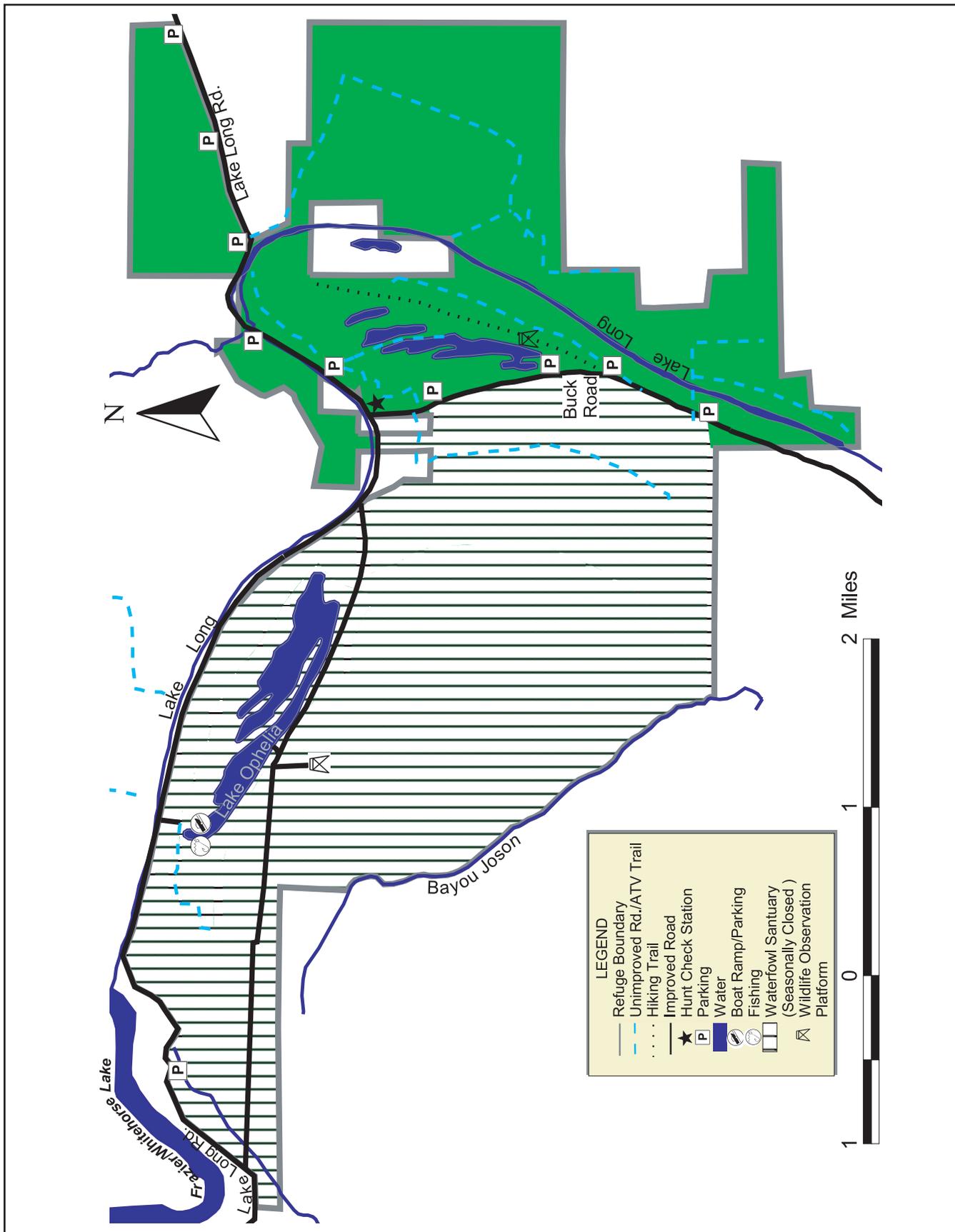


Figure 4-4. Proposed visitor facilities at Duck Lake on Lake Ophelia National Wildlife Refuge.

