

**FINAL
AMENDED
ENVIRONMENTAL ASSESSMENT
PUBLIC HUNTING**

at

**Lake Umbagog National Wildlife Refuge
Coos County, New Hampshire
Oxford County, Maine**

April 23, 2007

Prepared By:

**U.S. Department of the Interior
Fish and Wildlife Service
Lake Umbagog National Wildlife Refuge
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Address Comments to:

**Paul Casey, Refuge Manager
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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 action of (describe action):

Check One:

is a categorical exclusion as provided by 51 6 DM 2, Appendix I and 516 DM 6, Appendix 1. No further NEPA documentation will therefore be made.

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 1506.11. 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 (list):

Signature Approval:

Paul J. Casey 04-23-07 [Signature] 4/25/07
(1) Originator Date (2) W/RO Environmental Date
Coordinator

[Signature] 4-27-07 [Signature] 4-27-07
(3) AD/ARD Date (4) Director/Regional Date
Acting Director

FINDING OF NO SIGNIFICANT IMPACT
Lake Umbagog National Wildlife Refuge
Public Hunting

The U.S. Fish and Wildlife Service proposes to continue a public hunting program for upland game, big game and migratory birds at the Lake Umbagog National Wildlife Refuge. We prepared an amended Environmental Assessment (EA) based on our EA originally establishing public hunting in 2000 and released it for a 30-day public comment period ending on 13 April 2007. We considered all comments received during the public review period. We considered and evaluated 3 alternatives in the amended EA. We evaluated the direct, indirect, and cumulative impacts of each alternative on the environment, and their potential contribution to the mission of the National Wildlife Refuge System, and the refuge's purposes and goals. We will continue to allow public hunting in accordance with state and federal laws and refuge specific regulations.

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

Alternative 1 – Refuge is officially closed to all hunting.

Alternative 2 – Proposed Action—Open the refuge to the hunting of migratory game birds, big game and upland game in accordance with State of Maine, State of New Hampshire, and federal hunting regulations.

Alternative 3 – Restrictive Hunting Program—Open the refuge to hunting migratory game birds under more restrictive hunting conditions. Big game and upland game hunting would be carried out in accordance with state and federal regulations. Restrictive hunting conditions for migratory birds would include a permit system, hunting only on designated portions of the refuge, and/or special regulations on hunting methods, bag limits, and/or season dates and lengths.

The proposed action alternative was selected over the other alternatives because:

1. The proposed action is compatible with Service policy regarding the establishment of hunting on National Wildlife Refuges.
2. The proposed action is compatible with the purposes for which the Lake Umbagog NWR was established.
3. The proposed action offers the most efficient option for managing wildlife populations and vegetated habitats, while promoting a compatible, priority public use of the refuge.
4. This proposal does not initiate widespread controversy, nor did the original proposal to open the refuge to hunting in 2000.

5. There are no conflicts with local, state, regional or federal plans or policies.

Implementation of the proposed action would be expected to result in the following environmental, social, and economic effects:

1. The refuge would benefit from continued management of wildlife, especially browsing wildlife, whose populations could impact habitat quality, especially for migratory birds.
2. The hunting public would have a continued wildlife-oriented recreational opportunity.
3. Recreational opportunities for the non-hunting public would remain largely unaffected.
4. Local businesses would continue to benefit from hunters visiting the area.
5. The refuge would be promoting a traditional and culturally important local land use, following through on commitments made in the Final Environmental Assessment establishing Lake Umbagog NWR.

Copies of the Environmental Assessment are available by writing:

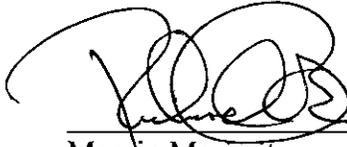
Refuge Manager
Lake Umbagog NWR
P.O. Box 240
Errol, NH 03579

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 Environmental 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, pages 8-30).
2. The proposal will not significantly affect any unique characteristics of the geographic area such as proximity to historical or cultural resources or ecologically critical areas (EA, pages 8-30).
3. There will be no significant cumulative impacts on the environment. Cumulative impacts have been analyzed with consideration of other similar activities on adjacent lands, in past action, and in future foreseeable actions (EA, pages 15-30).

4. The actions are not likely to adversely effect endangered or threatened species, or their habitats (Intra-Service Section 7).
5. We have coordinated this proposal with state and local governmental authorities (EA, pages 31-35).

References: Amended Environmental Assessment Public Hunting at Lake Umbagog National Wildlife Refuge (April 2007) Revised Hunt Plan (April 2007) Compatibility Determination, Refuge Specific Regulations, Intra-Service Section 7 Evaluation



Marvin Moriarity
Regional Director
U.S. Fish and Wildlife Service
Hadley, Massachusetts



Acting

4-27-07
Date

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I. Purpose

The purpose of this amended environmental assessment (EA) is to discuss and evaluate the environmental impacts of establishing an annual hunting program at Lake Umbagog National Wildlife Refuge, Coos County, New Hampshire, and Oxford County, Maine.

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 74 national wildlife refuges nationwide. The amended or re-written environmental assessments will address the cumulative impacts of hunting at all refuges which were named in or otherwise affected by the lawsuit. A section addressing the cumulative impacts of the hunting program at Lake Umbagog National Wildlife Refuge in New Hampshire and Maine has been added to the hunting EA as written in 2000 and the original EA has been updated with current figures and regulations. The impacts discussed here reflect the hunting Environmental Assessment as written in 2000 and amended through 50 CFR 32.38 (Maine) and 50 CFR 32.48 (New Hampshire) in 2006. Cumulative impacts are addressed for current game population levels and current hunting regulations. The hunts have been administered each year since the original FONSI was signed. Whatever relevant information we currently have was used to update the EA.

II. Proposal

In 2000, the U.S. Fish and Wildlife Service (Service) proposed to establish a public hunting program at Lake Umbagog National Wildlife Refuge (NWR). The Service opened Lake Umbagog NWR to the hunting of migratory game birds, big game, and upland game. The hunting program has been conducted in accordance with State of Maine and State of New Hampshire hunting regulations, as well as National Wildlife Refuge System regulations contained in Title 50 of the Code of Federal Regulations (50 CFR), and refuge-specific hunting and public use regulations also contained in 50 CFR. This amendment does not propose any changes from the preferred alternative which was amended in 2006 through a revision to 50 CFR to more closely align refuge hunting regulations with state regulations. Wildlife population and harvest figures along with refuge statistics have also been updated in this amendment.

III. Location

Lake Umbagog NWR is located in Coos County, New Hampshire and Oxford County, Maine, adjacent to Umbagog Lake. Umbagog is the westernmost lake of the Rangeley Lakes chain, and straddles the border between Maine and New Hampshire. It is located approximately 30 miles north of Berlin, New Hampshire and immediately east of Errol, New Hampshire (map pg . 35).

IV. Need for Action

Lake Umbagog NWR was established as a refuge on November 12, 1992. Lands around

Umbagog have traditionally supported hunting, and the Environmental Assessment (EA) proposing the establishment of the refuge (USFWS, 1991) made clear that lands purchased in fee by the Service would allow for "appropriate traditional wildlife-oriented public uses, such as wildlife observation and photography, hiking, hunting, and fishing," where compatible with the purposes for establishing the refuge. In addition, the Environmental Assessment (USFWS, 1991) emphasized the development of an appropriate hunting plan as a high priority of the new refuge. Moreover, the National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) defines hunting as a wildlife-dependent recreational use that is a priority public use throughout the National Wildlife Refuge System.

Through the EA written in 2000, the Service intended to assess the environmental impact of hunting on the refuge in order to provide a decision on hunting prior to the fall, 2000 big game and waterfowl hunting seasons. This revised EA addresses cumulative impacts of hunting on Lake Umbagog NWR and updates the 2000 EA with current refuge statistics and 50 CFR regulations.

V. Alternatives

Three alternatives were identified during the planning process:

- A. Alternative 1. Refuge is officially closed to all hunting.**
- B. Alternative 2. Proposed Action--Open the Refuge to the hunting of migratory game birds, big game and upland game in accordance with State of Maine, State of New Hampshire, and Federal hunting regulations.**
- C. Alternative 3. Restrictive Hunting Program--Open the Refuge to hunting migratory game birds under more restrictive hunting conditions. Big game and upland game hunting would be carried out in accordance with State and Federal regulations. Restrictive hunting conditions for migratory game birds could include a permit system, hunting only on designated portions of the Refuge, and/or special regulations on hunting methods, bag limits, and/or season dates and lengths.**

These alternatives reflect management approaches based on existing State and Federal regulations, the refuge's purpose and objectives, endangered species concerns, existing wildlife populations, Service policies and guidance, and safety considerations. In the Service's opinion, these three alternatives represent a reasonable range as required by the National Environmental Policy Act of 1969.

VI. Affected Environment

- A. History and Purpose of the Refuge**

Lake Umbagog NWR was established in 1992 under the authority of the emergency Wetlands

Resources Act of 1986 (16 U.S.C. 3901 (b)), as part of a comprehensive cooperative protection and management effort to preserve wildlife, wildlife habitat, wetlands, and timber resources along the northern Maine-New Hampshire border. Partners in this conservation effort included the States of New Hampshire and Maine, conservation organizations, land trusts, and local landowners.

Lands within the refuge acquisition boundary represent a patch-work mosaic of federal, state, local and conservation organization ownership along with federal, state, and private conservation easements. The objective of the refuge's land acquisition program has been to complement the conservation efforts of these conservation partners. The EA (USFWS, 1991) establishing the refuge emphasized the importance of a cooperative partnership to achieve the larger goals of protecting wildlife habitat and preserving existing land uses. This included timber management and traditional public uses, such as hunting. The EA specifically stated that:

“Traditional uses such as hunting will continue in the easement areas. Such wildlife-oriented uses will also continue on fee acquisition National Wildlife Refuge lands where compatible with wildlife needs.”

