

UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council on Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA), and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and determined that the proposed Hunting Plan for Mandalay National Wildlife Refuge in Terrebonne Parish, Louisiana:

Check One:

_____ is a categorical exclusion as provided by 516 DM 2, Appendix 1 and 516 DM 6, Appendix 1, Section 1.4 A (4). No further NEPA documentation will therefore be made.

X is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

_____ is found to have significant effects and, therefore, further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare an EIS.

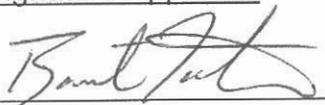
_____ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.

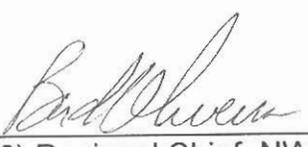
_____ is an emergency action within the context of 40 CFR 1 506.1 1. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other Supporting Documents:

Endangered Species Act, Section 7 Consultation, 2007
Compatibility Determination, 2007

Signature Approval:

 4/6/07  04/19/07
(1) Originator Date (2) Regional Environmental Coordinator Date

 4/19/2007  4/20/07
(3) Regional Chief, NWRS, Southeast Region Date (4) Regional Director, Southeast Region Date

Sport Hunting
Decision Document Package
for
MANDALAY NWR

Contents

2. EA/FONSI

Environmental Assessment

for the proposed opening of

Hunting

on

MANDALAY NATIONAL WILDLIFE REFUGE
Terrebonne Parish, Louisiana

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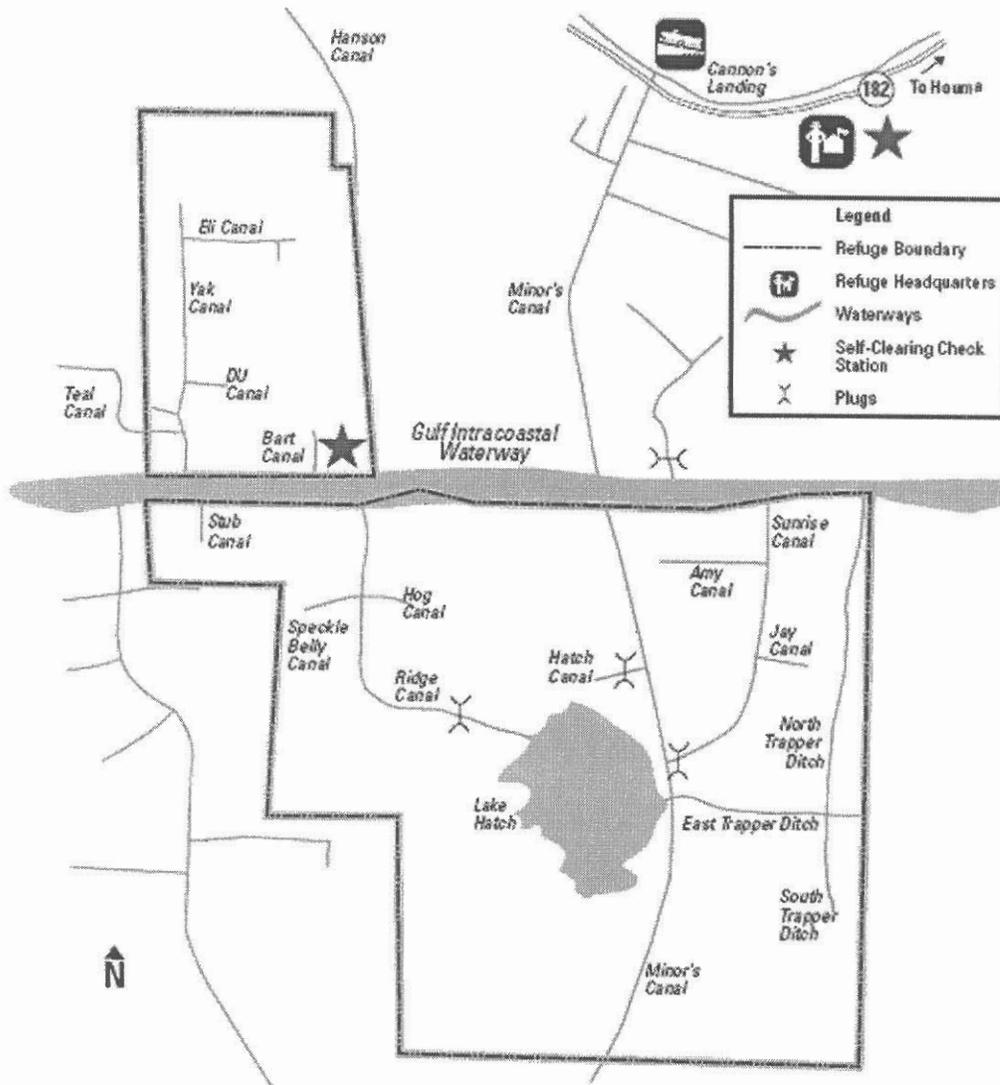
U. S. Department of Interior

Houma, Louisiana

MARCH 2007

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MANDALAY NWR

Figure 1: Areas open to hunting and fishing on Mandalay NWR

1. PURPOSE AND NEED FOR ACTION

In response to a 2003 lawsuit filed by the Fund for Animals, the U.S. Fish and Wildlife Service (Service) will amend or rewrite environmental assessments that describe hunting programs at twenty-three national wildlife refuges located in the Southeast Region. The new environmental assessments will address the cumulative impacts of hunting at all refuges which were named in or otherwise affected by the lawsuit. The Proposed Action (preferred alternative) has been implemented since the original FONSI was approved. This document addresses the hunting programs at Mandalay National Wildlife Refuge in Louisiana.

The federally legislated purposes for which Mandalay National Wildlife Refuge (NWR) was established are “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds” (Migratory Bird Conservation Act, 16 U.S.C. 7153); and for “...the conservation of the wetlands of the nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions...” (16 U.S.C. 3901 (b)).

The National Wildlife Refuge System Administration Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd et seq.) provides authority for the Service to manage the Refuge and its wildlife populations. In addition it declares that compatible wildlife-dependent public uses are legitimate and appropriate uses of the Refuge System that are to receive priority consideration in planning and management. There are six wildlife-dependent public uses: hunting, fishing, wildlife observation, wildlife photography, environmental education and interpretation. It directs managers to increase recreational opportunities including hunting on National Wildlife Refuges when compatible with the purposes for which the Refuge was established and the mission of the National Wildlife Refuge System.

The purpose of this Environmental Assessment is to evaluate the cumulative effects of hunting on Mandalay National Wildlife Refuge.

The proposed action is needed to maintain hunting implemented by the Hunting Plan for Mandalay NWR dated March 2007. This action would continue to provide the public with a high quality recreational experience and provide the refuge with a wildlife management tool to promote the biological integrity of the refuge.

2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 No Action Alternative

Under this alternative, hunting would not be opened on Mandalay NWR, and there would be no change to current public use and wildlife management programs.

2.2 Proposed Action (Preferred Alternative)

The proposed action would permit hunting on Mandalay NWR, but would administratively limit it to those areas specified in the refuge-specific regulations. All or parts of the refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for administrative reasons.

2.3 Close Specific Areas to Harvest

Under this alternative, the U.S. Fish and Wildlife Service would provide variable hunting opportunities during the hunting seasons.

2.4 Open Entire Refuge to Harvest

Under this alternative, the U.S. Fish and Wildlife Service would provide hunting opportunities throughout the hunting seasons.

3. AFFECTED ENVIRONMENT

This section describes the area's natural environment, including vegetation, fish and wildlife resources, and cultural resources.