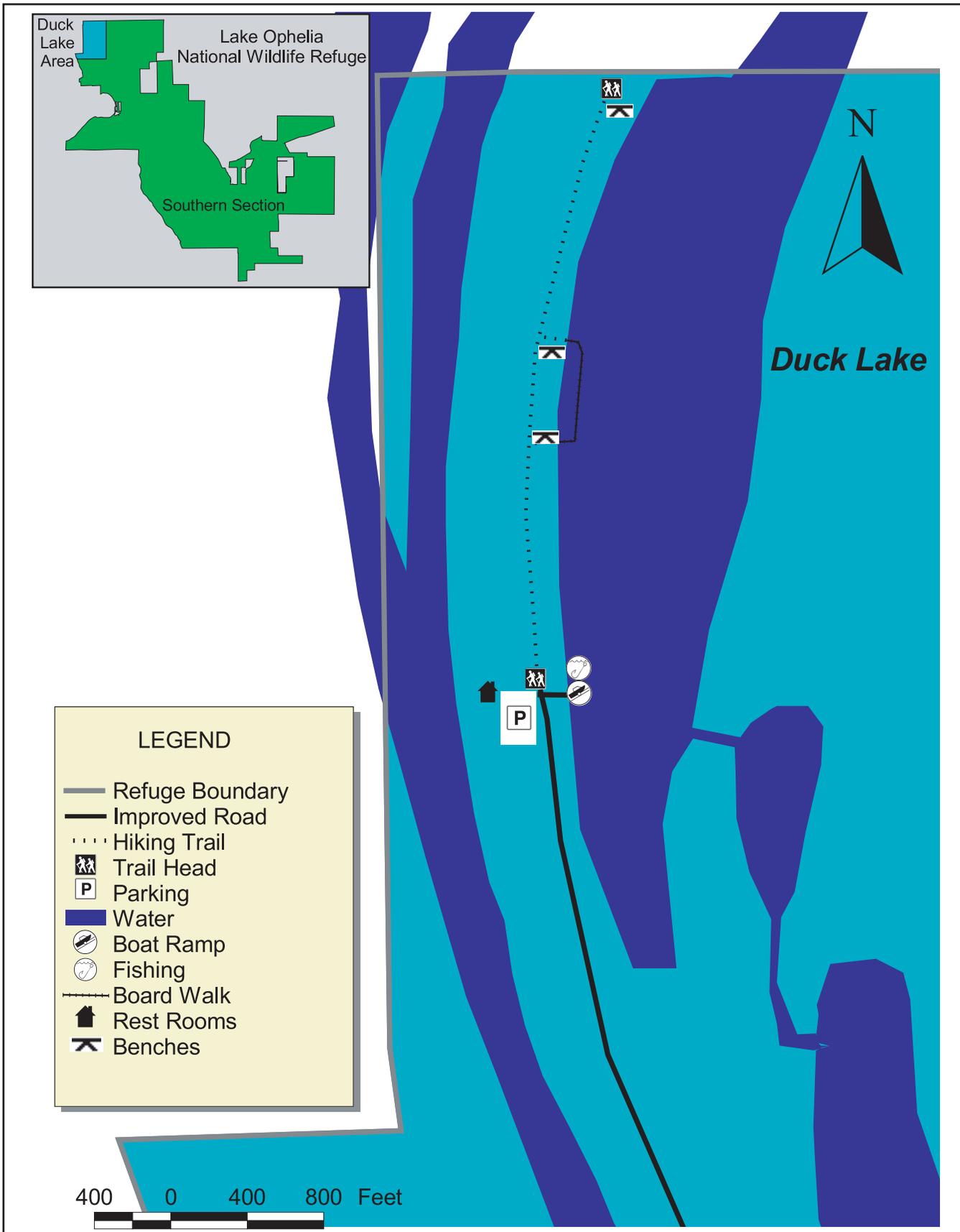
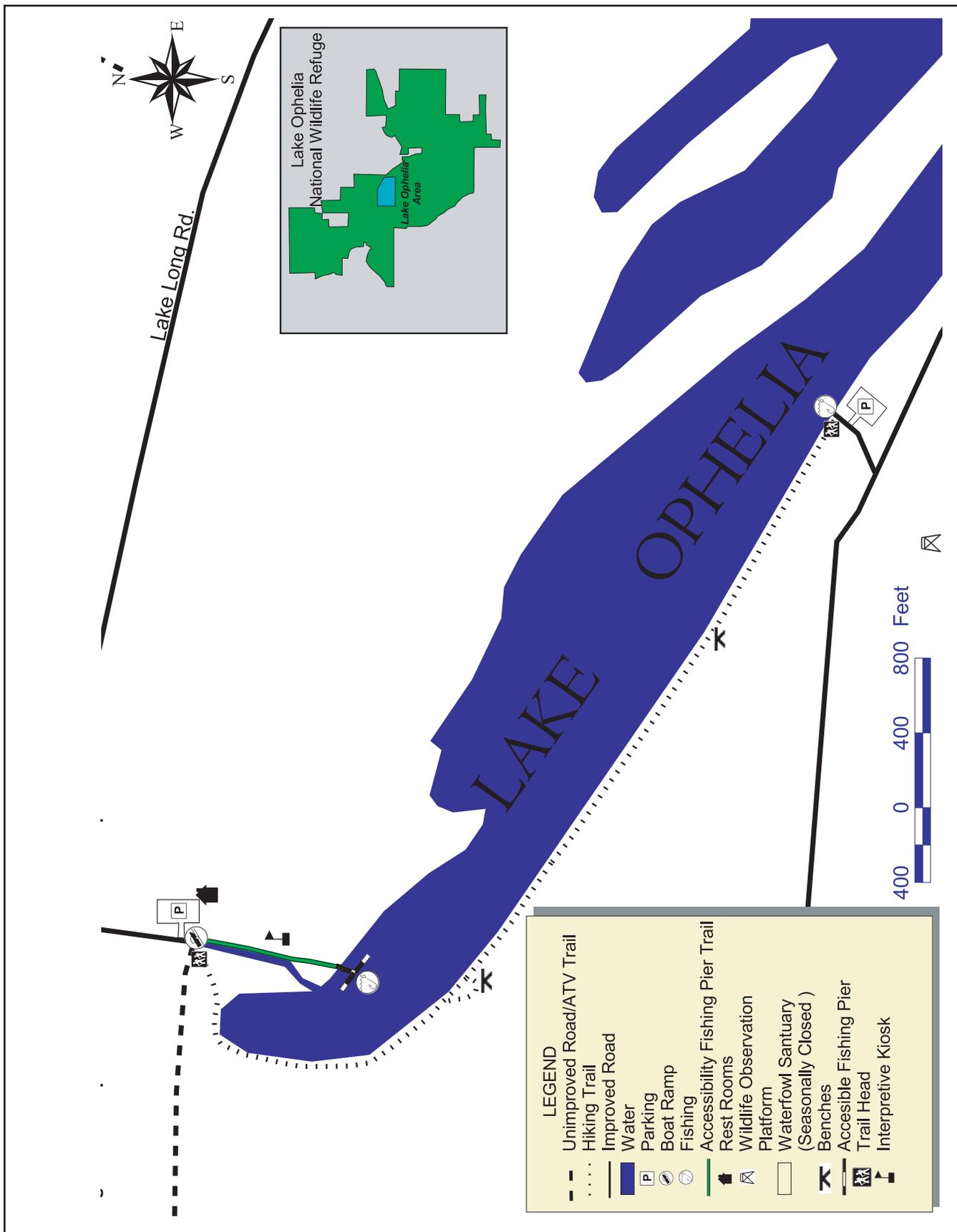