These objectives received considerable support from state agencies, local conservation organizations, landowners, and the public during the initial planning process that established the refuge.

The refuge includes lands that serve as important breeding and migration habitat for many wetland-dependent wildlife species of Federal and State concern, including: bald eagle, American black duck, osprey, common loon, pied-billed grebe, and northern harrier. Both Maine and New Hampshire have listed Umbagog Lake as a priority site in the North American Waterfowl Management Plan. The Umbagog wetland complex was also included on the U.S. Environmental Protection Agency's list of Priority Wetlands in New England. The chief environmental threat to the refuge area has been lakeshore and watershed development through subdivision and second-home construction.

Under the Emergency Wetlands Resources Act of 1986 (16 U.S.C. 3901 (b)), the purpose of the refuge is “...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...”. Additional refuge lands purchased under the authority of the Migratory Bird Conservation Act (16 U.S.C. 715d) were acquired “for use as an inviolate sanctuary, or for any other management purpose, for migratory birds.” The primary objectives of the refuge are:

1. Protection and management of wetlands, adjacent upland habitat, and lake shoreline for the benefit of wildlife.
2. Management and enhancement of wildlife populations; especially waterfowl and endangered species.

3. To contribute to the preservation of biological diversity in the northeastern United States.
4. To provide environmental education opportunities and appropriate outdoor wildlife-oriented public uses such as wildlife observation and photography, hunting, fishing, hiking, and others.

B. Environment and Land Use

Not accounting for submerged lands, the refuge currently encompasses approximately 15,890 upland and wetland acres, consisting of about 10,520 acres in New Hampshire and an additional 5,370 acres in Maine. About 30% of refuge lands are wetlands, with the remainder in forested or shrub uplands.

A wide variety of habitat types may be found on the refuge, including bogs, river and lakeshore marshes, northern white cedar swamps, alder swamps, jack pine shoreline and spruce-fir and northern hardwood forests (birch-beech-maple). The Magalloway, Rapid, and Dead Cambridge rivers empty into the lake and provide associated riparian habitat. In addition, the Androscoggin River drains out of the lake from its northwestern end. Water levels of the Rangeley Lakes chain, which includes Umbagog, are managed through a series of dams. Most of the upland portions of the refuge and bottomland woodlands, have been managed for timber production during the past 100 years, and are in various stages of regrowth.

The waters around Umbagog Lake receive moderate to heavy recreational pressure during the summer and fall periods. The economy of the surrounding area is primarily recreation and timber-based. Major non-consumptive recreational activities include boating, canoeing, kayaking, camping, and wildlife observation. The chief consumptive uses are hunting and fishing. Snowmobiling and ice fishing are the primary recreational activities during the winter months. Major game species sought are waterfowl, white-tailed deer, moose, and upland game birds, including ruffed grouse and woodcock. New Hampshire Fish and Game Department data for Coos County indicate that the primary waterfowl species taken by hunters are mallard, American black duck, green-winged teal, wood duck, and hooded merganser.

Much of the refuge is best accessed by boat. Motor vehicle access is primarily restricted to State highways. Route 16 and Route 26 form, respectively, the western and southern boundaries of the acquisition area. In addition, several fair-to-good quality dirt roads provide access to private camps located in various parts of the refuge. Old skid trails are distributed throughout much of the refuge's interior upland areas, but the majority of these are not maintained and are impassable to most vehicles.

C. Wildlife Resources

1. Endangered, Threatened, and Species of Special Concern

Federal: The refuge currently supports 3 breeding pairs of nesting bald eagles. Two of these nests were established during the last ten years, while one dates from 1989. From 1989-2006, the 3 nests have together successfully fledged over 30 young. Additional immature bald eagles are also frequently observed in the area. The lake provides high quality breeding and migration habitat for this threatened species. Bald eagles were proposed for delisting in July of 1999, but have not yet been removed from the Federal list.

Canada lynx have been reported from areas near the refuge and the refuge does provide some habitat suitable for this species. The refuge, however, is not located in designated critical habitat for Canada lynx. There are 4 confirmed historical (1880's) records of lynx from Upton, Maine, an area which includes the eastern shore of Umbagog Lake. Modern records for lynx include two reliable reports from Wilson's Mills, Maine, in 1995 and 1998. Wilson's Mills is located about 10 miles from the refuge boundary. It is therefore possible that lynx may be presently on, or occasionally use refuge lands. Lynx were listed as a threatened species under the Endangered Species Act in 2000.

Although gray wolves are believed extirpated from the northeastern U.S., there have been reports of gray wolves killed in Maine this decade. No breeding population of wolves is known to exist south of the St. Lawrence River, but there have been occasional, unconfirmed reports of large, wolf-like canids from southern Quebec, including the Sherbrook area (a distance of approximately 75 miles from the refuge). It is remotely possible that individuals of this species may occasionally venture on to refuge lands.

Maine and New Hampshire: The following species confirmed to occur on the refuge, have been listed by the states of New Hampshire and Maine as threatened or endangered: American pipit (ME), American three-toed woodpecker (NH), black tern (ME), pied-billed grebe (NH), common loon (NH), northern harrier (NH), osprey (NH). State listed species suspected to occur on the refuge include: northern bog lemming (ME), and peregrine falcon (ME, NH). Additionally, there are records for golden eagle (ME, NH), common tern (NH), Cooper's hawk (NH), and common nighthawk (NH) from the Umbagog area. Peregrine falcons were de-listed from the Federal Endangered species list in August, 1999, and were monitored by the U.S. Fish and Wildlife Service for at least 5 years. The refuge acquisition boundary is adjacent to an active peregrine falcon nest near C Pond, Maine. C Pond is also an historic golden eagle nest site. Golden eagles have also been documented foraging within 15 miles of the refuge boundary, in Wilson's Mills, Maine. Peregrines nesting at nearby Diamond Peaks, New Hampshire, occasionally forage on the refuge. Species considered rare in northern New Hampshire that occur on the refuge include: gray jay, spruce grouse, black-backed woodpecker, merlin, rusty blackbird, Canada warbler and palm warbler.

2. Waterfowl

Waterfowl species known to breed on the refuge include: American black duck, ring-necked duck, wood duck, common goldeneye, hooded merganser, common merganser, mallard, blue-

winged teal, and Canada goose. The area supports high concentrations of American black ducks. Many additional species such as scoter, scaup, American widgeon, northern pintail, bufflehead, green-winged teal, and snow goose frequent the refuge during migration.

3. Other Migratory Birds

In addition to bald eagles, the refuge supports a variety of raptors, including: osprey, sharp-shinned hawks, northern goshawks, red-shouldered, and broad-winged hawks, among others. Over 20 species of warblers breed in the refuge area. In recent years, Umbagog Lake has supported an average of 20 territorial loon pairs, a decline from a peak of over 30 territorial pairs in 2000.

4. Resident Wildlife

The refuge area is home to an array of resident mammals, including: moose, white-tailed deer, black bear, eastern coyote, red fox, beaver, river otter, mink, fisher, bobcat, muskrat, and snowshoe hare as well as a variety of small mammal species and bats. Several white-tailed deer winter concentration areas are found within the refuge acquisition boundary, including south of the refuge headquarters along the Magalloway River, along the Rapid River, in Maine, near the southern end of Umbagog Lake, and a small area in the vicinity of Whaleback Ponds. Eight species of frogs and toads have been confirmed on the refuge, including one species of concern (northern leopard frog). The rare blue-spotted salamander is also known to occur on the refuge.

VII. Environmental Consequences

A. Alternative 1. Refuge is closed to all hunting.

Under this alternative, the refuge would be closed to all hunting.

This alternative would displace some hunters (both local and non-local) from areas they have traditionally hunted. Since overall hunting pressure on the refuge is considered light for northern New Hampshire and western Maine, and other areas are open to hunting in the immediate vicinity, hunters probably would be able to find alternate areas to hunt nearby. This might increase hunting pressure on adjacent lands to some degree. Although the impact on hunters from this alternative might be minimal, it could have a significantly negative effect on public, community and State relationships with the Service. During the scoping process for the "Final Environmental Assessment, Proposal to Protect Wildlife Habitat, Lake Umbagog" (USFWS, 1991), considerable concern was expressed on the part of the public about the continuation of "traditional uses", including hunting, under Service fee ownership. The Service made a commitment, at that time, to allow for "appropriate traditional wildlife-oriented public uses", including hunting, when compatible with the purposes for which the refuge was established. If the Service were to propose that the refuge be closed to hunting, the public might develop a

mistrust for the Service, affecting current and future refuge management actions including further land conservation efforts.

Lands considered for conservation by the refuge in the June 1991 Environmental Impact statement were identified for their high wildlife habitat value. If populations of browsing wildlife were to increase on refuge lands in response to the changing landscape picture, the refuge fears that browse could impact regeneration of forested habitats causing conditions that would be detrimental to biodiversity by impacting many species of plants and wildlife, including nesting songbirds, small mammals, and invertebrates.

There would be little economic impact under this alternative, since many displaced deer, moose, and upland game hunters would likely continue to hunt in the area and utilize traditional sources for food, fuel, lodging and services. Waterfowl hunters would be the most severely impacted and might shift to areas outside the local region. There could be some increase in recreational use of the area by non-hunters, who may avoid the refuge during hunting season. However, non-hunting recreational use of the refuge is primarily concentrated during the summer and early fall months.