3.1 General

The Mandalay NWR is located 5 miles west of Houma, Louisiana in Terrebonne Parish. It contains 4,212 acres of freshwater marshes, bordering swamps, upland ridges, oil field canals, and other bodies of water. The refuge is bisected by the Gulf Intracoastal Waterway (GIWW). The refuge is bordered by private marshes on three sides. Swamps, bottom land hardwoods and agricultural (sugarcane) areas border the refuge to the north. The refuge is accessible by boat only.

The refuge area features a major ridge with associated swamp borders and extensive marshes to the south. The ridge soils are Sharkey clay in nature, and the narrow ridge is farmed for sugar cane. The marsh soils are primarily organic and mucky, and are affected by some sediment recharge from the lower Atchafalaya River. The sediment recharge of these marshes has been modified by U. S. Army Corps of Engineers projects near Morgan City, Louisiana.

Parts of the project area are seasonally flooded by the Lower Atchafalaya River and water is impounded in the marshes because drainage is slow. High tides further complicate drainage. The area's poor interior drainage has caused some changes in the vegetation, but in general the existing plant communities will remain essentially the same.

The climate is humid and subtropical with long, hot summers. The fall and spring are warm and often free of a killing frost. Winters are usually mild and cool, but temperatures occasionally drop to the lower teens. The lowest temperature recorded in 1989 was 10 degrees F. The average frost-free period is 264 days and extends from February 27 to November 18. The average annual rainfall is 65 inches, but amounts exceeding 87 inches have been recorded.

3.2 Vegetation

The marsh habitat north of the GIWW consists predominantly of bull-tongue. Other freshwater plants include pickerel weed, maidencane, alligatorweed, pennywort, lotus, white waterlily, primrose, water hyacinth, cattail, bulrush, beggartick, cut-grass, spikerush, and several species of sedges. The marsh vegetation south of the GIWW is much the same, but paille fine or maidencane is more dominant. Submerged plants such as cabomba, coontail, southern niad, hydrilla, pondweed, and wild rice are common. Much of the refuge area east of the Orange Grove gas field has changed from maidencane marsh to a more open pond marsh dominated by submerged plants. This marsh was grazed by cattle in the 1950's. Today, it is dominated by open ponds filled with submergent and emergent vegetation, making it highly attractive to migratory water birds.

The natural levee and spoil banks of the man-made canals are vegetated by willow, hackberry, Nuttail oak, water oak, green ash, and swamp red maple. The low swamp areas are dominated by cypress and tupelo gum. The oil field canals in the marshes are lined by willow and cypress. Buttonbush is common in the intergradational areas between swamp and marsh.

3.3 Land Use

Three oil and gas fields are located within the proposed boundary of the project area: the Orange Grove field, the Sunrise field, and the Humphreys field. They are old fields and their production is declining. Several wells have been closed up and abandoned, but others are still producing. The oil companies maintain a network of canals that provide access to the wells. Impacts include levee construction, reduction of water flow to the swamps in the Terrebonne and Barataria watersheds, oil and gas mining, and canal dredging (Salinas et al. 1986; Pezeshki et al. 1987; 1990; Day et al. 2000). These waterways are also used by hunters and fishermen.

This area of coastal Louisiana produces large populations of nutria and has historically been used for trapping. It also contains a high alligator population, which also is harvested under state regulations. A private alligator farm is located within two miles of the refuge.

Tourism is a lucrative proposition in the basin. Several "swamp tour" businesses have been established, including the popular swamp and marsh tour given by "Alligator Annie."

3.4 Wildlife Resources

The area's biological diversity is high. The refuge area provides critical spring and fall habitat for neotropical migratory birds. According to the Louisiana Department of Wildlife and Fisheries, the area's freshwater marshes attract thousands of migratory water birds, including mallards, blue- and green-winged teal, gadwalls, wigeons, and mottled ducks. Wood ducks are common, both as migrants and breeders. Mottled ducks commonly nest here. American coots heavily use this part of coastal Louisiana, as do several other species of rails and gallinules. Pintails, lesser scaup, geese, and shovelers are also found. It is not uncommon for this area to reach peaks of 75,000 or more ducks. Waterfowl surveys indicate that waterfowl use continues to be high; however, hunting pressure is increasing and wintertime fishing can sometime disturb wintering waterfowl.

Wading birds also used the area in significant numbers and several rookeries were present. A major rookery existed on Lake Hatch in 2000 consisted of several thousand pairs of white ibis, great egret, little blue herons, snowy egrets and tri-colored herons. However, this rookery has dissipated and several smaller rookeries are scattered throughout the refuge. A few roseate spoonbills have also nested in this area.

Woodcock and many species of passerine birds use the natural ridges. Some passerine birds use the swamps for both breeding and wintering. Shorebirds also frequent the area. The area's marshes also support high populations of nutria and alligator, which are harvested annually by trappers and hunters. A significant deer population is also present, particularly in the maidencane marshes south and east of Lake Hatch. Biologists with the Louisiana Department of Wildlife and Fisheries estimate that the white-tailed deer population on the refuge is approximately 1 deer per 37 acres.

There is a feral hog population on the refuge. Feral hogs are in direct competition with white-tailed deer and are considered a negative influence on white-tailed deer populations.

3.5 Threatened and Endangered Species

Bald Eagle

Many bald eagles are seen during the year, most of them during winter months in south Louisiana. Terrebonne Parish boasts the highest eagle concentrations in the state. There is one active nest on Mandalay NWR just east of the Ridge Canal. Numerous eagles use the refuge for foraging purposes. The Louisiana Department of Wildlife and Fisheries conducts eagle surveys annually.

3.6 Fishery Resources

The marshes of the Mandalay area are on the upper end of the Bayou Penchant estuary that

provides nursery grounds for many commercial fish and shellfish found in the Gulf of Mexico, including white shrimp, brown shrimp, blue crab, Gulf menhaden, Atlantic croaker, bay anchovy, spot and Atlantic threadfin. Freshwater sportfishing for largemouth bass, crappie, sunfishes and catfish is popular and commercial fisherman catch catfish and gar.

The refuge is bisected by canals such as Hanson Canal, Minors Canal, and GIWW. These canals will not be considered as part of the refuge just as state highways are not considered part of other refuges. Lake Hatch is the single largest water body on the refuge. It is approximately 200 acres in size. It is about 4 feet deep but is largely vegetated by hydrilla, coontail, common salvia, and water hyacinth. The oil field canals in the refuge provide aquatic habitat and are vegetated extensively. This variety of vegetative cover provides an abundance of food and cover for species associated with the aquatic food chain and therefore produces a yield of sport fishes adequate for public use.

The 4,212 acre Nature Conservancy Tract that became the refuge was not formally opened to fishing nor was fishing promoted on the property. However individuals familiar with the property have stated that it is normal to have 12 to 15 fishing boats using the canals on the property during the spring and summer months.

Fishing pressure should remain the same or increased slightly over with the opening of the refuge. The Service expects to control water hyacinths on the property. Controlling the water hyacinths will allow greater access and better fishing opportunities.

3.7 Cultural Resources

The body of federal historic preservation laws has grown dramatically since the enactment of the Antiquities Act of 1906. Several themes recur in these laws, their promulgating regulations, and more recent Executive Orders. They include: 1) each agency is to systematically inventory the historic properties on their holdings and to scientifically assess each property's eligibility for the National Register of Historic Places; 2) federal agencies are to consider the impacts to cultural resources during the agencies' management activities and seek to avoid or mitigate adverse impacts; 3) the protection of cultural resources from looting and vandalism are to be accomplished through a mix of informed management, law enforcement efforts, and public education; and 4) the increasing role of consultation with groups, such as Native American tribes, in addressing how a project or management activity may impact specific archaeological sites and landscapes deemed important to those groups. The U.S. Fish and Wildlife Service, like other federal agencies, are legally mandated to inventory, assess, and protect cultural resources located on those lands that the agency owns, manages, or controls. The Service's cultural resource policy is delineated in 614 FW 1-5 and 126 FW 1-3. In the FWS's Southeast Region, the cultural resource review and compliance process is initiated by contacting the Regional Historic Preservation Officer/Regional Archaeologist (RHPO/RA). The RHPO/RA will determine whether the proposed undertaking has the potential to impact cultural resources, identify the "area of potential effect," determine the appropriate level of scientific investigation necessary to ensure legal

compliance, and initiates consultation with the pertinent State Historic Preservation Office (SHPO) and federally recognized Tribes.