Figure 4-5. Proposed visitor facilities on Lake Ophelia.



Discussion: A quality environmental education program can lead to increased awareness and stewardship of the environment, and can strengthen the connection between wildlife and people. It is very important to instill a land ethic in the local youth. Because of the Refuge's location and proximity to local schools (18 schools with a total of 8,500 students), there will be numerous opportunities for on-site environmental education.

Strategies:

1. Develop and provide curriculum and support materials to area teachers for use both on and off the Refuge.
2. Develop an outdoor classroom or gathering site, possibly at the existing fishing access (or other suitable site) on Lake Ophelia.
3. Develop an accessible foot trail with activity stations and associated curriculum materials.
4. Develop and provide additional environmental education activity sites along with associated curriculum at Duck Lake, at a ridge/swale auto drive, and at a wildlife observation platform.

Objective 2: Provide high quality fishing opportunities consistent with sound biological principles for 5,000 visitors in Lake Ophelia, Duck Lake, Westcut Lake, Possum Bayou, and Frazier-Whitehorse Lake.

Discussion: The Refuge needs to assess its fishery resources in order to ensure that the ecological integrity of native fish populations is in balance with sportfishing opportunities. In the past, fish conservation has not been a primary objective of the Refuge. Fishing, even if increased from current levels, should not adversely affect the fishery, wildlife populations, or other natural resources of the Refuge. If disturbance does become a problem, adjustments to the fishing program will be made.

Strategies:

1. Provide fishing opportunities for youth.
2. Working with the Service Fisheries Program, reestablish a recreational fishery in Lake Ophelia.
3. Increase fishing opportunities by improving vehicular access to Lake Ophelia and other Refuge waters.
4. Enhance public access to Lake Ophelia by providing additional bank fishing opportunities (Figure 4-5). Provide additional bank fishing facilities that are universally accessible at both Lake Ophelia and Duck Lake.
5. Evaluate the costs, logistics, and safety considerations in creating suitable bank fishing sites on Frazier/Whitehorse Lake.
6. Develop boat access to Frazier/Whitehorse Lake.