Biological impacts on resident wildlife populations could be significant if un hunted populations were to build to a level where they had a detrimental impact on the habitat. Distinct white-tailed deer browse lines are presently observable in some areas around the lake, such as along the mouth of the Rapid River and Sunday Cove. These areas are known to be winter white-tailed deer concentration area. White-tailed deer populations are on the rebound in the northern counties of New Hampshire. A series of mild winters may be contributing to this increase. Morris (1999), reported that Maine's Southwest Management Zone, which encompasses the Maine side of Umbagog Lake, was one of the zones most heavily browsed by moose in the state. Morris (1999) did not find any evidence of over-browsing by moose, however. In areas of high moose density, such as northern Maine, moose have also been found to have reduced the availability of aquatic vegetation in some areas (Morris, 1999).

B. Alternative 2. Proposed Action--Open the refuge to hunting migratory game birds, big game and upland small game, in accordance with State of New Hampshire, State of Maine, and Federal regulations.

Under this alternative, the refuge would be open to hunting in accordance with New Hampshire, Maine, and Federal seasons and regulations, as has historically been the case at Umbagog. This is the Service's proposed alternative. Umbagog and the surrounding area were hunted for many years when primarily under private timber company ownership. Hunting is compatible with the purposes for which the refuge was established, Service policy on hunting, and the management objectives of the National Wildlife Refuge System as a whole. Service policy states that, hunting is "...an acceptable, traditional form of wildlife-oriented recreation" that can be "...used as a management tool to effectively control wildlife populations levels," (USFWS, 1982). Under this alternative, hunters would not be displaced from the area and would be allowed to continue

hunting as they have in the past, in accordance with State and Federal regulations. Additional refuge-specific regulations would apply and hunters would be subject to regulations contained in 50 CFR pertaining to the National Wildlife Refuge System Administration Act. Maine hunting seasons and regulations would apply to all refuge lands in Maine and New Hampshire hunting seasons and regulations would apply to refuge lands in New Hampshire, with the exceptions and additions identified in Federal regulations listed below:

1. "The unauthorized distribution of bait and the hunting over bait is prohibited on wildlife refuge areas" (50 CFR, 32.2 (h)).
2. Only non-toxic shot may be used or in the possession of the hunter when hunting migratory game birds and when shotgun hunting upland species other than white-tailed deer.
3. Hunters must wear two articles of hunter-orange clothing or material. One article must be a solid-colored hunter orange hat; the other must cover a major portion of the torso, such as a jacket, vest, coat, or poncho and must be a minimum of 50% hunter orange in color (such as orange camouflage) except when hunting waterfowl or bow hunting from a stand or blind.
4. The refuge is open to hunting during the hours stipulated under State hunting seasons, but no longer than ½ hour before legal sunrise and ½ hour after legal sunset. The refuge is closed to night hunting. Hunters must unload all firearms (50 CFR, 27.42) and nock no arrows outside of legal hunting hours.
5. Hunters may use dogs (50 CFR, 26.21) to locate, retrieve, point, and flush migratory birds. Dogs may also be used to trail coyotes, snowshoe hare and bear. Dogs must be kept under the control of their owner at all times (50 CFR, 26.21) except as provided below:
 - a. Dogs are not allowed on the refuge during pre-hunt scouting.
 - b. No dog training is allowed on the refuge (50 CFR, 27.91).
 - c. Hunters may use a maximum of four dogs for bear and coyote, and a maximum of 2 dogs for hare, migratory game birds and upland game birds.
 - d. Hunters must pick up all dogs the same day they release them.
 - e. All dogs used for bear or coyote must be equipped with working radio-telemetry collars and hunters must be in possession of a working radio-telemetry receiver that can detect and track the frequencies of all collars used.
6. The refuge is not open to the hunting of bobcat.
7. We will provide permanent refuge blinds that are available by reservation. You may make reservations for particular blinds up to 1 year in advance, for a maximum of 1 week,

running Monday through Sunday during the hunting season. You may make reservations based on a space available basis. We prohibit other permanent blinds. You must remove temporary blinds, boats, and decoys (50 CFR, 27.42) from the refuge each day.

8. Temporary tree stands and blinds are allowed, but hunters must remove them (50 CFR, 27.93) by the end of the season. No one shall insert a nail, screw, screw-in climbing peg, spike, wire, or other ceramic, metal, or other tree-damaging object into a tree, or hunt from a tree into which such an object has been inserted. (50 CFR, 32.2)
9. The use of all terrain vehicles (ATV's, OHRVs) on refuge land is prohibited.
10. Use of other motorized vehicles shall be restricted to designated roads. (50 CFR, 27.31)
11. Pre-hunt scouting of the refuge is allowed; however dogs will not be permitted during pre-hunt scouts.
12. The use or possession of alcoholic beverages while hunting is prohibited. (50 CFR, 32.2)
16. In accordance with State regulations, all hunters are required to hold valid Federal, New Hampshire and/or Maine State hunting licenses, permits, and stamps. (50 CFR, 32.2)
17. Hunters will not be required to obtain permits to hunt on the refuge. However, hunters may be asked to participate in hunter surveys in coordination with State wildlife agencies to enable the refuge to gather baseline data on hunter visits, species taken, location taken on refuge lands, and hunter success rates. These data will be valuable in assessing and managing the hunt in the future.
18. Check stations will not be established on the refuge at this time.

Hunting pressure on the refuge is presently considered light for northern New Hampshire and western Maine. Allowing hunting would not displace most hunters who have traditionally hunted in this area. Refuge-specific regulations might impact some bear, coyote, hare, fisher, bobcat and raccoon hunters, inducing them to hunt outside the refuge. However, hunting pressure on these refuge species is generally low, so it is anticipated that approximately the same number of hunters who have traditionally used the area would use the refuge under this alternative. It is possible that a slight increase in hunter numbers could occur, due to the publicity and expectations associated with the designation and posting of the area as a national wildlife refuge open to hunting. It is not anticipated that this increase will be significant enough to warrant restrictions on the numbers of hunters permitted to use the area, or substantially increase traffic congestion in the area.

Economic impacts would either be negligible or there would be a minimal increase in the purchase of fuel, food, lodging, and supplies, due to the potential for new hunters to be attracted to the area. Biological impacts would also be minimal, since there would be no significant

change from traditional hunting activities and use of the land.

The physical effects of hunting on refuge vegetation should be limited, due to refuge-specific regulations restricting use of ATV's, off-road travel, permanent stands and blinds, camping, and fires. Indirect effects of hunting on vegetation might be neutral or positive, if habitat quality was maintained at its present or an improved level.

Given Federal regulations restricting hunting over bait, harvest of bear on the refuge would possibly decrease. Coyote and raccoon harvest would probably decrease, as a result of refuge-specific regulations which prohibit hunting at night.

Bobcat hunting will decrease on the Maine portion of the refuge, due to refuge-specific regulations which prohibit bobcat hunting. Bobcat are currently protected under New Hampshire hunting regulations, but can still be legally hunted and trapped in Maine. Lynx have been proposed for Federal listing as a threatened species.

With respect to big game (moose and white-tailed deer) and other upland game species, hunters would not be displaced from the area and would be allowed to continue hunting as they have in the past, in accordance with State and Federal regulations.

There is no anticipated impact on endangered or threatened species on the refuge. Hunting of all legally hunted species has occurred on and around the refuge for many years with no known adverse impact on any listed species, with the possible exception of the death of a male bald eagle at Umbagog in 1994. This death may have been attributable to lead shot. Restrictions on use of lead shot on the refuge make the recurrence of such an event unlikely. The hunting program at Lake Umbagog NWR is not expected to have an adverse impact on bald eagles, lynx, or gray wolves. Since neither lynx nor gray wolves have been documented on the refuge in recent times, it is highly unlikely that the hunting program will affect these species. In addition, any lynx that do occur on the refuge will be protected by refuge-specific regulations prohibiting bobcat hunting and night hunting. Bald eagle nesting occurs during the spring and summer months, when the refuge is not opened to hunting.

Under this alternative and all other alternatives that propose to open the refuge to hunting, the Refuge Manager may, upon annual review of the hunting program, impose further restrictions on hunting activity, recommend that the refuge be closed to hunting, or further liberalize hunting regulations within the limits of State law. Restrictions would occur if hunting becomes inconsistent with other higher priority refuge programs or endangers refuge resources or public safety.

C. Alternative 3. Restrictive Hunting Program--Open the refuge to hunting migratory game birds under more restrictive hunting conditions. Big game and upland game hunting would be carried out in accordance with state and federal regulations. Restrictive hunting conditions for migratory game birds could include a permit system, hunting only on designated portions of the refuge, and/or special regulations on hunting methods, bag

limits, and/or season dates and lengths.

Under this alternative, the refuge would be open to hunting big game, upland game and migratory game birds in accordance with New Hampshire, Maine, Federal and the refuge-specific regulations described under Alternative 2. This alternative differs from alternative 2 in that waterfowl hunting would require a permit and additional, more restrictive refuge-specific regulations not listed under Alternative 2 would apply to waterfowl hunting, as follows:

1. Hunters would be required to obtain permits to hunt waterfowl on the refuge. Various additional special regulations would be in effect. These regulations could include any or all of the following:

A. Closures on certain portions of the refuge where waterfowl may be particularly vulnerable to harvest.

B. Restrictions on the bag limit (e.g. no American black ducks may be taken on the refuge).

C. Restrictions on hunting methods (e.g. a limit on the number of shot shells allowed; a requirement that decoys be used; a requirement that hunters utilize a particular blind or locate their temporary blind in a designated area; a requirement that hunters use trained retrieving dogs, and demonstrate proficiency in waterfowl identification, etc.). The objective of these restrictions would be to improve hunter efficiency and to provide disturbance-free areas preferred by certain species.