Current data indicate that the Bayou Penchant Basin was seasonally occupied during the Marksville Phase of the Early Middle Woodland Period (100 to 300 A.D.). These small procurement (hunting, fishing, and shell fishing) sites were situated in the uplands along the natural levee system. Other sites from earlier and later prehistoric and historic periods may also exist within the proposed refuge. Hunting/fishing will not have an effect on the cultural resources found on the refuge.

In accordance with Section 106, the Service believes, and the SHPO concurs, that the refuge will have no affect on any known or yet-to-be identified NRHP-eligible cultural resources.

3.8 Socio Economic

Terrebonne Parish is primarily wetland areas with associated ridges. Lower Terrebonne is generally encompassed by fishing/trapping communities and oil and gas operations. Upper Terrebonne heavily relies on sugarcane farming and the oil and gas industry. The majority of Terrebonne Parish is fairly rural with the exception of the City of Houma. Population estimates, total households, housing units, and median annual household incomes are listed in Table 1 for Terrebonne Parish (U.S. Census Bureau 2000).

<i>Parish</i>	<i>Population</i>	<i>Households</i>	<i>Housing Units</i>	<i>Median Annual Household Income (\$)</i>
Terrebonne	104,503	35,977	39,928	35,235

Hunting is a traditional form of outdoor recreation for many people in Terrebonne Parish and for some households, hunting participation provides food at a much cheaper cost. The number of general hunting licenses sold to hunters in Terrebonne Parish during the 2005/06 hunting season was 4,979 (these numbers do not include citizens over 65 years old or youth under 16 years old, as these age groups are not required to purchase licenses) (*LDWF, personal comm.*).

4. ENVIRONMENTAL CONSEQUENCES

This chapter describes the foreseeable environmental consequences of implementing the management alternatives in Chapter 2. When detailed information is available, a scientific and analytic comparison between alternatives and their anticipated consequences is presented, which is described as “impacts” or “effects.” When detailed information is not available, those comparisons are based on the professional judgment and experience of refuge staff and Service and State biologists.

4.1 Effects Common to all Alternatives

4.1.1 Environmental Justice

Executive Order 12898 “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” was signed by President Bill Clinton on February 11, 1994, to focus federal attention on the environmental and human health conditions of minority and low-income populations with the goal of achieving environmental protection for all communities. The Order directed federal agencies to develop environmental justice strategies to aid in identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. The Order is also intended to promote nondiscrimination in federal programs substantially affecting human health and the environment, and to provide minority and low-income communities’ access to public information and participation in matters relating to human health or the environment. This assessment has not identified any adverse or beneficial effects for either alternative unique to minority or low-income populations in the affected area. Neither alternative will disproportionately place any adverse environmental, economic, social, nor health impacts on minority or low-income populations.

4.1.2 Public Health and Safety

Each alternative would have similar effects or minimal to negligible effects on human health and safety.

4.1.3 Refuge Physical Environment

Impacts of each alternative on the refuge physical environment would have similar minimal to negligible effects. Some disturbance to surface soils, topography, and vegetation would occur in areas selected for hunting; however effects would be minimal. Hunting would benefit vegetation as it is used to keep many resident wildlife populations in balance with the habitat’s carrying capacity. The refuge would also control access to minimize habitat degradation.

Impacts to the natural hydrology would have negligible effects. The refuge expects impacts to air and water quality to be minimal and only due to refuge visitors’ boat engine emissions. The effect of these refuge-related activities on overall air and water quality in the region are anticipated to be relatively negligible. Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions; thus, implementation of the proposed action would not impact adjacent landowners or users beyond the constraints already implemented under existing State standards and laws.

Impacts associated with solitude are expected to be minimal given time and space zone management techniques, such as seasonal access and area closures, used to avoid conflicts among user groups.

4.1.4. Cultural Resources

Under each alternative, hunting, regardless of method or species targeted, is a consumptive activity that does not pose any threat to historic properties on and/or near the Refuge.

4.1.5. Facilities

Maintenance or improvement of existing facilities (i.e. parking areas, roads, trails, and boat ramps) will cause minimal short term impacts to localized soils and waters and may cause some wildlife disturbances and damage to vegetation.

4.2 Summary of Effects

4.2.1 Impacts to Habitat

No Action Alternative

Under this alternative, hunting would not be opened on Mandalay NWR, and there would be no hunting allowed and wildlife management programs may suffer. Disadvantages of this alternative include the following: the public would not have the opportunity to harvest a renewable resource, participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established, have an increased awareness of Mandalay NWR and the National Wildlife Refuge System, nor would the Service be meeting public use demand. This action would not constitute positive public relations.

When deer are overpopulated, they overbrowse their habitat, which can change the structure and plant composition of a forest. There is a lack of forested ridges / spoil banks remaining in the marshes of coastal Louisiana. Failure to maintain these forests would have negative impacts on future resident and non-resident wildlife populations, as well as the purpose of the refuge. Feral hogs are considered a threat to the biological integrity of the refuge because they are an extremely invasive, non-native species. By rooting and wallowing, feral hogs destroy wildlife habitat. Damage includes erosion along waterways and wetlands and the loss of native plants. Damage from overbrowsing and rooting/wallowing could increase wetland degradation, in turn causing more coastal erosion.

Benefits of this alternative include the following: no disturbance of other wildlife, killing of non-target animals due to malicious or illegal activities, nor damage to refuge property such as levees / ridges due to hunter use during wet weather periods. Additionally, cost associated

with a hunting program in the form of levee maintenance, instructional sign needs, and law enforcement would not be applicable

Proposed Action Alternative

Under the proposed action, hunting will be permitted, but administratively limited to those areas specified in the refuge-specific regulations. All or parts of the refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for other reasons. The seasons will be within the framework of the Louisiana Wildlife and Fisheries Commission's regular state seasons, but could be more restrictive. Refuge management goals and objectives may require occasional modifications to the hunting program as harvest data, public use pressure, and other refuge programs are considered.

The biological integrity of the refuge would be protected under this alternative, and the refuge purpose of conserving wetlands for wildlife would be achieved. The hunting of hogs and deer would positively impact wildlife habitat by promoting plant health and diversity, reducing hog wallowing which destroys vegetation and compacts soils, and increasing tree seedling survival.

Benefits of this alternative include allowing the public to harvest a renewable resource, promoting a wildlife-oriented recreational opportunity that is compatible with the purpose for which the refuge was established, increasing awareness of Mandalay NWR and the National Wildlife Refuge System, and meeting public demand. Additionally, at a time of increased scrutiny of public land (especially Federal-owned) management and public use opportunities, opening hunting on Mandalay NWR will be positive public relations, reflecting well on Mandalay NWR and the U.S. Fish and Wildlife Service.

Disadvantages of this alternative include disturbance of other wildlife, killing of non-target animals due to malicious or illegal activities, and damage to refuge property such as levees / ridges due to hunter use during wet weather periods. Hunting programs at other refuges have shown these impacts to be minimal. Another disadvantage includes costs associated with a hunting program in the form of levee maintenance, instructional sign needs, and law enforcement. These costs should be minimal relative to total refuge operations and maintenance costs, and would not diminish resources dedicated to other refuge management programs (See Decision Document Package, Part 4, 03 Compatibility Determination). A potential disadvantage is its effect on the threatened bald eagle. However, it has been determined that opening hunting is not likely to affect these species (See Decision Document Package, Part 3, Section 7 Evaluation).