7. Inventory and evaluate the Refuge's fishery potential by consulting with the Service's Baton Rouge Fishery Resource Office.
8. Develop and implement a Sport Fishing Management Plan in consultation with State and Federal partners to ensure a quality fishing experience.
9. Control exotic plant species in all Refuge lakes.

Objective 3: Provide safe, high quality hunting opportunities of species such as deer, waterfowl, and squirrel, consistent with sound biological principles, in support of the Refuge's established purposes and wildlife and habitat management objectives.

Discussion: In order to provide high quality hunting experiences, the Refuge must first achieve its wildlife habitat and population objectives. High quality habitat is the key to wildlife abundance, but some wildlife populations (e.g., white-tailed deer) may exceed the capacity of the habitat to support them. When this occurs, the effects are detrimental not only to the habitat, but also to other wildlife.

Hunting, when conducted under carefully controlled conditions, is not detrimental to most wildlife populations. In addition, hunting is an opportunity to participate in one of the identified high priority wildlife-dependent recreational uses. Development of a hunt plan, based on sound biological information, is a vital component for assuring quality hunting experiences and viable wildlife populations.

Hunting on newly acquired lands will be conducted in accordance with Refuge purposes reflected in the authorizing legislation and Refuge System policy. If all lands within the current Refuge acquisition boundary are acquired, the number of hunting opportunities and hunting visits, could be increased.

Hunting seasons will be scheduled and managed to ensure that negative effects to nongame wildlife and migratory birds are minimized during critical periods. Hunting season will be set in close coordination with the Louisiana Department of Wildlife and Fisheries.

Strategies:

1. Establish hunting regulations for resident wildlife to maintain population health and stable habitat relationships.
2. Provide safe, quality, wildlife-dependent recreational experiences that are compatible with Refuge purposes, without discrimination to any segment of the population.
3. Manage hunt programs to achieve population and wildlife habitat objectives. Deer harvest strategies will consist primarily of optimal sustained yields, as opposed to maximum sustained yields, to allow more bucks and does to reach older age classes and thus mimic a more natural population.
4. Provide deer gun hunting opportunities as existing reforested area reaches pole timber stage.
5. Increase hunting opportunities as additional land acquisition permits.

6. Improve access to allow for expanded hunting opportunities.
7. Provide additional youth hunting opportunities for deer, doves, and waterfowl.
8. Manage hunt programs to achieve population and wildlife habitat objectives.
9. When and where necessary, limit the number of hunters to ensure a high quality hunt and a safe hunting experience.
10. Evaluate the potential impacts of hunting on other Refuge activities and programs, including management, maintenance, staffing, and funding.
11. Develop deer and waterfowl blinds for persons with disabilities.

Objective 4: Develop a Refuge interpretive program that will increase awareness of the habitat features, wildlife values, and management programs on the Refuge.

Discussion: Education and interpretation are vital programs needed to achieve the goals and objectives of this plan. These programs create public understanding and appreciation of the natural environment and the fish and wildlife that live within it. Not only are the programs vital to the implementation of this plan, but they also often lead to greater support for Refuges at both the local and national levels.

Strategies:

1. Define the key resource issues and concerns of the Refuge that need to be addressed in the interpretive program and determine the best methods of delivery.
2. At every major entrance and parking area, provide a kiosk with information regarding the Service and the Refuge System, and orient the visitor to the Refuge.
3. At all observation sites (towers, platforms, and pull-offs) provide appropriate interpretive panels that describe ongoing management practices and their benefits to fish and wildlife.
4. Develop and update the Refuge's visitor brochures to include, at a minimum, a general Refuge information brochure, a hunting and fishing brochure, and a bird checklist.

Objective 5: Provide opportunities and facilities for wildlife observation and photography.

Discussion: Wildlife observation, wildlife photography, and other related non-consumptive activities such as hiking and birdwatching are minimal on the Refuge at this time. Regionally, opportunities for public wildlife viewing and photography are limited. However, an increase in these types of uses is anticipated over the next few years, as more facilities become available on the Refuge and the public becomes aware of the opportunities.

Strategies:

1. Develop an accessible waterfowl observation and photography platform off of Shop Road.

2. Develop an accessible wading bird rookery observation and photography facility along Buck Road.
3. Develop an observation and photography boardwalk and pier at Duck Lake and a foot trail leading from the parking and boat launching area.
4. Promote and encourage wildlife observation and photography on the Refuge through brochures, news releases, displays, and special events.

Objective 6: Develop and improve access, facilities, and program support to promote year-round environmental education within five years of plan.