D. Restrictions on refuge season dates and length (to reduce availability of certain species due to migration).

2. Waterfowl check stations would be established on the refuge

With respect to big game and upland game, the impacts under this alternative would be similar to alternative 2. That is, hunters would not be displaced from the area and would be allowed to continue hunting as they have in the past, in accordance with State and Federal regulations.

Refuge-specific regulations may impact some bear, coyote, hare, bobcat, fisher (New Hampshire only), fox, and raccoon hunters, inducing them to hunt outside the refuge. However, hunting pressure on these species on the refuge is generally low, so it is anticipated that approximately the same number of big game and upland game hunters who have traditionally used the area, will continue to use the refuge under this alternative.

The physical effects of hunting on refuge vegetation should be limited, due to refuge-specific regulations restricting use of ATV's, off-road travel, permanent stands, camping, and fires. Indirect effects of hunting on vegetation might be neutral or positive, if habitat quality was maintained at its present or an improved level.

Given Federal and refuge-specific regulations restricting hunting over bait harvest of bear on the refuge would probably decrease. Refuge-specific regulations on the use of trailing or pursuit dogs might also decrease take of fisher (New Hampshire only), hare, coyote, fox, and raccoon, as well as bear on refuge lands. Coyote and raccoon harvest would probably decrease, as a result of refuge-specific regulations which prohibit night hunting.

There is no anticipated impact on endangered or threatened species on the refuge. Hunting of all legally hunted species has occurred on and around the refuge for many years with no known adverse impact on any listed species, with the possible exception of the death of a male bald eagle at Umbagog in 1994. This death may have been attributable to lead shot. Restrictions on use of lead shot on the refuge make the recurrence of such an event unlikely. The hunting program at Lake Umbagog NWR is not expected to have an adverse impact on bald eagles, lynx, or gray wolves. Since neither lynx nor gray wolves have been documented on the refuge in recent times, it is highly unlikely that the hunting program will affect these species. In addition, any lynx that do occur on the refuge will be protected by refuge-specific regulations prohibiting bobcat hunting and night hunting. Bald eagle nesting occurs during the spring and summer months, when the refuge is not opened to hunting.

Waterfowl hunting would be allowed in order to provide historical wildlife-oriented recreational opportunities, but hunting regulations would be more restrictive than under Alternative 2, in order to reduce impacts on waterfowl and insure the highest quality hunt. Although we have no local data to suggest that existing Federal and State regulations on waterfowl are inadequate, this alternative would provide a more conservative approach, in the absence of extensive data.

It is anticipated that under these restrictions, the harvest of waterfowl and the amount of time spent by waterfowl hunters on the refuge would be reduced, at least in the near term. Economic effects of this change would be similar to, although less severe, than those described under Alternative 1 for waterfowl hunters. That is, some waterfowl hunters might shift to areas outside the local region. This might result in some decrease in hunter use of local goods, lodging, and services. Local waterfowl populations could be expected to build, under this alternative.

D. Cumulative Impacts Analysis

Refuge staff consulted with state fish and game agencies and staff from USFWS Division of Migratory Bird Management, Pondicherry Division of the Silvio O. Conte NFWR, Moosehorn NWR, and Maine Coastal Islands NWR regarding the cumulative effects of hunting on resident wildlife, migratory birds, and non-hunted wildlife on all refuges. Because of the regulatory process for harvest management of migratory birds in place within the Service, the setting of hunting seasons largely outside the breeding seasons of resident and migratory wildlife, the ability of individual refuge hunt programs to adapt refuge-specific hunting regulations to changing local conditions, and the wide geographic separation of individual refuges, we anticipate no direct or indirect cumulative effects on resident wildlife, migratory birds, and non-hunted wildlife of hunting on Lake Umbagog NWR and of hunting on all refuges.

D 1. Anticipated Cumulative Impacts of Alternative 1

Under this alternative the refuge would be closed to all hunting.

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 Lake Umbagog 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. There would be no conflict between hunters and non-consumptive wildlife-dependent recreational users.

This alternative would displace some hunters (both local and non-local) from areas they have traditionally hunted. Since overall hunting pressure on the refuge is considered light for northern New Hampshire and western Maine, and other areas are open to hunting in the immediate vicinity, hunters probably would be able to find alternate areas to hunt nearby. This might increase hunting pressure on adjacent lands to some degree. Although the impact on hunters from this alternative might be minimal, it could have a significantly negative effect on public, community and State relationships with the Service. During the scoping process for the "Final Environmental Assessment, Proposal to Protect Wildlife Habitat, Lake Umbagog" (USFWS, 1991), considerable concern was expressed on the part of the public about the continuation of "traditional uses", including hunting, under Service fee ownership. The Service made a commitment, at that time, to allow for "appropriate traditional wildlife-oriented public uses", including hunting, when compatible with the purposes for which the refuge was established. If the Service were to propose that the refuge be closed to hunting, the public might develop a mistrust for the Service, affecting current and future refuge management actions.

There would be little economic impact under this alternative, since many displaced deer, moose, and upland game hunters would likely continue to hunt in the area and utilize traditional sources for food, fuel, lodging and services. Waterfowl hunters would be the most severely impacted and might shift to areas outside the local region. There could be some increase in recreational use of the area by non-hunters, who may avoid the refuge during hunting season. However, non-hunting recreational use of the refuge is primarily concentrated during the summer and early fall months.

The Service does not anticipate significant direct immediate effects on resident and migratory wildlife populations of closing the refuge to hunting. However, we anticipate negative long-term cumulative impacts to wildlife populations and habitats on the refuge under Alternative 1. Migratory waterfowl hunting would not be permitted under this alternative and, therefore, mortality of waterfowl species due to hunting would not occur. Because the refuge would also not open to American woodcock hunting, migratory forest species would not be impacted by hunter disturbance. Since the Refuge would not be open to the hunting of Wilson's snipe wetlands where this species is found would not be impacted.

A lack of hunting on the refuge diminishes the Refuge's ability to manage wildlife populations. Wildlife habitats susceptible to damage, such as native wetlands and marshes, could become overgrazed by an increase in the number of resident Canada geese, resulting in increasingly degraded habitat for black ducks, green-winged teal, and other ducks, as well as sora, Virginia rail, and other waterbirds. Likewise, an increase in the local deer population to a density of 15-20 deer per square mile would likely negatively affect forest regeneration, resulting in degradation of habitat for woodcock, chestnut-sided warbler, and other migratory birds that use regenerating forest.

The impacts to migratory species populations by not allowing any hunting on the refuge potentially are negative effects on populations of wetland-dependant birds and forest understory-dependant birds as a result of degradation of their habitat. The cumulative effect of closing hunting over a broad region would likely be a negative effect on habitat for these groups of migratory birds.

Lands considered for conservation by the refuge in the June 1991 Environmental Impact statement were identified for their high wildlife habitat value. If populations of browsing wildlife were to increase on refuge lands in response to the changing landscape picture, the refuge fears that browse could impact regeneration of forested habitats causing conditions that would be detrimental to biodiversity by impacting many species of plants and wildlife, including nesting songbirds, small mammals, and invertebrates.

Biological impacts on resident wildlife populations could be significant if unhunted populations were to build to a level where they had a detrimental impact on the habitat. Distinct white-tailed deer browse lines are presently observable in some areas around the lake, such as along the mouth of the Rapid River and Sunday Cove. These areas are known to be winter white-tailed deer concentration area. White-tailed deer populations are on the rebound in the northern counties of New Hampshire. A series of mild winters may be contributing to this increase. Morris (1999), reported that Maine's Southwest Management Zone, which encompasses the Maine side of Umbagog Lake, was one of the zones most heavily browsed by moose in the state. Morris (1999) did not find any evidence of over-browsing by moose, however. In areas of high moose density, such as northern Maine, moose have also been found to have reduced the availability of aquatic vegetation in some areas (Morris, 1999).

If the local deer population were increase to a density of 15-20 deer per square mile the effects of browsing by deer would likely negatively affect forest regeneration, resulting in degradation of habitat for resident wildlife that use forest understory vegetation and regenerating forest. The cumulative effect of closing deer hunting over a broad region would likely be a negative effect on habitat for some species of resident birds, mammals, herpetiles, and insects.

The USFWS considers hunting to be an important tool for wildlife management. Hunting gives resource managers a valuable tool to control populations of some species that might otherwise exceed the carrying capacity of their habitat and threaten the well-being of other wildlife species,

and in some instances, that of human health and safety. Having the ability to control or reduce local populations reduces the risks of deer, moose-car or bear-car collisions and the spread of communicable diseases.

The size of the refuge on the landscape and the distance between refuges in Maine and New Hampshire makes cumulative impacts to resident wildlife populations unlikely. Even within the Wildlife Management Units (WMU) where the refuge is located in New Hampshire the refuge only makes up 2.12% of the landmass. The refuge is also only a small fraction of the landmass of Wildlife Management District 7 (WMD) in Maine, accounting for only 0.57% of the management unit. Resident wildlife are managed at these levels and at statewide levels in both states.

In summary, there would be little if any cumulative impact to regional, statewide, flyway or national wildlife populations from implementing this alternative. Local impacts could occur if browsing wildlife reached a population level where they impacted forest regeneration and biodiversity at the local level. The presence of browse lines suggests that areas of the refuge may already be reaching these levels. There would also be little if any anticipated impact to refuge programs, facilities and cultural resources from this alternative.

D 2. Anticipated Cumulative Impacts of Alternative 2 - Proposed Action

Under this alternative hunting would be allowed on the refuge in accordance with state seasons and state and federal regulations.

The “great north woods” region that the refuge is located in has had a long standing hunting history. For over 150 years, this area has been dominated by the industrial forest product industry and has been subjected to moderate to intense habitat manipulation to produce merchantable forest products primarily for the paper industry. Large tracts of land have been owned by private companies who have historically allowed various forms of traditional uses to occur, especially hunting and fishing. This ownership and use pattern is a long standing part of the culture of the area and has provided economic benefit (both timber and recreation based) to the communities located in the region.