Close Specific Areas to Hunting

Under this alternative, the U.S. Fish and Wildlife Service would close predetermined areas to hunting for the entire hunting season. This alternative would predetermine areas to be closed

to hunting, and would preclude such decisions from being made on the basis of public safety, to provide wildlife sanctuary, or for other reasons as deemed appropriate based on current conditions. As in the no action alternative this would limit the public opportunity to harvest

a renewable resource and participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established.

If the hunting activity is compatible with the purposes for which the refuge was established and is consistent with the principles of sound game management, and in the public interest, these areas should be opened.

Open Entire Refuge to Hunting

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users. As in the proposed action, this alternative has disadvantages including disturbance to other wildlife, impacts of hunters on refuge properties, program management costs and impacts to threatened and endangered species, however these impacts are minimal or have been determined to not affect species.

As public use levels expand across time, unanticipated conflicts between user groups may occur. This alternative does not allow for the time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) which has been shown to be an effective tool in eliminating conflicts between user groups. For example, this alternative would not allow for restrictions which would allow non-consumptive users to recreate without potential interactions with hunters. This alternative also would not allow restrictions designed to limit impacts of hunters on infrastructure, habitat, wildlife or neighboring landowners.

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users.

4.2.2 Impacts to Hunted Wildlife

No Action Alternative

Additional mortality of individual hunted animals would not occur under this alternative. Disturbance by hunters to hunted wildlife would not occur; however, other public uses that cause disturbance, such as wildlife observation and photography, would still be permitted.

Deer and hog populations could increase above the habitat's carrying capacity in the area not opened to hunting. The likelihood of starvation and diseases, such as bluetongue and EHD in deer would increase. Feral hogs can harbor several infectious diseases, some of which can be fatal to wildlife. Additionally, feral hogs compete directly for food with deer, rabbits, squirrels, and many other birds and mammals. Migratory birds would still be disturbed by passing boats and by other public use groups.

Proposed Action Alternative

Additional mortality of individual hunted animals would occur under this alternative, estimated by the refuge to be a maximum of 10 deer, 600 ducks, 200 coots, 200 gallinules, 20 snow geese, and 20 white-fronted geese annually. Estimates for hogs would be less than 20 individuals per year. Hunting causes some disturbance to not only the species being hunted but other game species as well. However, time and space zoning established by refuge regulations would minimize incidental disturbance.

Hunting of deer and hog would help maintain their populations at or below carrying-capacity. The likelihood of starvation and diseases, such as bluetongue and EHD in deer would be decreased. Reduction of the hog population would decrease risk of transmitting fatal diseases by hogs to other wildlife species. Fewer hogs would decrease competition for food with native wildlife, such as deer, rabbit, squirrel, and various migratory birds.

Migratory Bird disturbance is minimal as hunting is only allowed 2 days per week for 6 hours per day during the state waterfowl season on 800 acres of the entire 4,212 acre refuge. Five floating blinds are established in the Hanson Unit, north of the GIWW (see figure 1), and hunters are not allowed to waterfowl hunt outside of these five designated blinds. The remainder of the refuge serves as wintering sanctuary for waterfowl, as does the Hanson Unit except for a possible 12 hours per week of hunting pressure. Most waterfowl hunters remain in the blind for 3 to 4 hours on average, therefore hunting pressure is usually closer to 6 to 8 hours per week during the state waterfowl season.

Close Specific Areas to Hunting

Under this alternative, the U.S. Fish and Wildlife Service would close predetermined areas to hunting for the entire hunting season. This alternative would predetermine areas to be closed to hunting, and would preclude such decisions from being made on the basis of public safety, to provide wildlife sanctuary, or for other reasons as deemed appropriate based on current conditions. As in the no action alternative this would limit the public opportunity to harvest a renewable resource and participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established.

If the hunting activity is compatible with the purposes for which the refuge was established and is consistent with the principles of sound game management, and in the public interest,

these areas should be opened.

Open Entire Refuge to Hunting

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users. As in the proposed action, this alternative has disadvantages including disturbance to other wildlife, impacts of hunters on refuge properties, program management costs and impacts to threatened and endangered species, however these impacts are minimal or have been determined to not affect species.

As public use levels expand across time, unanticipated conflicts between user groups may occur. This alternative does not allow for the time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) which has been shown to be an effective tool in eliminating conflicts between user groups. For example, this alternative would not allow for restrictions which would allow non-consumptive users to recreate without potential interactions with hunters. This alternative also would not allow restrictions designed to limit impacts of hunters on infrastructure, habitat, wildlife or neighboring landowners.

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users.

4.2.3 Impacts to Non-hunted Wildlife

No Action Alternative

Hogs may become overpopulated, depredating turtle and songbird nests at high rates. Under this alternative, feral hog populations would increase dramatically. Non-native hogs are predators of small mammals and deer fawns, as well as ground-nesting birds.

Increased disturbance to non-hunted wildlife would not occur in the 4,212-acre area; however, non-consumptive users would still be permitted to access this land, which might cause disturbance to wildlife.

Proposed Action Alternative

Populations of hogs would be decreased through hunting under this alternative. Depredation rates of songbirds, turtles, and their nests would decrease. Feral hog populations would be reduced thereby decreasing predation of deer fawns and small mammals.

Disturbance to non-hunted wildlife would increase slightly. However, significant disturbance would be unlikely for the following reasons. Small mammals, including bats, are inactive during winter when hunting season occurs. These species are also nocturnal. Both of these qualities make hunter interactions with small mammals very rare. Hibernation or torpor by cold-blood reptiles and amphibians also limits their activity during the hunting season when temperatures are low. Hunters would rarely encounter reptiles and amphibians during most of the hunting season. Invertebrates are also not active during cold weather and would have few interactions with hunters during the hunting season. The refuge has estimated current hunter density on peak days to be no more than 1 hunter per 100 acres. During the vast majority of the hunting season, hunter density is much lower (1 hunter/1,000 acres). Refuge regulations further mitigate possible disturbance by hunters to non-hunted wildlife. Boats are restricted to waterways and the harassment or taking of any wildlife other than the game species legal for the season is not permitted. Disturbance to the daily wintering activities, such as feeding and resting, of birds might occur, but would be transitory as hunters traverse habitat. Disturbance to birds by hunters would probably be commensurate with that caused by non-consumptive users.

Close Specific Areas to Hunting

Under this alternative, the U.S. Fish and Wildlife Service would close predetermined areas to hunting for the entire hunting season. This alternative would predetermine areas to be closed to hunting, and would preclude such decisions from being made on the basis of public safety, to provide wildlife sanctuary, or for other reasons as deemed appropriate based on current conditions. As in the no action alternative this would limit the public opportunity to harvest a renewable resource and participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established.

If the hunting activity is compatible with the purposes for which the refuge was established and is consistent with the principles of sound game management, and in the public interest, these areas should be opened.

Open Entire Refuge to Hunting

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users. As in the proposed action, this alternative has disadvantages including disturbance to other wildlife, impacts of hunters on refuge properties, program management costs and impacts to threatened and endangered species, however these impacts are minimal or have been determined to not affect species.

As public use levels expand across time, unanticipated conflicts between user groups may

occur. This alternative does not allow for the time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) which has been shown to be an effective tool in eliminating conflicts between user groups. For example, this alternative would not allow for restrictions which would allow non-consumptive users to recreate without potential interactions with hunters. This alternative also would not allow restrictions designed to limit impacts of hunters on infrastructure, habitat, wildlife or neighboring landowners.

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users.