Discussion: Facilities and structures will enhance opportunities for the visiting public and accommodate a range of interests and abilities. Trails, boardwalks, parking areas, observation platforms, signs, and kiosks will provide managed access into and information about the Refuge. Presently, there are no designated trails or observation areas. Some fishing access is provided into Lake Ophelia, but it does not meet NWR System public use standards.

Support facilities and access are needed to provide the Refuge visitor with safe access into the Refuge and to enhance their visit. Access into the Refuge is limited due somewhat to the surrounding land ownership patterns and road conditions, especially during wet weather. Access and programs will focus on waterfowl, fisheries, and bottomland hardwood forest ecosystems.

Strategies:

1. Develop and implement a Visitor Services Management Plan.
2. Construct and maintain wildlife observation facilities, including an observation platform, boat and canoe launch, boardwalk trail, improved fishing access, hiking trails, parking areas, and kiosks.
3. Enhance observation sites to attract wildlife.
4. Work with local community partners to secure funding to improve the four-mile stretch of Lake Long Road that belongs to Avoyelles Parish.
5. Secure funding through the Transportation Equity Act - Refuge Roads Program to improve Lake Long, Boones, Shop, and Buck Roads within the Refuge.
6. Secure funding through the Transportation Equity Act - Refuge Roads Program to upgrade 9 miles of dirt vehicle roads/ATV trails to gravel roads capable of providing all-weather vehicular access to Duck, Westcut, and Dooms Lakes.
7. Work with local transportation entities to improve directional signing to the Refuge.
8. Update and implement a Sign Plan to provide better access and directions for the visiting public.
9. Provide restroom facilities at the main parking lot at the Lake Ophelia access point.

10. Develop and distribute Refuge brochures, including a general brochure, hunting and fishing brochure, and bird checklist.
11. Establish partnerships with local educational institutions.
12. Establish a Refuge friends group.

Goal 5. Refuge Administration

Provide administrative support to ensure that the goals and objectives for Refuge habitats, fish and wildlife populations, land conservation, and visitor services are achieved.

Discussion: The administrative functions associated with a Refuge include a wide array of activities that are critical to the mission of the NWR System and the purpose of each Refuge. These functions include staffing, training, budgeting, planning, Refuge access, law enforcement, facilities, community relations, partnering, and maintenance. Refuges must have appropriate staff, facilities, equipment, and funding in order to accomplish their overall goals and objectives.

Objective 1: Develop nine new staff positions to accomplish a comprehensive Refuge management program and as complexity of staff, projects, and management increases upgrade Project Leader, Deputy Project Leader, and Supervisory Wildlife Biologist positions'.

Discussion: The Refuge does not have a sufficient number of staff to achieve its management goals and objectives. Critical needs are in the areas of Refuge management, resource specialists, outdoor recreation planners, law enforcement, and maintenance. Currently, there is no staff assigned directly to the Refuge.

Strategies:

1. Increase Refuge staff positions with primary responsibilities on Lake Ophelia NWR to include a Refuge operations specialist and maintenance worker.
2. Increase staff positions with shared responsibilities on all three Refuges to include a clerk, wildlife biologist, private lands biologist, forester, forest technician, park ranger, and outdoor recreation planner.
3. Provide continuing education and training opportunities to all staff to ensure a highly competent and motivated team.
4. Provide safe and efficient equipment and vehicles to perform needed Refuge operations and maintenance.
5. Provide up-to-date computer-based systems to perform Refuge operations and planning functions.
6. Upgrade project leader, deputy project leader, and supervisory wildlife biologist positions' as complexity of staff and responsibilities increase.

Objective 2: Maintain highly trained and effective law enforcement personnel to ensure trust resource protection, visitor safety, and enforcement of all Refuge-related acts and regulations.

Discussion: Protecting the natural resources of the Refuge and ensuring the safety of Refuge visitors are fundamental responsibilities of the NWR System. This Refuge is accomplishing this responsibility with one full-time officer. As crime continues to increase in rural America, the Refuges face a larger and more complicated enforcement problem. In addition to over 10,000 natural resource violations, serious felonies (including homicides, rapes, assaults, and acts of arson) are occurring on the Refuges every year.

Strategies:

1. Provide up-to-date training and equipment to all full-time and dual function officers.
2. Develop Memorandums of Understanding with State and parish law enforcement agencies to facilitate cooperation and assistance in law enforcement activities.
3. Provide education and outreach programs in the local community as part of a preventive law enforcement effort.
4. Provide assistance to Service Special Agents and State Conservation Officers for off-Refuge activities as requested.