When the Lake Umbagog NWR was established in 1992, the USFWS through the establishing EA made promises to allow “traditional uses” to continue. One use specifically mentioned is hunting. The refuge published its Hunting Management Plan in 2000, officially opening the refuge to this use.

For the purposes of this analysis, the refuge analyzed impacts to resident wildlife in WMUs A and C2 in New Hampshire and WMD 7 in Maine. Due to the rural nature of the north woods region of the two states, and the enormous size of these wildlife management units (496,576 acres and 943,032 acres, respectively), the refuge feels that this area is satisfactory for the cumulative impacts analysis of its 15,890 upland and wetland acres (does not account for submerged lands). In NH analysis was further refined to Wildlife Management Units A and C2

with all but 406 acres of the refuge's 10,520 acres in NH occurring in WMU C2. Refuge ownership totals 2.12% of the two WMUs. Hunting and wildlife management information from Maine was further refined to Wildlife Management District 7 with refuge ownership totaling 5,370 acres of the 943,032 acres or 0.57% of the WMD.

The refuge is currently open to hunting the following resident wildlife species: white-tailed deer, moose, black bear, coyote, fox, raccoon, woodchuck, squirrel, porcupine, skunk, snowshoe hare, ring-necked pheasant, ruffed grouse, and northern bobwhite in accordance with state regulations, seasons, and bag limits. Further restrictions are imposed by the refuge where federal regulations are more restrictive than state regulations (e.g. hunter orange requirement and non-toxic shot requirement).

Resident wildlife were managed by both states prior to refuge establishment and the states are responsible for managing these populations on a state wide, regional and management unit level today. The refuge works in close coordination with the states to provide and share technical information and planning assistance. Resident wildlife are typically limited by habitat availability and suitability. Big game animals can also be limited through the use of hunting as a management tool. This area is regionally important for deer wintering areas and habitat damage could occur if populations of big game were allowed to approach, reach or exceed carrying capacity. This habitat damage would effect populations of all resident wildlife (game and non-game). Small game populations tend to be influenced by food resources (habitat), rather than hunting.

D 2.1 Migratory Birds

Migratory birds are managed on a flyway basis by the U.S. Fish and Wildlife Service. The process of surveying populations and setting regulations is, inherently, a cumulative impact analysis. The following paragraphs describe this process.

The U.S. Fish and Wildlife Service annually prescribes 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. 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. Lake Umbagog NWR is in the Atlantic Flyway.

Because the Service is required to take abundance of migratory birds and other factors into 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 they may not be more liberal. At Lake Umbagog NWR, season length and bag limits coincide with seasons and limits set by New Hampshire and Maine.

National Environmental Policy Act (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.

Waterfowl at Lake Umbagog NWR

Seven waterfowl hunters reserved blinds in 2006 and our best estimate is that an additional 6-8 waterfowl hunters use other areas of the refuge. These levels do not represent an increase in use since refuge ownership and the approval of the hunting plan. Based on the NH average of 5.6 ducks taken per hunter per year, refuge waterfowl hunters harvest 72.8 – 84 ducks per year. Canada goose hunters average 2.6 geese per year in NH and refuge hunters could therefore be estimated to harvest 33.8 – 39 Canada geese per year. This harvest impact represents 0.45–0.52% of the four year average harvest of 16,240 ducks in NH and 0.67-0.77% of the four year average harvest of 5,050 Canada geese in NH (Serie and Raftovich, 2005).

The potential refuge harvest is even less significant when compared to Atlantic Flyway annual harvests. Between 2001 and 2004, the average annual duck harvest in the Atlantic Flyway was 1,619,550 and the average annual Canada goose harvest from 2002-2005 was 671,967 (Serie and Raftovich, 2005). The anticipated harvest at Lake Umbagog NWR would represent 0.0045-0.0052% of the Atlantic Flyway duck harvest and 0.005-0.0058% of the Atlantic Flyway Canada goose harvest.

Duck stamp sales are slowly declining in NH and ME as are the total number of waterfowl hunters (Serie and Raftovich, 2005). The decline in the number of waterfowl hunters in both states combined with the relatively low number of waterfowl harvested at the refuge leads refuge staff to believe that waterfowl hunting at Lake Umbagog NWR should have no cumulative effect on local, regional, or flyway waterfowl populations. Impacts to waterfowl using the refuge would be localized to the area being hunted and due to the relatively low number of waterfowl hunters and the short temporal nature of these types of disturbances, no cumulative indirect impacts from shooting, walking, boats or vehicles are anticipated.

Woodcock at Lake Umbagog NWR

Although American woodcock are showing declines in numbers on their breeding grounds, habitat loss is considered to be the cause, not hunting. This assertion was tested in a study conducted by the U.S. Geological Patuxent Wildlife Research Center in 2005 (McAuley *et al.* 2005). Results showed no significant differences in woodcock survival between hunted and non-hunted areas. Furthermore, the authors concluded that hunting was not having a considerable impact on woodcock numbers in the Northeast (McAuley *et al.* 2005).

An estimated 4,100 woodcock were harvested in the 2005/06 season in the New Hampshire. This represented less than 0.01% of the estimated 4.6 million North American woodcock population. The refuge's best estimate is that fewer than 40 woodcock are harvested at Lake Umbagog in a year. The New Hampshire Fish and Game Department considers woodcock populations in the northern part of the state, which includes Lake Umbagog NWR, to be relatively strong based on their annual woodcock singing ground surveys (NHFGD 2006). The small number of woodcock that would be taken under the proposed action should have no adverse cumulative effects on their local, regional or flyway populations.

In summary, there would be little if any cumulative impact to regional, statewide, flyway or national migratory bird populations from implementing this alternative. Under this alternative

and all other alternatives that propose to open the refuge to hunting, the Refuge Manager may, upon annual review of the hunting program, impose further restrictions on hunting activity, recommend that the refuge be closed to hunting, or further liberalize hunting regulations within the limits of State law. The cumulative impact of wildlife and habitat management when considered at the flyway scale may in fact, benefit the health of migratory birds by maintaining the diversity and native components of the habitats they use.

D 2.2 Resident Big Game

The New Hampshire Fish and Game Department (Department) recently adopted a new statewide 10-year big game management plan (NHFGD 2005). A public working group was assembled and with the assistance of Department technical representatives to developed statewide and local population objectives based on habitat capability and societal tolerances. The Department provided the group with individual species assessments that were based on population monitoring and harvest data from the previous decade. The resultant plan identifies local population objectives that are both sustainable and acceptable to the public. White-tailed deer numbers were held below objectives under New Hampshire's previous plan, but are now scheduled to move toward a higher objective. This higher objective is sustainable based on habitat conditions and the public's desire for more and larger deer. Under this plan the Department is using scientifically-based management, including regulated hunting and annual monitoring to achieve the objectives.

Lake Umbagog NWR is located in NHFG Wildlife Management Units A and C2 and MDIFW WMD 7. State fish and game departments have the ability to manage populations of these species, in part, through recreational hunting because these animals have a "k-selection population strategy." This means that reproductive rates are low, adults invest a tremendous amount of energy bringing young to maturity, and survival rates are relatively high compared to more prolific breeders (e.g. snowshoe hares). Based on their monitoring programs, the Department adjusts hunting levels in terms of season length, sex ratio in the harvest, and number of hunters (tag availability) to move population levels toward desired objectives. Of course, other factors such as disease, severe weather, predation, and automobile collisions influence mortality, but these are taken into account by the annual monitoring.

D 2.2.1 White-tailed deer

White-tailed deer are managed at the regional and statewide levels by NH Fish and Game and ME Department of Inland Fisheries and Wildlife. Their analysis of populations and hunting on populations, habitat and communities is cumulative. The refuge is an important area for wintering white-tailed deer in the region. NHFG and MEDIFW have identified many areas of lowland conifer forests on and near the refuge that provide critically important winter cover for white-tailed deer. Up to 100 deer are known to congregate in some of these areas on the refuge (Will Staats, NHFG, personal communication 2003). Due to the regional importance of the refuge to wintering white-tailed deer, the refuge is concerned with the quality of available winter habitat and suitable browse.

Harvest levels have not been determined for any mammal taken from the refuge. However,

NHFG and MEDIFW data from the respective WMUs or associated townships provides some information on harvest rates. The refuge represents only a very small proportion of each WMU, and therefore, only a very small proportion of the reported harvest would be considered as coming directly from refuge lands. In 2004-2005, New Hampshire deer harvest rates for WMU A were reported at 0.56 bucks/square mile and WMU C2 were 0.30 bucks/square mile (NHFGD, 2006). In Maine, deer harvest rates for WMD 7 were reported to be 0.37 deer/square mile for 2005 (MEDIFW, 2006).

Deer impacts on forest biodiversity have been shown to impact forest regeneration, plant composition, songbirds and small mammals. Deer-car collisions and other socio-economic factors are also considered by state wildlife managers when setting goals for white-tailed deer populations (Williamson, 2003). The refuge is concerned that failure to regulate white-tailed deer could result in overbrowse affecting regeneration especially in, but not limited to, cedar swamp and lowland spruce fir habitat types.

The state of Maine has an objective to increase the deer population to within 50-60% of the maximum number of deer the habitat can support in winter. This equates roughly to 10 deer per square mile statewide. In 2006, MEDIFW calculated a post hunt 6.5 deer per square mile deer density in WMD 7 an increase from 5.3 deer per square mile in 2005. MEDIFW's short term goal would be to continue to increase the density to 7.3 deer per square mile and the long term goal would be to increase the density to 10 deer per square mile in WMU 7 (Cordes, 2007).