4.2.4 Impacts to Endangered and Threatened Species

No Action Alternative

Because current public use levels on the refuge have remained the same, there would be no increased chance of affecting threatened and endangered species.

Proposed Action Alternative

A potential disadvantage of this alternative is its effect on threatened and endangered species on the refuge such as the bald eagle. However, a Section 7 Evaluation associated with this assessment was conducted, and it was determined that the proposed action is not likely to affect this species (Refer to 2007 Section 7 Evaluation for Sport Hunting on Mandalay NWR). The single active nest is located in a discrete secluded area of the refuge. The nest lies in a large cypress tree within a large stand of cypress – tupelo swamp that is virtually inaccessible by boat or on foot.

Close Specific Areas to Hunting

Under this alternative, the U.S. Fish and Wildlife Service would close predetermined areas to hunting for the entire hunting season. This alternative would predetermine areas to be closed to hunting, and would preclude such decisions from being made on the basis of public safety, to provide wildlife sanctuary, or for other reasons as deemed appropriate based on current conditions. As in the no action alternative this would limit the public opportunity to harvest a renewable resource and participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established.

If the hunting activity is compatible with the purposes for which the refuge was established and is consistent with the principles of sound game management, and in the public interest, these areas should be opened.

Open Entire Refuge to Hunting

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users. As in the proposed action, this alternative has disadvantages including disturbance to other wildlife, impacts of hunters on refuge properties, program management costs and impacts to threatened and endangered species, however these impacts are minimal or have been determined to not affect species.

As public use levels expand across time, unanticipated conflicts between user groups may occur. This alternative does not allow for the time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) which has been shown to be an effective tool in eliminating conflicts between user groups. For example, this alternative would not allow for restrictions which would allow non-consumptive users to recreate without potential interactions with hunters. This alternative also would not allow restrictions designed to limit impacts of hunters on infrastructure, habitat, wildlife or neighboring landowners.

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users.

4.2.5 Impacts to Refuge Facilities (roads, trails, parking lots, levees)

No Action Alternative

Additional damage to canals, waterways, ridges, and spoil banks due to hunter use during wet weather periods would not occur; however, other users would still be using waterways, thereby necessitating periodic maintenance. Additionally, costs associated with a hunting program in the form of waterway bank maintenance, instructional sign needs, and law enforcement would not be applicable.

Proposed Action Alternative

Additional damage to canals, waterways, ridges, and spoil banks due to hunter use during wet weather periods might occur. The current refuge hunt program on 4,212 acres for the past 7 years has shown these impacts to be minimal. There would be some costs associated with a hunting program in the form of waterway maintenance, instructional sign needs, and law enforcement. These costs should be minimal relative to total refuge operations and maintenance costs and would not diminish resources dedicated to other refuge management programs.

Close Specific Areas to Hunting

Under this alternative, the U.S. Fish and Wildlife Service would close predetermined areas to hunting for the entire hunting season. This alternative would predetermine areas to be closed to hunting, and would preclude such decisions from being made on the basis of public safety, to provide wildlife sanctuary, or for other reasons as deemed appropriate based on current conditions. As in the no action alternative this would limit the public opportunity to harvest a renewable resource and participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established.

If the hunting activity is compatible with the purposes for which the refuge was established and is consistent with the principles of sound game management, and in the public interest, these areas should be opened.

Open Entire Refuge to Hunting

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users. As in the proposed action, this alternative has disadvantages including disturbance to other wildlife, impacts of hunters on refuge properties, program management costs and impacts to threatened and endangered species, however these impacts are minimal or have been determined to not affect species.

As public use levels expand across time, unanticipated conflicts between user groups may occur. This alternative does not allow for the time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) which has been shown to be an effective tool in eliminating conflicts between user groups. For example, this alternative would not allow for restrictions which would allow non-consumptive users to recreate without potential interactions with hunters. This alternative also would not allow restrictions designed to limit impacts of hunters on infrastructure, habitat, wildlife or neighboring landowners.

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users.

4.2.6 Impacts to Wildlife Dependant Recreation

No Action Alternative

The public would not have the opportunity to harvest a renewable resource, participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established, have an increased awareness of Mandalay NWR and the National Wildlife Refuge System; nor would the Service be meeting public use demand. Public relations would not be enhanced with the local community. Under this alternative, youth would be unable to experience waterfowl hunting with an adult. This would be a missed opportunity to promote youth, wildlife-dependant recreation.

Proposed Action Alternative

As public use levels expand across time, unanticipated conflicts between user groups may occur. Experience has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups. This would also limit disturbance to wildlife during the spring and summer when most species reproduce. Conflicts between hunters and non-consumptive users might occur but would be mitigated by time (non-hunting season) and space zoning. Waterfowl hunting is allowed on the Hanson Unit only, thereby the remainder of the refuge serves as sanctuary for migratory birds. Deer and hog hunting is allowed on the entire refuge, yet hunters have limited access to the majority of the refuge because the fresh floating marsh is difficult to traverse by foot and is largely inaccessible.

The public would be allowed to harvest a renewable resource, and the refuge would be promoting a wildlife-oriented recreational opportunity that is compatible with the purpose for which the refuge was established. The public would have an increased awareness of Mandalay NWR and the National Wildlife Refuge System and public demand for more hunting would be met. The public would also have the opportunity to harvest a renewable resource in a traditional manner, which is culturally important to the local community. This alternative would also allow the public to enjoy hunting at no or little cost in a region where private land is leased for hunting, often costing a person \$300-\$2000/year for membership. This alternative would allow youth the opportunity to experience a wildlife-dependant recreation, instill an appreciation for and understanding of wildlife, the natural world and the environment, and promote a land ethic and environmental awareness.

Close Specific Areas to Hunting

Under this alternative, the U.S. Fish and Wildlife Service would close predetermined areas to hunting for the entire hunting season. This alternative would predetermine areas to be closed to hunting, and would preclude such decisions from being made on the basis of public safety, to provide wildlife sanctuary, or for other reasons as deemed appropriate based on current

conditions. As in the no action alternative this would limit the public opportunity to harvest a renewable resource and participate in wildlife-oriented recreation that is compatible with the purposes for which the refuge was established.

If the hunting activity is compatible with the purposes for which the refuge was established and is consistent with the principles of sound game management, and in the public interest, these areas should be opened.

Open Entire Refuge to Hunting

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users. As in the proposed action, this alternative has disadvantages including disturbance to other wildlife, impacts of hunters on refuge properties, program management costs and impacts to threatened and endangered species, however these impacts are minimal or have been determined to not affect species.

As public use levels expand across time, unanticipated conflicts between user groups may occur. This alternative does not allow for the time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) which has been shown to be an effective tool in eliminating conflicts between user groups. For example, this alternative would not allow for restrictions which would allow non-consumptive users to recreate without potential interactions with hunters. This alternative also would not allow restrictions designed to limit impacts of hunters on infrastructure, habitat, wildlife or neighboring landowners.

This alternative would not take into consideration refuge objectives and the purpose for which the refuge was established. Also, hunting may conflict with other wildlife-oriented public use programs. Time and space management may have to be accomplished to ensure the opportunity for a quality experience for both hunters and other refuge users.

4.3 Cumulative Impacts Analysis

4.3.1 Anticipated Direct and Indirect Impacts of Proposed Action on Wildlife Species.

4.3.1.1 Migratory Birds

The U.S. Fish and Wildlife Service, working with partners, annually prescribe frameworks, or outer limits, for dates and times when hunting may occur and the number of birds that may be taken and possessed. These frameworks are necessary to allow State selections of season and limits for recreation and sustenance; aid Federal, State, and tribal governments in the

management of migratory game birds; and permit harvests at levels compatible with population status and habitat conditions. Because the Migratory Bird Treaty Act stipulates that all hunting seasons for migratory game birds are closed unless specifically opened by the Secretary of the Interior, the Service annually promulgates regulations (50 CFR Part 20) establishing the frameworks from which States may select season dates, bag limits, shooting hours, and other options for the each migratory bird hunting season. The frameworks are essentially permissive in that hunting of migratory birds would not be permitted without them. Thus, in effect, Federal annual regulations both allow and limit the hunting of migratory birds.