Currently, 2.92% of the landscape in WMD 7 is known wintering habitat for white-tailed deer. Lee Kantar, Deer Biologist for MEDIFW, estimates that about 8-10% of the landscape in WMD 7 would need to be a deer wintering area to support the long-term population goal of 10 deer per square mile (Cordes, 2007).

The quality of deer wintering areas is also a concern. On average 50% of a deer wintering area should be in suitable cover at any point in time. Distinct browse lines exist at the Sunday Cove and Rapid River wintering yards suggesting that these deer wintering areas approach or exceed the number of deer that they can sustain. Continued browse damage in these areas may impact forest regeneration.

MEDIFW estimates the statewide population of white-tailed deer to be 255,000 wintering deer (Lavigne, 2005). The state's long term goal is to increase that population to 270,000-330,000 deer. Hunter harvest of adult bucks in WMD 7 was 343 in 2004, 345 in 2005 and 406 in 2006. The refuge represents only a fraction (0.57%) of the landbase in WMD 7. Approximating harvest levels, based on property ownership, deer harvested on the refuge would equal approximately 1.96 deer in 2005. This represents 0.00077% of the statewide wintering deer population and 0.557% of the 2005 adult buck harvest in WMD 7 (MEDIFW, 2006).

NHFG's objective for WMU A is to maintain deer populations at approximately the current level. NHFG would however, like to increase buck harvest from 0.30 per square mile to 0.55 per square mile in WMU C2 since current densities are relatively low and winter habitat is capable

of supporting higher deer numbers. WMUs A & C2 have a ten-year objective of increasing the herd to sustain an annual increase of adult buck harvest by 25 and 63 animals respectively.

New Hampshire's deer population is estimated to be 77,000, which is projected to approach 98,000 under their new ten-year plan (NHFGD, 2005). There are no good estimates for the number of deer on the refuge, but the actual value varies depending on individual home ranges, weather, time of year, etc. Estimation of harvest on the refuge is based on reported harvest rates in each respective WMU applied to refuge acreage. Approximately 5 deer are harvested from refuge lands in NH. This represents 0.11% and 6.81% of the deer harvested in WMU A and C2, respectively and 0.08% of the total statewide harvest based on a two year average of adult buck kill (NHFGD, 2005).

Given the low numbers of animals harvested from the refuge and the small percentage of lands in refuge ownership in each states wildlife management units, no cumulative impacts to local, regional or statewide populations of white-tailed deer are anticipated from allowing hunting of this species on the refuge.

D 2.2.2 Moose

Lake Umbagog NWR is located in moose WMUs A2 & C2. The ten-year objective is to reduce moose populations in WMU A2 and keep moose populations at their current levels in WMU C2.

The current statewide population is estimated to be 6,400 moose (NHFGD, 2005). Two WMUs are identified for reduced numbers during the next decade, primarily because of concern with the number moose-automobile accidents. Using harvest rates from each WMU applied to refuge acreage, less than 3 moose are taken on the refuge and in NH. In 2005, 86 moose were harvested in WMU A2 and 39 moose were harvested in WMU C2 (NHFGD, 2005). Moose taken on the refuge equates to less than 0.05% of the statewide population and 0.65% and of the 408 moose harvested in WMU A2 and WMU C2 respectively. Hunting moose on the refuge should not have negative cumulative impacts on the local herds or the NH statewide population.

Hunter moose harvest in Maine WMD 7 was 108 in 2005. The refuge represents only a fraction of the landbase (0.57%) in WMD 7. Approximating harvest levels, based on property ownership, moose harvested on the refuge would equal approximately 0.61 (<1) moose in 2005. This represents 0.027% of the statewide moose harvest and 0.56 % of the 2005 moose harvest in WMD 7 (MEDIFW, 2006).

Considering the low numbers of animals harvested from the refuge and the small percentage of lands in refuge ownership in each states wildlife management units, no cumulative impacts to local, regional or statewide populations of moose are anticipated from allowing hunting of this species on the refuge.

D 2.2.3 Black Bear

In NH, black bear populations have increase 33 percent since 1990. Currently, the population is estimated to be 5,100. The refuge is in the North Region for bear management which includes

WMUs A & C2. The objectives for this region are to retain the existing population levels during the next decade. Unlike other areas of the state, hunters are not allowed to hunt over bait on the refuge. In WMU A >90% of the bears were harvested over bait in 2005. In WMU C2 50% of the bears were harvested over bait (NHFGD, 2006). Thus the estimated harvest level of 0.133 and 2.52 bears based on harvest rates applied to refuge acreage may be high, and a more accurate figure may be 0.0133 and 1 bear per year from refuge lands in WMU A and C2 respectively.

Hunter harvest of black bear in WMD 7 was 95 in 2005 (MEDIFW, 2006). The refuge represents only a fraction of the landbase (in WMD 7). Approximating harvest levels, based on property ownership, bear harvested on the refuge would equal approximately 0.5 in 2005. This estimate is considered high since 76% of those bears were harvested over bait which is not allowed on the refuge (MEDIFW, 2006). Accounting for this, a more accurate estimate would be 0.12 bears harvested on the refuge in Maine.

Considering the low numbers of animals harvested from the refuge and the small percentage of lands in refuge ownership in each states wildlife management units, and considering that bears cannot be hunted over bait on the refuge, no cumulative impacts to local, regional or statewide populations of moose are anticipated from allowing hunting of this species on the refuge.

D 2.3 Upland Game or “Small Game”

Grouse, woodcock and snowshoe hare are the primary small game species sought in New Hampshire (NHFGD, 2006). Woodcock have been addressed in the migratory bird section of this analysis. Other species such as coyotes may be taken, but the numbers are small in any single year. The ruffed grouse is considered the premier upland game bird in Maine.

Hare and grouse have an “r-selection population strategy,” and their home ranges are relatively small. These species populations tend to be primarily influenced by habitat rather than hunting. Only local effects will be discussed because hunting on the refuge will not impact regional or state level populations.

The New Hampshire Fish and Game Department monitors small game harvest through a voluntary hunter survey. The index used to monitor population changes is the number of animals observed per 100 hours. During the past seven years, observation rates for ruffed grouse have varied from about 75 to 125 per 100 hours. In addition, the State conducts spring ruffed grouse drumming surveys in the area. Drumming survey data consolidated for the “North Country” indicates the expected variability for an r-selection species. Since 1996 the average number of drumming encounters per stop has ranged from 0.40 to 0.76. For snowshoe hares the range was about 40 to 50 per 100 hours. New Hampshire Fish and Game considers small game populations in the northern portion of the state to be relatively strong (NHFG, 2006).

The MEDIFW has asked moose hunters to report the number of grouse they saw for the last decade. The ruffed grouse population is then approximated by calculating the number of grouse seen per 100 hours of moose hunting effort. Ruffed grouse numbers tend to fluctuate greatly, often occurring on 10 year cycles and they are also susceptible to low reproductive success

during cold wet springs. Observation rates have varied statewide from 13-107 ruffed grouse observations per 100 hours (MEDIFW, 2006). Ruffed grouse numbers tend to fluctuate and the biggest threat to this species is loss of habitat.

Ruffed grouse and snowshoe hare are not detrimentally affected by the regulated hunt season, based on the fact that hunting has occurred on current refuge property in the past and data indicates that monitored indices have varied considerably, without evidence of a downward trend.

Other small game animals are legal to hunt in both Maine and New Hampshire, and are permissible to hunt on the refuge. Species such as coyote and raccoon are traditionally hunted at night and since the refuge is not open for night hunting no impact to these populations, either regionally or locally, is anticipated to occur. Ring-necked pheasants and bob white quail are not capable of surviving the harsh winter climate of the refuge, however releases of these exotic species may occur in the area. Hunting these species would benefit the refuge by upholding the biological integrity policy of the service. Other species not mentioned above receive little to no hunting pressure and population levels of these species are driven by habitat not hunting.

In summary, the local populations of grouse and snowshoe hare have remained relatively stable and that their populations are limited by habitat more than hunting, no cumulative impacts to local, regional or statewide populations of small game are anticipated from allowing hunting of these species on the refuge. Management of habitats on the refuge, when enacted, will benefit local populations of these species.

D 2.4 Non-hunted Wildlife

Non-hunted resident wildlife would include resident birds, small mammals such as voles, moles, mice, shrews, and bats; reptiles and amphibians such as snakes, turtles, salamanders, frogs and toads; and invertebrates such as butterflies, moths, insects and spiders. These species have very limited home ranges and hunting could not possibly affect their populations regionally; thus, only local effects will be discussed.

Displacement of resident birds is usually brief, infrequent, and short distance. Disturbance would be unlikely for many small mammals, such as bats, which are inactive during fall and winter when hunting season occurs, and/or are nocturnal. Hibernation or torpor by cold-blood reptiles and amphibians also limits their activity during the hunting season when temperatures low, making encounters with reptiles and amphibians infrequent and inconsequential to local populations. Invertebrates are also not active during cold weather and will have few interactions with hunters during the hunting season. The Service anticipates no measurable negative cumulative impacts to resident non-hunted wildlife populations locally, regionally, or globally due to this alternative. The cumulative impact of wildlife and habitat management when considered at the flyway scale may in fact, benefit the health of migratory birds by maintaining the diversity and native components of the habitats they use. In summary, hunting has little or no impact on non-hunted wildlife due to temporal and spatial separation due to timing of the season and migration.

D 2.5 Threatened and Endangered Species

Federal: The refuge currently supports 3 breeding pairs of nesting bald eagles. Two of these nests were established during the last ten years, while one dates from 1989. Thus, the nesting population of bald eagles increased even with hunting being allowed on the refuge. From 1989-2006, the 3 nests have together successfully fledged over 30 young. Additional immature bald eagles are also frequently observed in the area. The lake provides high quality breeding and migration habitat for this threatened species. Bald eagles were proposed for delisting in July of 1999, but have not yet been removed from the Federal list.

Canada lynx have been reported from areas near the refuge and the refuge does provide some habitat suitable for this species. The refuge, however, is not located in designated critical habitat for Canada lynx. There are 4 confirmed historical (1880's) records of lynx from Upton, Maine, an area which includes the eastern shore of Umbagog Lake. Modern records for lynx include two reliable reports from Wilson's Mills, Maine, in 1995 and 1998. Wilson's Mills is located about 10 miles from the refuge boundary. It is therefore possible that lynx may be presently on, or occasionally use refuge lands. Lynx were listed as a threatened species under the Endangered Species Act in 2000. Although gray wolves are believed extirpated from the northeastern U.S., there have been reports of gray wolves killed in Maine this decade. No breeding population of wolves is known to exist south of the St. Lawrence River, but there have been occasional, unconfirmed reports of large, wolf-like canids from southern Quebec, including the Sherbrook area (a distance of approximately 75 miles from the refuge). It is remotely possible that individuals of this species may occasionally venture on to refuge lands.

A Section 7 Evaluation, completed in 2000, concluded that the public hunting program at Lake Umbagog NWR "will not adversely affect" threatened and endangered species (USFWS, 2000).

Maine and New Hampshire: The following species confirmed to occur on the refuge, have been listed by the states of New Hampshire and Maine as threatened or endangered: American pipit (ME), American three-toed woodpecker (NH), black tern (ME), pied-billed grebe (NH), common loon (NH), northern harrier (NH), osprey (NH). State listed species suspected to occur on the refuge include: northern bog lemming (ME), and peregrine falcon (ME, NH). Additionally, there are records for golden eagle (ME, NH), common tern (NH), Cooper's hawk (NH), and common nighthawk (NH) from the Umbagog area. Peregrine falcons were de-listed from the Federal Endangered species list in August, 1999, and were monitored by the U.S. Fish and Wildlife Service for at least 5 years. The refuge acquisition boundary is adjacent to an active peregrine falcon nest near C Pond, Maine. C Pond is also an historic golden eagle nest site. Golden eagles have also been reported foraging within 15 miles of the refuge boundary, in Wilson's Mills, Maine. Peregrines nesting at nearby Diamond Peaks, New Hampshire, occasionally forage on the refuge. Species considered rare in northern New Hampshire that occur on the refuge include: gray jay, spruce grouse, black-backed woodpecker, merlin, rusty blackbird, Canada warbler and palm warbler.

There is no anticipated impact direct or cumulative on endangered or threatened species on the

refuge or their local, regional, statewide or flyway populations. Hunting of all legally hunted species has occurred on and around the refuge for many years with no known adverse impact on any listed species, with the possible exception of the death of a male bald eagle at Umbagog in 1994. This death may have been attributable to lead shot. Restrictions on use of lead shot on the refuge make the recurrence of such an event unlikely. The hunting program at Lake Umbagog NWR is not expected to have an adverse impact on bald eagles, lynx, or gray wolves. Since neither lynx nor gray wolves have been documented on the refuge in recent times, it is highly unlikely that the hunting program will affect these species. In addition, any lynx that do occur on the refuge will be protected by refuge-specific regulations prohibiting bobcat hunting and night hunting. Bald eagle nesting occurs during the spring and summer months, when the refuge is not opened to hunting.

D 2.6 Anticipated Direct and Indirect Impacts of Proposed Action on Refuge Programs, Facilities, and Cultural Resources

D 2.6.1 Wildlife-Dependent Recreation

The opportunities for recreational sport hunting, a wildlife-dependent priority public use, would be available to the hunters, meeting a demand. Hunting on the refuge would contribute to the State's wildlife management objectives and allow a traditional use to continue.

Habitat degradation related to hunting would be minimal and similar to other refuge visitors, because access is on designated roads, by foot, or by snowmobile during the winter. Otherwise, no motorized vehicles are allowed on the refuge except for administrative purposes to conduct management activities. The majority of other wildlife dependent recreational uses do not occur during the same time period as the proposed hunt. Hunting is part of the culture of the area and the seasons are common knowledge to visitors, both hunters and non-hunters. The hunting program at Lake Umbagog NWR does not prevent other users from accessing or enjoying the refuge. Each user group is respectful of the other during this time period and no impacts are anticipated.

D 2.6.2 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 would be designated roads, parking lots and trails. Maintenance or improvement will cause minimal short-term impacts to localized soils and waters and may cause some wildlife disturbances and damage to vegetation. These facility maintenance and improvement activities are periodically done to accommodate daily refuge management operations and general public uses such as wildlife observation and photography. These activities are conducted infrequently on an as-needed basis, causing minimal disturbance to wildlife. Siltation barriers will be used to minimize soil erosion during maintenance, and all disturbed sites will be restored to as natural a condition as possible. Should a road or parking lot become impassible they will be closed to vehicular use until repair work is completed.

D 2.6.3 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 Northeast 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.

Lake Umbagog NWR has not conducted a detailed archeological and historic survey of all refuge lands. However, the refuge has conducted some specific project surveys to determine further the eligibility of certain sites. In New Hampshire, the refuge knows of one historic and three prehistoric archeological sites on refuge land. In Maine, the refuge knows of one pre-historic site on refuge land. A detailed, systematic survey would likely reveal more prehistoric sites, however, many of these sites may be submerged after the 1850 damming of the Androscoggin River formed current day Umbagog Lake.

Several limited historical architectural surveys on the refuge determined that its buildings were not eligible for the National Register of Historic Places. In 1992, the Maine SHPO concurred with our Regional Archeologist in finding the Stranger Farm ineligible. In 1993, our regional Historic Preservation Officer determined that the Potter Farm, which included a house and two outbuildings more than 50 years old, is ineligible, because they have been altered since their original construction. The refuge forwarded that assessment to the NH SHPO but received no response, indicating tacit concurrence with the Service assessment. An associated cemetery, the Stone cemetery, lies on the private Kronk property, on which the Service owns an easement. In 2004, the Service's Regional Archeologist evaluated the cabins in the area of Chapel Hill Road, and determined none eligible. We have forwarded that assessment to the NH SHPO, and are awaiting their response. The refuge has only a few archeological artifacts for museum property. They are stored in the Regional Office.

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;” and

2- the project, activity, or program must also be either funded, sponsored, performed, licenses, or have received assistance from the agency.

Lake Umbagog NWR does not plan any construction or ground disturbance in this alternative, therefore, consultation with the pertinent State Historic Preservation Office and federally recognized Tribes is not required. The Service’s policy is to preserve all cultural, historic, and archaeological resources in the public trust, and avoid any adverse effects wherever possible. There are no anticipated direct or indirect cumulative impacts to refuge cultural and historical resources anticipated following the guidance of this proposed action.

D 2.6.4 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 used by hunters; 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 expects impacts to air and water quality to be minimal. 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 on nearby public roads.

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 hunts result in a net gain of public hunting opportunities positively affecting the general public, nearby residents, and refuge visitors. The refuge expects a minimal increase in visitation, but any additional use will add some revenue to local communities.

D 2.6.5 Other Past, Present, Proposed, and Reasonably Foreseeable Actions 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 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 the proposed action described in this assessment includes actions relating to the refuge hunt program. Historic hunting in the area was similar to the proposed action in season lengths, species hunted, and bag limits, because state hunting regulations were and would continue to be followed, with minor exceptions. The refuge does not foresee any changes to the proposed action in the way of increasing the intensity of hunting in the future.

D 2.6.6 Anticipated Impacts if Individual Actions are Allowed to Accumulate

National Wildlife Refuges, including Lake Umbagog NWR, conduct hunting programs within the framework of State and Federal regulations. Hunting at the refuge is at least as restrictive as the State of New Hampshire and Maine and in some cases more restrictive. 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. Additionally, refuges coordinate with the two states annually to maintain regulations and programs that are consistent with the states' management programs.

Because of the regulatory process for harvest management of migratory birds in place within the Service, the setting of hunting seasons largely outside the breeding seasons of resident and migratory wildlife, the ability of individual refuge hunt programs to adapt refuge-specific hunting regulations to changing local conditions, and the wide geographic separation of individual refuges, we anticipate no direct or indirect cumulative effects on resident wildlife, migratory birds, and non-hunted wildlife of hunting on Lake Umbagog NWR and of hunting on all refuges.

D 3 Anticipated Direct and Indirect Impacts of Alternative 3 on Wildlife Species

Under this alternative most refuge lands would remain open to hunting migratory game birds under more restrictive conditions. Big game and upland game hunting would be carried out in accordance with state and federal regulations. Restrictive hunting conditions for migratory game birds could include a permit system, hunting only on designated portions of the refuge, and/or special regulations on hunting methods, bag limits, and/or season dates and lengths.

The cumulative impacts of this alternative would be similar to those discussed under Alternative 2 (section D2). The cumulative impacts of this alternative are not different from Alternative 2 for local, regional, statewide or flyway populations of: migratory birds, resident big game, moose, black bear, upland game, non-hunted wildlife, and threatened and endangered species. The anticipated impacts also do not differ for: wildlife dependent recreation, environment and community, reasonably foreseeable impacts and accumulative impacts.

The cumulative impacts do differ for refuge expenditure and staff effort to build staff and

maintain hunt check stations, manage a permit system for hunting, and enforce regulations. These actions also have potential impacts to cultural resources and would require an archeological survey.

VIII. Consultation and Coordination with Others

Biologists with the New Hampshire Department of Fish and Game, the Maine Department of Inland Fisheries and Wildlife, and the U.S. Fish and Wildlife Service were consulted and provided valuable information during the preparation of the draft EA. Several informational meetings were held with the staff of the New Hampshire Department of Fish and Game.