Migratory game birds are those bird species so designated in conventions between the United States and several foreign nations for the protection and management of these birds. Under the Migratory Bird Treaty Act (16 U.S.C. 703-712), the Secretary of the Interior is authorized to determine when "hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage, or export of any ... bird, or any part, nest, or egg" of migratory game birds can take place, and to adopt regulations for this purpose. These regulations are written after giving due regard to "the zones of temperature and to the distribution, abundance, economic value, breeding habits, and times and lines of migratory flight of such birds, and are updated annually (16 U.S.C. 704(a)). This responsibility has been delegated to the U.S. Fish and Wildlife Service as the lead federal agency for managing and conserving migratory birds in the United States. Acknowledging regional differences in hunting conditions, the Service has administratively divided the nation into four Flyways for the primary purpose of managing migratory game birds. Each Flyway (Atlantic, Mississippi, Central, and Pacific) has a Flyway Council, a formal organization generally composed of one member from each State and Province in that Flyway. Mandalay NWR is within the Mississippi Flyway.

The process for adopting migratory game bird hunting regulations, located in 50 CFR part 20, is constrained by three primary factors. Legal and administrative considerations dictate how long the rule making process will last. Most importantly, however, the biological cycle of migratory game birds controls the timing of data-gathering activities and thus the dates on which these results are available for consideration and deliberation. The process of adopting migratory game bird hunting regulations includes two separate regulations-development schedules, based on "early" and "late" hunting season regulations. Early hunting seasons pertain to all migratory game bird species in Alaska, Hawaii, Puerto Rico, and the Virgin Islands; migratory game birds other than waterfowl (e.g. dove, woodcock, etc.); and special early waterfowl seasons, such as teal or resident Canada geese. Early hunting seasons generally begin prior to October 1. Late hunting seasons generally start on or after October 1 and include most waterfowl seasons not already established. There are basically no differences in the processes for establishing either early or late hunting seasons. For each cycle, Service biologists and others gather, analyze, and interpret biological survey data and provide this information to all those involved in the process through a series of published status reports and presentations to Flyway Councils and other interested parties (USFWS 2006).

Currently, Mandalay NWR has an average harvest of 301 ducks (primarily blue-wing teal, ringnecks, and wigeon). During the 2005-2006 waterfowl season 557 ducks were harvested, which skewed the overall three year average of waterfowl harvest on Mandalay. The unusually high number of waterfowl harvested during the 2005-2006 season was attributed to higher waterfowl numbers in south central LA following Hurricanes Katrina and Rita, which devastated marsh habitat in southeast and southwest LA coastal marshes. Very few geese are harvested on Mandalay NWR each year, where as some years no geese are harvested. Under the proposed action, Mandalay NWR estimates a maximum additional 600 ducks, 200 coots, 200 gallinules, 10 rails, 20 snow geese, and 20 white-fronted geese would be harvested each year. This harvest impact represents 0.06%, 0.33%, 0.65%, 0.04%, 0.03%, and 0.02%, respectively of Louisiana's average harvest of 921,990 ducks (4 year average), 59,000 coots (5 year average), 30,500 gallinules and 21,200 rails (2004 harvest), 60,830 snow geese (4 year average), and 72,611 white-fronted geese (4 year average) (USFWS 2005). Waterfowl hunting is only allowed until noon, 2 days per week, during the hunting season, which is more restrictive than regulations set forth by the Louisiana Department of Wildlife and Fisheries (LDWF). Waterfowl hunting should have no cumulative effects on waterfowl populations.

Because the Service is required to take abundance of migratory birds and other factors in to consideration, the Service undertakes a number of surveys throughout the year in conjunction with the Canadian Wildlife Service, State and Provincial wildlife-management agencies, and others. To determine the appropriate frameworks for each species, the Service considers factors such as population size and trend, geographical distribution, annual breeding effort, the condition of breeding and wintering habitat, the number of hunters, and the anticipated harvest. After frameworks are established for season lengths, bag limits, and areas for migratory game bird hunting, migratory game bird management becomes a cooperative effort of State and Federal Governments. After Service establishment of final frameworks for hunting seasons, the States may select season dates, bag limits, and other regulatory options for the hunting seasons. States may always be more conservative in their selections than the Federal frameworks but never more liberal. Season dates and bag limits for National Wildlife Refuges open to hunting are never longer or larger than the State regulations. In fact, based upon the findings of an environmental assessment developed when a National Wildlife Refuge opens a new hunting activity, season dates and bag limits may be more restrictive than the State seasons. At Mandalay NWR, season length is more restrictive for waterfowl than the State season.

NEPA considerations by the Service for hunted migratory game bird species are addressed by the programmatic document, "Final Supplemental Environmental Impact Statement: Issuance of Annual Regulations Permitting the Sport Hunting of Migratory Birds (FSES 88-14)," filed with the Environmental Protection Agency on June 9, 1988. We published Notice of Availability in the Federal Register on June 16, 1988 (53 FR 22582), and our Record of Decision on August 18, 1988 (53 FR 31341). Annual NEPA considerations for waterfowl hunting frameworks are covered under a separate Environmental Assessment, "Duck Hunting Regulations for 2006-07," and an August 24, 2006, Finding of No Significant

Impact. Further, in a notice published in the September 8, 2005, Federal Register (70 FR 53376), the Service announced its intent to develop a new Supplemental Environmental Impact Statement for the migratory bird hunting program. Public scoping meetings were held in the spring of 2006, as announced in a March 9, 2006, Federal Register notice (71 FR 12216). More information may be obtained from: Chief, Division of Migratory Bird Management, U.S. Fish and Wildlife Service, Department of the Interior, MS MBSP-4107-ARLSQ, 1849 C Street, NWR, Washington, DC 20240.

4.3.1.2 Resident Big Game

4.3.1.2.1 Deer

Deer herd health checks are conducted every 5 years on nearby state Wildlife Management Areas by the Southeast Cooperative Wildlife Disease Study at the University of Georgia. In 2003, the health check report stated that "... from a health perspective the [deer] population density probably needs to be contained near its present level". The 4,212 acres of refuge lands currently open to deer archery hunting have averaged less than 5 deer harvested per year.

Harvest and survey data confirm that decades of deer hunting on surrounding private lands (using bait and a longer season) have not had a local cumulative effect on the deer population. LDWF estimate 209,200 deer were harvested throughout the state in 2005/06 (LDWF *pers. comm.*). The average annual statewide harvest since 1995 is 234,000 deer. The refuge estimates an additional maximum 10 deer would be harvested under the proposed action, representing only 0.0004% of the long-term average state harvest. Hunting on 4,212 acres of refuge lands for a very limited deer archery hunt should not have cumulative impacts on the deer herd.

4.3.1.2.2 Feral Hogs

Feral hogs are an extremely invasive introduced, non-native species and is not considered a game species by the State of Louisiana. No bag limits are established for feral hogs. Hunting of feral hogs provides the refuge with another management tool in reducing this detrimental species, and at the same time, is widely enjoyed by local hunters. Cumulative effects to an exotic, invasive species should not be of concern because the refuge would like to extirpate this species on refuge lands. Hunting of hogs is not considered detrimental to the biological integrity of the refuge, is not likely to create conflict with other public uses and is within the wildlife dependant public uses to be given priority consideration. Since hogs are exotic, they are a priority species for refuge management only in terms of their negative impacts on refuge biota and need for eradication. They are a popular game species though, and the public interest would best be served by allowing this activity on the refuge. However, even with hunting, feral hogs are likely to always be present because they are prolific breeders.

4.3.1.3 Non-hunted Wildlife

Non-hunted wildlife would include non-hunted migratory birds such as songbirds, wading birds, raptors, and woodpeckers; small mammals such as voles, moles, mice, shrews, and bats; reptiles and amphibians such as snakes, skinks, turtles, lizards, salamanders, frogs and toads; and invertebrates such as butterflies, moths, other insects and spiders. Except for migratory birds and some species of migratory bats, butterflies and moths, these species have very limited home ranges and hunting could not affect their populations regionally; thus, only local effects will be discussed.

Disturbance to non-hunted migratory birds could have regional, local, and flyway effects. Regional and flyway effects would not be applicable to species that do not migrate such as most woodpeckers, and some songbirds including cardinals, titmice, wrens, chickadees, etc. The cumulative effects of disturbance to non-hunted migratory birds under the proposed action are expected to be negligible for the following reasons. Hunting season would not coincide with the nesting season. Long-term future impacts that could occur if reproduction was reduced by hunting are not relevant for this reason. Disturbance to the daily wintering activities, such as feeding and resting, of birds might occur. Disturbance to birds by hunters would probably be commensurate with that caused by non-consumptive users.

The cumulative effects of disturbance to non-hunted migratory birds under the proposed action are expected to be negligible for the following reasons. However, disturbance would be unlikely for the following reasons. Small mammals, including bats, are inactive during winter when hunting season occurs. These species are also nocturnal. Both of these qualities make hunter interactions with small mammals very rare. Hibernation or torpor by cold-blooded reptiles and amphibians also limits their activity during the hunting season when temperatures are low. Hunters would rarely encounter reptiles and amphibians during most of the hunting season. Encounters with reptiles and amphibians in the early fall are few and should not have cumulative effects on reptile and amphibian populations. Invertebrates are also not active during cold weather and would have few interactions with hunters during the hunting season. The refuge has estimated current hunter density on peak days to be no more than 1 hunter per 100 acres. During the vast majority of the hunting season, hunter density is much lower (1 hunter/1,000 acres). Refuge regulations further mitigate possible disturbance by hunters to non-hunted wildlife. Boats are restricted to waterways and the harassment or taking of any wildlife other than the game species legal for the season is not permitted.

Although ingestion of lead-shot by non-hunted wildlife could be a cumulative impact, it is not relevant to Mandalay NWR because the use of lead shot would not be permitted on the refuge for any type of hunting.

Some species of bats, butterflies and moths are migratory. Cumulative effects to these species at the "flyway" level should be negligible. These species are in torpor or have completely passed through Louisiana by peak hunting season in Nov-Jan. Some archery

hunting occurs during October when these species are migrating; however, hunter interaction would be commensurate with that of non-consumptive users.

4.3.1.4 Endangered Species

Threatened species that utilize the refuge are bald eagles. A Section 7 Evaluation was conducted in association with this assessment for opening hunting on Mandalay NWR. It was determined that the proposed alternative would not likely affect these threatened species.

Bald eagles currently winter in areas that are open to waterfowl and deer hunting without noticeable adverse effects. Actually, in the past few years, the number of bald eagles wintering on the refuge has increased. The active bald eagle nest is located in a “no waterfowl hunting” area. The nest location is in the area open to archery hunting, yet disturbance is minimal because of access problems to the remote nest location. The nest has been successful for the past several years.

Refer to the Section 7 Evaluation for the 2007 Sport Hunting on Mandalay NWR for more information.

4.3.2 **Anticipated Direct and Indirect Impacts of Proposed Action on Refuge Programs, Facilities, and Cultural Resources.**

4.3.2.1 Wildlife-Dependant Recreation

As public use levels expand across time, unanticipated conflicts between user groups may occur. The Refuge’s visitor use programs would be adjusted as needed to eliminate or minimize each problem and provide quality wildlife-dependent recreational opportunities. Experience has proven that time and space zoning (e.g., establishment of separate use areas, use periods, and restrictions on the number of users) is an effective tool in eliminating conflicts between user groups.

The level of recreation use and ground-based disturbance from visitors would be largely concentrated at trails and the Refuge’s office and maintenance areas. This, combined with the addition of increased hunting opportunity, could have an effect on nesting bird populations. However, the hunting season is during the winter and not during most birds’ nesting period.

High deer numbers are recognized as a problem causing crop damage, reducing some forest understory species, and reducing reforestation seedling survival. Hunting would be used to keep the deer herd and other resident wildlife in balance with the habitat’s carrying capacity, resulting in long-term positive impacts on wildlife habitat.

The refuge would control access under this alternative to minimize wildlife disturbance and habitat degradation, while allowing current and proposed compatible wildlife-dependent

recreation. Except for waterfowl hunting 2 days per week until noon in the Hanson Unit, the remainder of the refuge serves as a migratory bird sanctuary.

4.3.2.2 Refuge Facilities

The Service defines facilities as: “Real property that serves a particular function(s) such as buildings, roads, utilities, water control structures, raceways, etc.” Under the proposed action those facilities most utilized by hunters are: canals and other waterways. Maintenance or improvement of existing facilities (i.e. canals and other waterways) will cause minimal short term impacts to localized soils and waters and may cause some wildlife disturbances and damage to vegetation. The facility maintenance and improvement activities described are periodically conducted to accommodate daily refuge management operations and general

public uses such as wildlife observation and photography. These activities will be conducted at times (seasonal and/or daily) to cause the least amount of disturbance to wildlife.

4.3.2.3 Cultural Resources

Hunting, regardless of method or species targeted, is a consumptive activity that does not pose any threat to historic properties on and/or near the Refuge. In fact, hunting meets only one of the two criteria used to identify an “undertaking” that triggers a federal agency’s need to comply with Section 106 of the National Historic Preservation Act. These criteria, which are delineated in 36 CFR Part 800, state:

- 1- an undertaking is any project, activity, or program that can alter the character or use of an archaeological or historic site located within the “area of potential effect;”
- 2- the project, activity, or program must also be either funded, sponsored, performed, licenses, or have received assistance from the agency.

Consultation with the pertinent State Historic Preservation Office and federally recognized Tribes are, therefore, not required.

4.3.2.4 Anticipated Impacts of Proposed Hunt on Refuge Environment and Community.

The refuge expects no sizeable adverse impacts of the proposed action on the refuge environment which consists of soils, vegetation, air quality, water quality and solitude. Some disturbance to surface soils and vegetation would occur in areas selected for hunting; however impacts would be minimal. Hunting would benefit vegetation as it is used to keep many resident wildlife populations in balance with the habitat’s carrying capacity. The refuge would also control access to minimize habitat degradation.

The refuge expects impacts to air and water quality to be minimal and only due to refuge visitors’ boat engines. The effect of these refuge-related activities, as well as other

management activities, on overall air and water quality in the region are anticipated to be relatively negligible, compared to the contributions of industrial centers, power plants, and non-refuge vehicle traffic. Existing State water quality criteria and use classifications are adequate to achieve desired on-refuge conditions; thus, implementation of the proposed action would not impact adjacent landowners or users beyond the constraints already implemented under existing State standards and laws.

Impacts associated with solitude are expected to be minimal given time and space zone management techniques, such as seasonal access and area closures, used to avoid conflicts among user groups.

The refuge would work closely with State, Federal, and private partners to minimize impacts to adjacent lands and its associated natural resources; however, no indirect or direct impacts are anticipated. The opened hunts would result in a net gain of public hunting opportunities positively impacting the general public, nearby residents, and refuge visitors. The refuge expects increased visitation and tourism to bring additional revenues to local communities but not a significant increase in overall revenue in any area.