Two local newspapers in Maine, and 4 in New Hampshire were originally provided with news releases describing the proposed hunting alternatives and announcing the comment period and schedule of public meetings. Over 100 copies of the draft EA were sent to hunting and environmental organizations, state and local officials, north country business groups, and interested members of the public. Copies of the EA were also made available at local libraries and town offices. Two public informational meetings/ open houses were held at the refuge office in Wentworth Location, New Hampshire and received additional newspaper coverage. Meeting attendees were from the local area: primarily Berlin, New Hampshire. The major concern raised at the public meetings pertained to refuge-specific regulations governing the use of permanent hunting blinds on the refuge.

The draft EA was open to public comment from January 11, 2000 to February 15, 2000. Comments were received from state and local officials, representatives and individual members of various organizations, and non-affiliated individuals. Comments were considered in the preparation of the Final Environmental Assessment.

A total of 26 written comments were received, and are summarized below. The majority of comments supported either alternative 1 (no hunting) or alternative 2 (proposed action), with some modifications. Written comments were received from individuals residing in Bethel and Magalloway Plantation, Maine, and Errol, Colebrook, Berlin, Milan, Pittsburg, North Stratford, Concord, Jackson, and Lancaster, New Hampshire.

Summary of Written Comments

Comment	Proposed Modification to Alternative	No.
Support for Alternative 1: Opposed to hunting on the refuge		3
Support for Alternative 2: Proposed Action - Without Change	None	5

Support for Alternative 2: Proposed Action- With modifications	Keep existing N.H. and Maine hunting regulations; eliminate or change federal and/or refuge-specific regulations ¹	17
Support for Alternative 3: Restrictive Hunting Program		0

¹Opposition to refuge-specific regulations focused on the limited season for hunting bear, snowshoe hare, or coyotes with dogs (4); prohibition on use of ATVs (3); requirement to take the first bear treed by dogs (4); prohibition against non-toxic shot for upland game (2); temporary blinds or stands (5); prohibition against dog training (2); prohibition against hunting over bait (1); prohibition against night hunting (1).

Written comments were received via mail, e-mail and fax. A synopsis of the most frequently received comments is presented below. Where appropriate, the Service's response is also provided. The complete text of all letters and email messages is on file and available at the refuge office.

1. Opposed to all Hunting on the Refuge: Three comments were received that opposed all hunting on the refuge. Objections to hunting centered around a) the idea that an area designated as a wildlife refuge, should protect all wildlife from hunting and b) a desire to keep the refuge a place where non-hunting outdoor recreationists can recreate safely during hunting season.

Response to 1:

a) The National Wildlife Refuge System is a national network of Federal lands and waters selected for their value to America's wildlife. In addition to protecting and perpetuating endangered species, migratory birds, and their habitats, the goals of the National Wildlife Refuge System are: to conserve a natural diversity and abundance of flora and fauna on refuge lands; to promote an understanding of fish and wildlife ecology; and to provide refuge visitors with high quality, safe recreational experiences oriented toward wildlife, to the extent these activities are compatible with the purposes for which the refuge was established. Wildlife-oriented recreational uses include hunting, and the National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57) defines consumptive uses such as hunting and fishing, as well as non-consumptive uses, such as wildlife observation, photography, and environmental education interpretation, as priority wildlife-oriented public uses throughout the National Wildlife Refuge System.

b. The refuge will review the hunting plan annually. Hunting pressure is light on the refuge, and most non-hunting public use on the refuge presently occurs during the summer and fall months. However, if conflicts between priority public uses become a concern, the refuge may impose restrictions on hunting as well as other public uses, in order to minimize such conflicts. This could include limiting hunting to certain portions of the refuge, and limiting other public

uses to other areas.

2. Support for Alternative 2- Proposed Action, With Modifications

Seventeen comments were received in support of alternative two, the proposed action. Five of these expressed a preference for this alternative and did not propose any changes to the alternative, as it was presented in the EA. Twelve comments favored alternative 2, but proposed modifying or eliminating one or more of the federal and/or refuge-specific regulations. The major areas of concern centered on the following proposed regulations: a) elimination of permanent blinds (5) b) limited season for hunting bear, snowshoe hare, or coyote with dogs (4) c) prohibition on ATV use (3) d) requirement to take the first bear treed by dogs (4) e) prohibition against non-toxic shot for upland game (2) f) prohibition on dog training (2) and prohibition on night hunting (1). Respondents generally favored “keeping things the way they are” and opposed any additional restrictions or fees. Some respondents argued that state hunting regulations were adequate and no additional, refuge-specific restrictions were warranted. Three respondents favored eliminating personal permanent blinds and replacing them with public permanent blinds open to all hunters or available by lottery. Several respondents suggested that the existing personal blinds on the refuge were a traditional use and were not causing any problems. One respondent stated that a requirement to use temporary blinds or temporary tree stands would be burdensome for hunters.

Response to 2:

a. Refuge-specific regulation #6 as originally proposed, prohibited permanent blinds. A number of private permanent blinds are currently in place at various refuge locations. The rationale behind this regulation was to insure that *all* hunters have equal access to prime hunting locations on the refuge. Although some hunters have traditionally hunted from private permanent blinds for many years, the mission of the National Wildlife Refuge System is to preserve a national network of lands and waters for the conservation and management of fish and wildlife, for all the people of the United States, not just a few. In public meetings and written comments, a number of individuals indicated that a requirement to remove blinds daily would have a negative impact on the hunting experience. Several respondents were opposed to private permanent blinds, but suggested establishing permanent public blinds on the refuge. In order to accommodate the needs of hunters while meeting the refuge objective of insuring equitable hunting opportunities for all participants, this regulation has been revised to permit the use of permanent Service blinds, available by reservation.

b. Refuge-specific regulation #4 specifies a more limited season for hunting bear, snowshoe hare, and coyote with dogs, than under State regulations. Several respondents advocated keeping all three hunting seasons with dogs the same as under state regulations. One objective behind this restriction was to insure a quality hunt for all hunters by spreading out the trailing dog hunting seasons. Proposed dog hunting seasons will begin later in the season than under state regulations in order to accommodate other priority public uses and management activities on the refuge. The snowshoe hare hunting season with dogs was closed on January 1st in order to

minimize disturbance of winter concentrations of deer from dogs not under the immediate control of their handler.

c. Refuge-specific regulation 10 prohibits all terrain vehicles. Three respondents were opposed to this regulation. The mission of the National Wildlife Refuge System includes conserving habitat for wildlife and managing and conserving plant resources on refuge lands. The objective of restricting ATV's and off-road travel is to protect vegetation resources on the refuge.

d. Refuge-specific regulation 4 (b), as originally proposed, stated that hunters must take the first bear they tree with dogs. 50 CFR 27.91 prohibits dog training on National Wildlife Refuges. The objective of requiring hunters to take the first bear they tree with dogs is to prevent dog training on the refuge, whether during or after hunting season. Several respondents suggested that bear management objectives might be better achieved if an exception was made for bear cubs or a sow with cubs. This modification of regulation 4 (b) has been incorporated into the proposed action.

e. Refuge-specific regulation 2 prohibits the use of toxic shot. Two respondents raised this as an issue of concern. U.S. Fish and Wildlife Service policy is to only permit the use of non-toxic shot for upland game and migratory birds. The purpose of this policy is to reduce deposition of lead in wetlands and adjacent uplands and thereby reduce lead poisoning of migratory birds.

f. Refuge-specific regulation 1 prohibits hunting over bait. One respondent felt that this restriction might compromise bear management, particularly nuisance bear management, on the refuge. Hunting over bait is prohibited on National Wildlife Refuges within the continental United States. (50 CFR 32.2 (h)). Should nuisance bears become a matter of concern on the refuge, appropriate management actions will be undertaken at that time.

g. Refuge-specific regulation 12 prohibits dog training on the refuge. Two respondents objected to this restriction. 50 CFR, 27.91 prohibits field trials for dogs on National Wildlife Refuges, except by special permit.

h. Refuge-specific regulation 7 specifies that the refuge is closed to night hunting. One respondent objected to this provision. Lake Umbagog NWR is closed to public use from one half hour after legal sunset to one half hour before legal sunrise.

Support for Alternative 3- Restrictive Hunting Program

No comments were received in support of Alternative 3.

2006 CFR Modification to refuge-specific regulations

Modifications to refuge-specific regulations were proposed in 2005 and a notice was published in the 50 CFR. No comments on the proposed change were received and the final regulations were published in 50CFR in 2006.

2007 Amendment to 2000 EA

Two local newspapers in Maine and 4 in New Hampshire were provided with news releases describing the amendment to the EA and one public informational meetings/ open house was held at the refuge office on 5 April 2007 in Wentworth Location, New Hampshire. The draft amended EA was also posted on the refuge's website for downloading for the entire public comment period.

The draft amended EA was available for public comment from 15 March 2007 to 13 April 2007. Public comments will be considered in the preparation of the Final Environmental Assessment.

IX. Regulatory Compliance

Visitor Services Plan

The Lake Umbagog NWRCCP is in its draft state and is currently in review at the Department of Interior. The Visitor Services Plan is a step down plan of the CCP and will be completed within 1 year of the Final CCP. At the time of the original preparation of this document (2000), refuge management has been guided by the Environmental Assessment to establish Lake Umbagog NWR.

Compatibility Determination

A Compatibility Determination for hunting at Lake Umbagog NWR has been completed.

National Environmental Policy Act Documentation

This EA meets the NEPA requirements.

Endangered Species Act Section 7 Consultation

A Section 7 Consultation was completed for the Hunt Plan.

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