4.3.2.5 Other Past, Present, Proposed, and Reasonably Foreseeable Hunts and Anticipated Impacts

Cumulative effects on the environment result from incremental effects of a proposed action when these are added to other past, present, and reasonably foreseeable future actions. While cumulative effects may result from individually minor actions, they may, viewed as a whole, become substantial over time. The proposed hunt plan has been designed so as to be sustainable through time given relatively stable conditions. Changes in refuge conditions, such as sizeable increases in refuge acreage or public use, are likely to change the anticipated impacts of the current plan and would trigger a new hunt planning and assessment process.

The implementation of any of the proposed actions described in this assessment includes actions relating to the refuge hunt program (see 2007 Sport Hunting Plan for Mandalay NWR). These actions would have both direct and indirect effects (e.g., new site inclusion would result in increased public use, disturbance, etc); however, the cumulative effects of these actions are not expected to be substantial.

The refuge does not foresee any changes to the proposed action in the way of increasing the intensity of hunting in the future.

4.3.2.6 Anticipated Impacts if Individual Hunts are Allowed to Accumulate

National Wildlife Refuges, including Mandalay NWR, conduct hunting programs within the framework of State and Federal regulations. Mandalay NWR is more restrictive than the State of Louisiana regarding waterfowl and as restrictive regarding deer and hogs. By maintaining hunting regulations that are as, or more, restrictive than the State, individual

refuges ensure that they are maintaining seasons which are supportive of management on a more regional basis. The proposed hunt plan has been reviewed and is supported by the Louisiana Dept. of Wildlife and Fisheries. Additionally, refuges coordinate with LDWF annually to maintain regulations and programs that are consistent with the State management program.

5. CONSULTATION AND COORDINATION WITH OTHERS

The Louisiana Department of Wildlife and Fisheries (LDWF) concurs and fully supports the regulated consumptive public use of the natural resources associated with the Mandalay NWR. The Fish and Wildlife Service also provided an in depth review by the Regional Office personnel and staff biologists. Numerous contacts were made throughout the area of the refuge soliciting comments, views, and ideas into the development of the accompanying hunting plan. Comments were noted during these contacts and can be found in the Appendix of this document.

6. REGULATORY COMPLIANCE

The actions proposed in the preferred alternative will be carried out according to all applicable local, state, and federal laws.

Mandalay National Wildlife Refuge Refuge Objectives

1. To provide the highest quality migratory bird habitat possible.
2. To provide for the needs of endangered plants and animals.
3. To allow compatible public uses such as fishing, trapping, wildlife observation and photography.
4. To promote research and restoration of wetland resources.
5. To provide opportunities for environmental education and interpretation when possible.

FINDING OF NO SIGNIFICANT IMPACT

Mandalay National Wildlife Refuge Hunt Plan

The U.S. Fish and Wildlife Service proposes to open Mandalay NWR to hunting. Hunting activities will be permitted, but administratively limited to those areas specified in the refuge-specific regulations. All or parts of the refuge may be closed to hunting at any time if necessary for public safety, to provide wildlife sanctuary, or for other reasons. Alternatives considered included: proposed action, no action, close specific areas to hunting, or open entire refuge to hunting.

The Service has analyzed the following alternatives to the proposal in an Environmental Assessment (copy attached):

- A. No action alternative - under this alternative, Mandalay NWR would not be open to hunting.
- B. Close specific areas to hunting - under this alternative, the Service would provide variable hunting opportunities throughout the hunting seasons.
- C. Open entire refuge to hunting - under this alternative, the Service would provide hunting opportunities throughout the hunting seasons.

The preferred alternative was selected over the other alternatives because:

- A. The preferred alternative would allow the public to harvest a renewable resource, promote a wildlife-oriented recreational opportunity, increase awareness of Mandalay NWR and the National Wildlife Refuge System, and meet public demand.
- B. The preferred alternative is compatible with general Service policy regarding the establishment of hunting on National Wildlife Refuges.
- C. The preferred alternative is compatible with the purpose of which Mandalay NWR was established.
- D. This proposal does not initiate widespread controversy or litigation.
- E. There are no conflicts with local, state, regional, or federal plans or policies.

Implementation of the agency's decision would be expected to result in the following environmental, social, and economic effects:

- A. This would allow the public to harvest a renewable resource.
- B. The public would have increased opportunity for wildlife-oriented recreation.
- C. Terrebonne Parish would benefit from hunters visiting from surrounding parishes.
- D. The Service will be perceived as a good steward of the land by continuing traditional uses of land in South Louisiana.
- E. To maintain healthy resident game populations.

Measures to mitigate and/or minimize adverse effects have been incorporated into the proposal. These measures include:

- No hunting will be allowed in Minor's Canal, Hanson Canal, or the Gulf Intracoastal Waterway. These canals are frequently used by the public.
- Hunters will be limited to foot access only in wooded areas.
- Baiting will be prohibited.
- An aggressive refuge law enforcement program will ensure hunt regulation compliance and will protect refuge resources.

The proposal is not expected to have any significant adverse effects on wetlands and flood plains, pursuant to Executive Orders 11990 and 11988 because this area has historically had a high use of recreational hunting and commercial trapping with no detrimental long-term effect on wetlands.

The proposal has been thoroughly coordinated with all interested and/or affected parties. Parties contacted include:

- U.S. Fish and Wildlife Service, Division of Ecological Services, Lafayette, LA
- Louisiana Department of Wildlife and Fisheries, Office of the Secretary, Wildlife Division
- Terrebonne Parish Government
- Apache Corp., Conoco-Phillips Corp., Alex Ostheimer, Wiley heirs, and Mike St. Martin (adjacent landowners)

Copies of the Environmental Assessment are available by writing:

Mandalay National Wildlife Refuge
3599 Bayou Black Drive
Houma, LA 70360

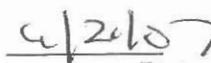
Therefore, it is my determination that the proposal does not constitute a major Federal action significantly affecting the quality of the human environment under the meaning of section 102(2)(c) of the National Environment Policy Act of 1969 (as amended). As such, an environmental impact statement is not required. This determination is based on the following factors (40 CFR 1508.27):

- 1. Both beneficial and adverse effects have been considered and this action will not have a significant effect on the human environment (EA, Chapter 4).**
- 2. The actions will not have a significant effect on public health and safety (EA, Chapter 4).**

3. The project will not significantly effect any unique characteristics of the geographic area such as proximity to historical or cultural resources, wild and scenic rivers, or ecologically critical areas (EA, Chapter 4).
4. The effects on the quality of the human environment are not likely to be highly controversial (EA, Chapter 4).
5. The actions do not involve highly uncertain, unique, or unknown environmental risks to the human environment (EA, Chapter 4).
6. The actions will not establish a precedent for future actions with significant effects nor does it represent a decision in principle about a future consideration (EA, Chapter 4).
7. There will be no cumulative significant impacts on the environment. Cumulative impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in foreseeable future actions (EA, Chapter 4).
8. The actions will not significantly affect any site listed in, or eligible for listing in, the National Register of Historic Places, nor will they cause loss or destruction of significant scientific, cultural, or historic resources (EA, Chapter 4).
9. The actions are not likely to affect endangered or threatened species, or their habitats (Intra-Service Section 7 Biological Evaluation Form attached to EA).
10. The actions will not lead to a violation of federal, state, or local laws imposed for the protection of the environment (EA, Chapter 4).

References: Environmental Assessment proposed opening of Mandalay NWR to hunting Terrebonne Parish, Louisiana 2007, Hunting Plan, Compatibility Statement, Letters of Concurrence, Refuge-specific Regulations, Intra-Service Section 7 Biological Form


Regional Director


Date

Appendix Literature References

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